

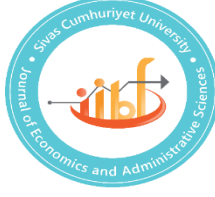
26(1):2025



Journal of Economics and Administrative Sciences

Published By
Sivas Cumhuriyet University
<http://esjournal.cumhuriyet.edu.tr>

E-ISSN: 2687-4032



Cumhuriyet University Journal of Economics and Administrative Sciences– JEAS
Cumhuriyet Üniversitesi İktisadi ve İdari Bilimler Dergisi–İİBD

Cilt -Volume 26 | Sayı -Issue 1 | Yıl-Year 2025

Dergi Hakkında

Dergi Adı	Cumhuriyet Üniversitesi İktisadi ve İdari Bilimler Dergisi-İİBD
Diğer Adı (Çevirisi)	Cumhuriyet University Journal of Economics and Administrative Sciences– JEAS
e-ISSN	2687-4032
Yayın Aralığı	Yılda 4 Sayı (Ocak & Nisan & Temmuz & Ekim)
Dergi Web Sitesi	http://esjournal.cumhuriyet.edu.tr
Yayına Başlangıç	2000
Baş Editör	Doç. Dr. Zekai Şenol
Yayıncı	Sivas Cumhuriyet Üniversitesi
İmtiyaz Sahibi	Prof. Dr. Gülay Ercins
Yayımlandığı Ülke	Türkiye
Yayın Modeli	Açık Erişim
Yayın İçeriği	İİBD’de; iktisadi ve idari bilimlerin temel alanlarında (İktisat, İşletme, Siyaset Bilimi ve Kamu Yönetimi, Maliye, Uluslararası İlişkiler, Çalışma Ekonomisi ve Endüstri İlişkileri gibi) uygulamalı veya kuramsal çalışmalara, model önerilerine, analiz ve değerlendirmelere, nicel ve nitel araştırmalara yer verilir.
Okur Kitlesi	İİBD’nin hedef kitlesi, sosyal bilimler alanında araştırmalarını sürdüren profesyoneller ile bu alana ilgi duyan öğrenciler, okurlar ve kurumlardır.
Yayın Dili	Türkçe- İngilizce

Hakkında

Cumhuriyet Üniversitesi İktisadi ve İdari Bilimler Dergisi, Sivas Cumhuriyet Üniversitesi İktisadi ve İdari Bilimler Fakültesi'nin bünyesinde çevrim içi yayınlanan çok disiplinli ve disiplinler arası hakemli, uluslararası ve akademik bir dergidir. Derginin temel amacı iktisadi ve idari bilimlerin temel alanlarında, akademik çalışmaları yayınlamaktır. Derginin yayın dili Türkçe ve İngilizcedir. Cumhuriyet Üniversitesi İktisadi ve İdari Bilimler Dergisi, 2022 itibarıyla Ocak, Nisan, Temmuz ve Ekim aylarında olmak üzere yılda dört kez yayımlanarak faaliyetlerine devam eden süreli ve hakemli bir dergidir. Dergimiz; TR-DİZİN, ERIH PLUS, EBSCO ve DOAJ veri tabanlarında taranmaktadır.

Ücret Politikası

Makalenin Editör Kurulu ve Alan Editörlerinin ön değerlendirmesini geçmesi halinde, yazarların dergiye yönelik maliyetlerin karşılanması amacıyla "Sivas Cumhuriyet Üniversitesi İİBF Dergisi banka hesabına 1.350 TL" yatırması gerekmektedir. (Talep edilen ücret, dergimizin yayın süreçlerinde alan editörü, hakem, yabancı dil editörü ve yazım-yayın destek aşamalarında ilgili kişilere ödeme olarak kullanılmaktadır.)

Hakem değerlendirme süreci ancak gönderim ücreti ödendikten sonra başlayacaktır. Hesap bilgileri makalenin ön değerlendirme sürecinden geçmesi durumunda yazara bildirilecektir. Ödeme açıklamasında Makale ID'si ve yazar ad-soyadı belirtilmelidir.

Gönderim ücreti makalenin hakem değerlendirmeleri sonucunda ya da Yayın Kurulu kararı ile ret edilmesi ve/veya yayımlanmaması halinde iade edilmez. Hakem ya da editör değerlendirmelerine dair farklı yorumlar ileri sürülerek yapılan iade talepleri dikkate alınmayacaktır.

Arşiv Politikası

1. Yayıncı, yazarlara, bir makalenin kendi kendine arşivleme (yazarın kişisel web sitesi) ve/veya yayımlandıktan sonra kurumsal bir havuzda arşivleme için bir makalenin (yayıncı pdf) nihai yayınlanmış sürümünün kullanılmasına izin verir.

2. Yazarlar, makalelerini halka açık ve/veya ticari konu tabanlı arşivlerde kendi kendilerine arşivleyebilirler. Ambargo süresi yoktur ancak yayınlanan kaynak belirtilmeli ve dergi ana sayfasına veya makalelerin DOI'sine bir bağlantı ayarlanmalıdır.

3. Yazarlar makalenin çıktısını PDF belgesi olarak indirebilirler. Yazarlar makalenin kopyalarını meslektaşlarına herhangi bir ambargo olmaksızın gönderebilir.

Hakemlik Türü

Çift Taraflı Kör Hakemlik

İncelemede Geçen Süre

Ortalama iki aydır.

İntihal Kontrolü

Turnitin ve iThenticate

Yayın ve Danışman Kurulu | Editorial and Advisory Board

Prof. Dr. Fatih Ertugay

Sivas Cumhuriyet University | Faculty of
Economics and Administrative Sciences
Department of Political Science and
Public Administration
fertugay@cumhuriyet.edu.tr
ORCID: 0000-0001-8469-4393

Asst. Prof. Dr. Seyil Najimudinova

Kyrgyz-Turkish Manas University |
Faculty Of Economics And
Administrative Sciences
Department of Management
seyil.najimudinova@manas.edu.kg
ORCID: 0000-0003-3848-6635

Prof. Dr. Ersan Öz

Pamukkale Univesity | Faculty Of
Economics And Administrative Sciences
Department Of Public Finance
ersanoz@pau.edu.tr
ORCID:0000-0002-1847-8841

Asst. Prof. Dr. Azamat Maksüdünov

Kyrgyz-Turkish Manas University |
Faculty Of Economics And
Administrative Sciences
Department of Management
azamat.maksudunov@manas.edu.kg
ORCID: 0000-0002-5010-513X

Prof. Dr. Sabri Çiftçi

Kansas State University | Department of
Political Science
ciftci@ksu.edu
ORCID: 0000-0003-3669-6620

Editörler | Editorial Board

Baş Editör | Editor in Chief

Assoc. Prof. Zekai Şenol
Sivas Cumhuriyet University | Faculty of
Economics and Administrative Sciences
Department of Finance and Banking
zsenol@cumhuriyet.edu.tr
ORCID: 0000-0001-8818-0752

Yardımcı Editör | Associate Editor

Asst. Prof. Dr. Ali Oğuz Bayrakçıl
Sivas Cumhuriyet University | Faculty
of Economics and Administrative
Sciences Department of Business
Administration
abayrakcil@cumhuriyet.edu.tr
ORCID: 0000-0003-3376-1730

Yardımcı Editör | Associate Editor

Asst. Prof. Dr. Sibel Şener
Sivas Cumhuriyet University | Faculty
of Economics and Administrative
Sciences Department of Management
Information Systems
ssener@cumhuriyet.edu.tr
ORCID: 0000-0001-6299-3712

Yardımcı Editör | Associate Editor

Asst. Prof. Mustafa Temiz
Sivas Cumhuriyet University | Faculty
of Economics and Administrative
Sciences Department of Management
Information Systems
temizmustafa@cumhuriyet.edu.tr
ORCID: 0000-0002-2839-1424

Dergi Sekreteryası | Journal Secretary

Res. Asst. Beyza Etiz
Sivas Cumhuriyet University | Faculty
of Economics and Administrative
Sciences Department of Business
Administration
beyzaetiz@cumhuriyet.edu.tr
ORCID: 0000-0002-0337-8063

Dil Editörleri | Language Editor

İngilizce | English

Najibul Kashem – PhD Student
Sivas Cumhuriyet University | Faculty of
Economics and Administrative Sciences
International Trade and Logistics
Department
Najibul.kashem@gmail.com
ORCID: 0000-0003-1713-1042

Alan Editörleri | Field Editors

**Kapsam: Matematik, Yöneylem,
Scope: Arabic Mathematics, Operational
Research**

Assoc. Prof. F. Müge Sakar
Dicle University | Faculty Of Economics and
Administrative Sciences
Department of Business
mugesakar@hotmail.com
ORCID:0000-0002-3884-3957

**Kapsam: Bilişim Sistemleri
Scope: Information Systems**

Asst. Prof. Ömer Güleç
Pamukkale University | Faculty of
Economics and Administrative
Department of Management Information
Systems
omer@pau.edu.tr
ORCID:0000-0002-7657-3230

**Kapsam: Bankacılık ve Sigortacılık
Scope: Banking and insurance**

Assoc. Prof. Özgür Akpınar
Marmara University | Faculty of Financial
Sciences
Department of Insurance
oakpınar@marmara.edu.tr
ORCID:0000-0003-2084-2662

**Kapsam: Sağlık Yönetimi
Scope: Healthcare Management**

Assoc. Prof. Mustafa Çoban
Akdeniz University | Faculty of Health
Sciences
Department of Healthcare Management
mustafacoban@akdeniz.edu.tr
ORCID:0000-0002-3071-8385

**Kapsam: Uluslararası İlişkiler
Scope: international relations**

Asst. Prof. Engin Koç
Bursa Technical University | Faculty of
Human and Social Sciences
Department of International Relations
engin.koc@btu.edu.tr
ORCID: 0000-0003-3682-8718

**Kapsam: Muhasebe
Scope: Accounting**

Assoc. Prof. İbrahim Çemberlitaş
Van Yüzüncüyıl University | Faculty of
Economics and Administrative Sciences
Department of Business
ibrahimcemberlitas@yyu.edu.tr
ORCID:0000-0002-2489-9060

**Kapsam: Girişimcilik
Scope: Entrepreneurship**

Assoc. Prof. Dr. Burcu ORALHAN
Nuh Naci Yazgan University | Faculty Of
Economics and Administrative Sciences
Department of Economy
boralhan@nny.edu.tr
ORCID: 0000-0001-8905-0140

**Kapsam: Finansal Piyasalar
Scope: Financial Markets**

Prof. Erhan Demireli
Dokuz Eylül University | Faculty Of
Economics and Administrative
Department of Business
erhan.demireli@deu.edu.tr
ORCID:0000-0002-3457-0699

**Kapsam: Yöneylem Araştırması
Scope: Operational Research**

Prof. Cavit Yeşilyurt
Ataturk University | Faculty of Economics
and Administrative Sciences
Department of Econometrics
cavityesilyurt@atauni.edu.tr
ORCID:0000-0001-9814-4085

**Kapsam: İktisat Teorisi
Scope: Economic Theory**

Prof. Tayfur BAYAT
Inonu University | Faculty of Economics
and Administrative Sciences
Department of Economics
tayfur.bayat@inonu.edu.tr
ORCID: 0000-0002-4427-0999

Kapsam: İnsan Kaynakları Yönetimi

Scope: Personnel Management

Prof. Ebru Aykan

Kayseri University | Faculty of Applied Sciences

Department of Personnel Management

ebruaykan@kayseri.edu.tr

ORCID: 0000-0003-3537-5235

Kapsam: Uluslararası Lojistik

Scope: International Logistics

Asst. Prof. İsmet Bihter Karagöz Taşkın

İstanbul Arel University | Faculty of Economics and Administrative Sciences

Department of Logistic Management

bihterkaragoz@arel.edu.tr

ORCID:0000-0002-3966-1901

Kapsam: Kamu Yönetimi

Scope: Public Administration

Assoc. Prof. Murat Demirel

Kafkas University | Economics and Administrative Sciences

Department of Political Science and Public Administration

mrdemirel@gmail.com

ORCID:0000-0003-0994-545X

Kapsam: Kamu Yönetimi

Scope: Public Administration

Asst. Prof. Hüseyin Serhan Çalhan

Akdeniz University | Demre Dr. Hasan Ünal Vocational High School

Office Services and Secretarial Department

serhanchalhan@gmail.com

ORCID:0000-0002-5367-4020

Kapsam: Uluslararası İktisat

Scope: International Economics

Prof. Adem Üzümcü

Ankara Hacı Bayram Veli University | Faculty of Economics and Administrative Sciences

Department of International Trade and Financing

adem.uzumcu@hbv.edu.tr

ORCID:0000-0002-8699-053X

Kapsam: İstatistik

Scope: Statistic

Prof. Ömer Alkan

Ataturk University | Faculty of Economics and Administrative Sciences

Department of Econometrics

oalkan@atauni.edu.tr

ORCID:0000-0002-3814-3539

Kapsam: Makro İktisat

Scope: Macroeconomics

Prof. Muhammed Veysel Kaya

Ankara Hacı Bayram Veli University | School of Banking and Insurance

Department of Finance and Banking

muhammed-kaya@hbv.edu.tr

ORCID:0000-0001-9322-1694

Kapsam: Kamu Yönetimi

Scope: Political History

Assoc. Prof. Özhan Demirkol

Cukurova University | Faculty of Economics and Administrative Sciences

Department of Political Sciences and International Relations

ozhandemirkol@cu.edu.tr

ORCID: 0000-0002-0244-4129

Kapsam: Pazarlama

Scope: Marketing

Asst. Prof. İrfan Akyüz

İstanbul University | Faculty of Political Science

Department of Business

iakyuz@istanbul.edu.tr

ORCID:0000-0003-1494-3862

İletişim

Editöryal Yetkili

Ad Soyad: Doç. Dr. Zekai Şenol

ORCID: 0000-0001-8818-0752

E-posta: zsenol@cumhuriyet.edu.tr

Telefon: 03464871740

Adres: Sivas Cumhuriyet Üniversitesi | İktisadi ve İdari Bilimler Fakültesi Finans ve Bankacılık Bölümü

Şehir: Sivas

Ülke: Türkiye

Posta Kodu: 58140

Yayınevi

Sivas Cumhuriyet Üniversitesi

ROR ID: <https://ror.org/04f81fm77>

ISNI: 1303-1279

E-posta: iibfdergi@cumhuriyet.edu.tr

Telefon: 0346 2191010-1710

Adres: Sivas Cumhuriyet Üniversitesi 58140 Kampüs/Sivas

Şehir: Sivas

Ülke: Türkiye

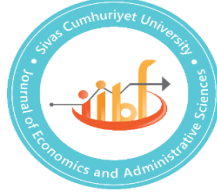
Posta Kodu: 58140

İtiraz

Bilimsel içeriğini yanlış anladığımız için makalenizi reddettiğimizi düşünüyorsanız, lütfen iibfdergi@cumhuriyet.edu.tr adresinden editör ekibimize bir itiraz mesajı gönderin.

Şikâyet

Şikâyetler doğrudan iibfdergi@cumhuriyet.edu.tr adresine e-posta ile gönderilmelidir.



Cumhuriyet University Journal of Economics and Administrative Sciences– JEAS

Cumhuriyet Üniversitesi İktisadi ve İdari Bilimler Dergisi–İİBD

Cilt -Volume 26 | Sayı -Issue 1 | Yıl-Year 2025

İçindekiler | Contents

Zekai Şenol

Editörden | From the Editor

I-II

Araştırma Makaleleri | Research Articles

Tolgay Ercan, Enis Baha Biçer

Hekimlerin Farmakoekonomi Bilgi Düzeyinin Reçeteleme Davranışına Etki Eden Faktörlerle İlişkisinin Değerlendirilmesi

1-16

Evaluation Of The Relationship Between Physicians' Pharmacoeconomics Knowledge Level And The Factors Affecting Their Prescribing Behavior

Batuhan Ersöz, Özlem Demir

Türkiye'de Aktif İşgücü Piyasası Politikalarının Bölgelere Göre Çok Boyutlu Ölçekleme ve Kümeleme Analizi ile Değerlendirilmesi

17-31

Evaluating Active Labour Market Policies in Türkiye by Regions via Multidimensional Scaling and Clustering Analysis

Deniz Deral, Keti Ventura

Çevresel Kaygı, Yeşil Algılanan Değer ve Yeşil Güvenin Yeşil Satın Alma Niyeti Üzerindeki Etkisi: Elektrikli Otomobil Sektörü”

32-49

The Effect of Environmental Concern, Green Perceived Value and Green Trust On Green Purchase Intention: Electric Vehicle Sector

Ozan Kaymak

Seçili Küresel Hisse Senedi Piyasaları ile Altın ve Gümüş Vadeli İşlemleri Arasındaki Bağımlılık Üzerine Bir Araştırma

50-64

A Study on the Cointegration Relationship between Selected Global Stock Markets and Gold and Silver Futures

Berivan Tatar

Yazılmamış Sonlar: Yönetim Araştırmalarında Hikaye Tamamlama Yöntemine Derinlemesine Bir Bakış
The Unwritten Endings: A Deep Dive into the Story Completion Method in Management Research

65-76**Mahmut Koçan, Emel Yıldız**

Elektronik Hizmet Ortamının Marka Değerine Etkisinde Ağızdan Ağıza İletişimin Aracı ve Düzenleyici Etkileri
Mediator and Regulatory Effects of Word of Mouth on The Effect of Electronic Servicescape on Brand Equity

77-94**Nida Abdiođlu, Sinan Aytekin**

Borsa İstanbul Firmalarında ESG Skorlarının Firma Düzeyindeki Belirleyicilerinin Analizi
An Analysis of the Determinants of Environmental, Social and Governance (ESG) Scores at the Firm level on Borsa İstanbul Companies

95-104**Arzu Şahin, Walid Khalid Mitawa**

Stakeholder Teorisi Uygulamada: SADC Bölgesindeki Gıda Üreticilerinde ESG Uygulamalarının Finansal Performansa Etkisi
Stakeholder Theory in Action: The Impact of Environmental, Social, and Governance (ESG) Practices on Financial Performance in SADC Region Food Producers

105-118**Emre Seyrek, Nurdan Gürkan**

Algılanan Yönetici Desteğinin İş Tatmini İle İlişkisinde İşe Gömülmüştüğün Aracı, İşyeri Nezaketsizliğinin Düzenleyici Rolü
The Mediating Role of Job Embeddedness and Regulating Role of Workplace Incivility in the Relationship of Perceived Supervisor Support with Job Satisfaction

119-142**Arif Gümüş**

Türkiye'deki Uluslararası Öğrencilerin Muhasebe Öğreniminde Karşılaştıkları Problemler ve Çözüm Önerileri; Nitel Bir Çalışma
Problems Encountered by International Students in Turkey in Accounting Education and Solution Suggestions: A Qualitative Study

143-155**Seda Ertürk, Selçuk Koç**

Türkiye'nin Demografik Temettüsü Var mı? Düzey 2 Analizi
Does Türkiye Have a Demographic Dividend? NUTS 2 Analysis

156-166

Ahmet Akusta

Operasyonel ve Finansal Verimliliğin Havacılık Hisse Senedi Fiyatları Üzerindeki Etkisi: SHAP Yorumlanabilirliğine Sahip Bir Makine Öğrenme Modeli

Impact of Operational and Financial Efficiency on Aviation Stock Prices: A Machine Learning Model with SHAP Interpretability

167-182

Mustafa Özkan, Esra Gökçen Kaygısız

Akademisyenlerin Yapay Zekâ Kaygılarının Nesillere Göre Değerlendirilmesi: İşletme Bölümü Öğretim Elemanları Örneği

An Assessment of Academicians' Concerns About Artificial Intelligence by Generations: The Case of Faculty Members in Business Administration Departments

183-195

Muhammed Fatih Aydemir, Osman Barbaros Kemer

Güney Kore İmalat Sanayiindeki Yüksek Teknolojili Ürün Gruplarında Endüstri-İç Ticaret

Intra-Industry Trade in High-Tech Product Groups within the South Korean Manufacturing Industry

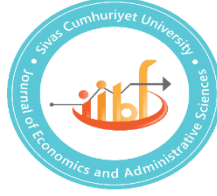
196-210

Ramazan Aslan

Ekonomik Güvenlik Kapsamında Borç Tuzağı Diplomasisi: Çin'in Ekonomi Politikasına Bakış

Debt Trap Diplomacy Within the Scope of Economic Security: Overview of China's Economic Policy

211-222



Cumhuriyet University Journal of Economics and Administrative Sciences– JEAS

Cumhuriyet Üniversitesi İktisadi ve İdari Bilimler Dergisi–İİBD

Cilt -Volume 26 | Sayı -Issue 1 | Yıl-Year 2025

Editörden | From the Editor

Cumhuriyet Üniversitesi İktisadi ve İdari Bilimler Dergisi (İİBD) Sivas Cumhuriyet Üniversitesi İktisadi ve İdari Bilimler Fakültesi tarafından yılda dört defa çıkarılan bilimsel, hakemli ve elektronik ortamda okuyucuların erişimine açık bir dergidir. Yayın kurulumuz dergimizin 26. cildinin 1. sayısını (Ocak 2025) yayımlamanın mutluluğunu yaşamaktadır. Özellikle danışma kurulumuza, editör yardımcılarımıza, alan editörlerimize, dil editörlerimize ve ön inceleme ve dizgiden sorumlu çalışanlarımıza olmak üzere, yazarlarımıza, hakemlerimize ve dergimizin bu sayısına katkıda bulunan herkese verdikleri emekten ötürü en derin şükranlarımızı sunarız. Ayrıca şimdiki kadar dergimize katkıda bulunan ve destek sağlayan herkese teşekkür ediyoruz. Bir sonraki sayımız Nisan 2025'te yayımlanacaktır.

Bu sayımızda sıkı bir kör hakemlik ve editörlük sürecinden geçmiş 15 araştırma makalesi bulunmaktadır. Dergimizde yayımlanmakta olan çalışmalar ön inceleme, kör hakemlik süreci ve editöryal süreç olmak üzere üç önemli aşamadan geçmektedir. Hakemlik sürecinde her makale en az iki hakem tarafından incelenmiştir. Ayrıca, inceleme sürecine giren her makale iThenticate yazılımı yardımıyla intihal taramasından geçmektedir. Önümüzdeki sayılarımız için çalışmalarını dergimize göndermek isteyen yazarlarımıza çalışmalarını bize göndermeden önce mutlaka intihal yazılımından geçirmelerini öneriyoruz.

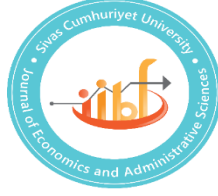
Yeni sayılarımız için çalışmalarınızı <http://esjournal.cumhuriyet.edu.tr/tr/> adresine yükleyebilirsiniz. Ayrıca, dergimiz akademik danışma kurulunu ve hakem havuzunu genişletmeyi hedeflemektedir. Bu bağlamda dergimizin danışma kurulunda yer almak isteyen veya hakem olarak dergimize katkıda bulunmak isteyen değerli araştırmacılar özgeçmişlerini iibfdergi@cumhuriyet.edu.tr adresine e-posta ile gönderebilirler. Hakem sertifika işlemleri Dergipark üzerinden yürütülmektedir. Bu nedenle hakem sertifikası almak isteyen hakemlerimizin Dergipark üzerinden başvuruda bulunmaları gerekmektedir. Nitelikli ve özgün çalışmalarla bir sonraki sayıda buluşmak üzere...

Baş Editör

Doç. Dr. Zekai ŞENOL

ORCID: 0000-0001-8818-0752 | zsenol@cumhuriyet.edu.tr

Sivas Cumhuriyet Üniversitesi, Sivas/Türkiye



Cumhuriyet University Journal of Economics and Administrative Sciences– JEAS
Cumhuriyet Üniversitesi İktisadi ve İdari Bilimler Dergisi–İİBD
Cilt -Volume 26 | Sayı -Issue 1 | Yıl-Year 2025

Editörden | From the Editor

Cumhuriyet University Journal of Economics and Administrative Sciences (JEAS) is a scientific, peer-reviewed and open-access journal published online on a quarterly basis. As the publication board of the journal, we are happy to publish our first issue in Volume 26 (January 2025). We express our deepest gratitude to everyone that contributed to this issue, particularly to the publication board, assistant editors, field editors, language editors, copyediting staff, authors and reviewers. We also thank everyone who has contributed to our journal and provided support so far. Our next issue will be published in April 2025.

In this issue, there are 15 research articles that went through a strict blind review and editorial process. Articles to be published in our journal go through three important phases: preview, blind review and editing. During the blind review process, every article is reviewed by at least two referees. Moreover, each article going through examination is checked for plagiarism using iThenticate. We suggest that our prospective authors scan their article using plagiarism software before they send it to our journal.

Prospective authors could upload their studies to <http://esjournal.cumhuriyet.edu.tr/tr/> for our forthcoming issues. In addition, our journal aims to widen its pool of reviewers. In this respect, those who are interested in becoming a member of it or those who wish to contribute to our journal as a reviewer could send their CVs to iibfdergi@cumhuriyet.edu.tr. Reviewer certificates are sent through Dergipark. Therefore, those who wish to get a certificate should apply for it through Dergipark. We hope to reach you with higher quality and original studies in the next issue.

Editor-in-Chief

Assoc. Prof. Dr. Zekai ŞENOL

ORCID: 0000-0001-8818-0752 | zsenol@cumhuriyet.edu.tr

Sivas Cumhuriyet University, Sivas/Türkiye



Evaluation Of The Relationship Between Physicians' Pharmacoeconomics Knowledge Level And The Factors Affecting Their Prescribing Behavior

Tolgay Ercan^{1,a,*}, Enis Baha Biçer^{2,b}

¹Department of Medical Services and Techniques, Yıldızeli Vocational School, Sivas Cumhuriyet University, Sivas, Türkiye

²Department of Health Management, Faculty of Health Sciences, Sivas Cumhuriyet University, Sivas, Türkiye

*Corresponding author

Research Article

History

Received: 01/07/2024

Accepted: 02/11/2024

JEL Codes: I120

ABSTRACT

The fact that physicians are the key decision-makers regarding patients' medication use makes it essential to investigate physicians' prescribing behavior in drug preference. The fact that physicians are in such a position increases the interest of pharmaceutical companies in physicians. Pharmaceutical companies try to influence physicians' prescribing behavior by visiting physicians through medical sales representatives. This study is to investigate the factors affecting physicians' prescribing behavior. The research was conducted using a convenience sampling method, targeting face-to-face interactions with physicians working in public and private institutions in Sivas Province. A 5-point Likert survey was applied to 609 physicians who participated in the research. In the evaluation of the data, reliability analysis, correlation analysis, explanatory factor analysis (EFA), and confirmatory factor analysis (CFA) methods were used, as well as statistical methods such as arithmetic mean and percentage distribution. First, the internal consistency was checked and then EFA was performed to evaluate the dimensions of the scales to test the reliability of the scales. EFA suitability of the values was examined with the Kaiser-Meyer-Olkin (KMO) coefficient and Bartlett Sphericity test. The structural validity of the scale was tested using EFA, and then the CFA model was applied by considering more than one factor to test its suitability. The average scores of the scales were calculated by dividing the total score of the items they contain by the number of items. Among these factors, drug effectiveness, physician knowledge, and cost sub-dimensions were examined for drug preference. Sub-dimensions such as social communication, trust, ethical behavior, and similarity regarding physicians' sales representatives were examined. Managerial efficiency and reliability sub-dimensions regarding physicians' company preferences were evaluated. Pharmacoeconomics awareness, pharmacoeconomics knowledge, pharmacoeconomics importance, and pharmacoeconomics evaluation sub-dimensions regarding physicians' pharmacoeconomics knowledge levels were analyzed. It can be stated in the research that physicians' perceptions of the importance of pharmacoeconomics, the cost, and effectiveness of the drug, company preference, and medical sales representatives are high.

Keywords: Health Economics, Pharmacoeconomics, Physician prescribing behavior, Health Institutions Management

Hekimlerin Farmakoekonomi Bilgi Düzeyinin Reçeteleme Davranışına Etki Eden Faktörlerle İlişkinin Değerlendirilmesi

Süreç

Gelis: 01/07/2024

Kabul: 02/11/2024

Jel Kodları: I120

Öz

Hastaların ilaç kullanmasında esas karar verenin hekimler olması hekimlerin ilaç tercihinde reçeteleme davranışlarının araştırılmasını önemli kılmaktadır. Hekimlerin böyle bir konumda olması ilaç firmalarının hekimlere olan ilgisini artırmaktadır. İlaç firmaları tıbbi satış temsilcileri aracılığı ile hekimleri ziyaret ederek hekimlerin reçeteleme davranışlarına etki etmeye çalışırlar. Bu çalışma, hekimlerin reçeteleme davranışına etki eden faktörlerin araştırılmasıdır. Araştırma Sivas ilinde kolayda örnekleme yöntemi ile kamu ve özel kurumlarda çalışan hekimlere yüz yüze uygulanmıştır. Araştırmaya 609 hekim katılmış, 5'li likert anket uygulanmıştır. Verilerin değerlendirilmesinde aritmetik ortalama, yüzde dağılımı gibi istatistikî metotların yanında güvenilirlik analizi, korelasyon analizi, açıklayıcı faktör analizi (AFA), doğrulayıcı faktör analizi (DFA) yöntemleri kullanılarak yapılmıştır. Ölçeklerin güvenilirliklerini test etmek için ilk olarak iç tutarlılığı denetlenmiş sonrasında ölçeklerin boyutlarını değerlendirmek amacı ile AFA yapılmıştır. Değerlerin AFA uygunluğu Kaiser-Meyer- Olkin (KMO) katsayısı ve Bartlett Sphericity testi ile incelenmiştir. AFA kullanılarak ölçek yapısal geçerliliği test edilmiş, ardından uygunluğunu test etmek için birden fazla faktör içerisinde ele alınarak DFA modeli uygulanmıştır. Ölçeklere ait ortalama puanlar ise içerdikleri maddelerin toplam puanı madde sayısına bölünerek hesaplanmıştır. Bu faktörler arasında ilaç tercihiyle yönelik olarak ilaç etkinliği, hekim bilgi ve maliyet alt boyutları incelenmiştir. Hekimlerin satış temsilcisi ile ilgili sosyal iletişim, güven, etik davranış, benzerlik gibi alt boyutlar incelenmiştir. Hekimlerin firma tercihiyle yönelik yönetsel etkinlik ve güvenilirlik alt boyutları değerlendirilmiştir. Hekimlerin farmakoekonomi bilgi düzeyleri ile ilgili farmakoekonomi farkındalık, farmakoekonomi bilgi, farmakoekonomi önem ve farmakoekonomi değerlendirme alt boyutları analiz edilmiştir. Araştırmada hekimlerin farmakoekonomisinin önemi, maliyet, ilacın etkinliği, firma tercihi ve tıbbi satış temsilcisine yönelik algılarının yüksek olduğu belirtilebilir.

Anahtar Kelimeler: Sağlık Ekonomisi, Farmakoekonomi, Hekim reçeteleme davranışı, Sağlık Kurumları Yönetimi

^a tolgayercan@cumhuriyet.edu.tr

^b [0000-0002-6893-4358](https://orcid.org/0000-0002-6893-4358)

^c ebbicer@cumhuriyet.edu.tr

^d [0000-0002-1624-4988](https://orcid.org/0000-0002-1624-4988)

How to Cite: Ercan T (2025) Evaluation Of The Relationship Between Physicians' Pharmacoeconomics Knowledge Level And The Factors Affecting Their Prescribing Behavior, Journal of Economics and Administrative Sciences, 26(1): 1-16, DOI: 10.37880/cumuiibf.1508268

Giriş

Genellikle ilaçlar hekim tavsiyesi ile kullanılmaktadır. Hekimler hastaların ilaç kullanmasına yönelik esas karar vericidirler (Smith, 1991: 15-54; Ding vd. 2014: 6; Katsanis, 2015: 32). Hastalar hekimlere mesleki bilgilerine güvenerek kendi hayatlarındaki önemli bir karar verme sorumluluğunu verirler. Bu nedenle ilaç firmaları ilaç pazarlama faaliyetlerinde hekimlere daha fazla ilgi göstererek ilaç tercihlerine etki etmeye çalışırlar. İlaç firmaları pazara sundukları ilaçların satış pazarlarında daha fazla pay alabilmek için satış-pazarlama stratejileri kullanarak hekimlerin reçetelerini değiştirmeye çalışırlar. Dolayısı ile hekimlerin reçeteleme davranışı, ilaç firmaları ile olan etkileşimlerinden kaynaklı olarak değişebilmektedir (Lexchin, 1993: 1401; Gönül vd. 2001: 79). Bundan dolayı ilaç firmalarının ana müşteri odağını hekimler oluşturmaktadır (Alt, Puschmann 2005: 297-311). Bu durum sınırlı olan sağlık kaynaklarının akılcı olmayan şekilde kullanılmasına ve ilaçların gereksiz tüketilmesine de neden olabilmektedir (Soumerai, Avorn 1990: 549). Yapılan çalışmalarda; hekimlerin reçete yazmasına etki eden faktörlerin araştırılması, anlaşılması, bilginin daha iyi yayılması ve bilinçli karar verme yoluyla sağlık kaynaklarının daha verimli kullanılmasının sağlanabileceği belirtilmiştir (Gallan, 2004: 3). Sağlık hizmetlerinde kaynakların sınırlı olması, sağlık harcamaları içerisindeki önemli bir paya sahip olan ilaçların hastalara en yüksek fayda üretecek şekilde tüketilmesini gerektirir (Beylik vd. 2022: 6; Dawes, Lens 2002: 1239-1240; Donaldson vd., 1996: 267; Drummond vd., 2015: 2-3; Mooney, Drummond 1982: 950; Simon vd. 2005: 964). Modern sağlık sisteminde hekimler belirsizlik altında klinik karar verme sürecinde kişisel uzmanlığının yanında klinik klavuzlar kullanarak ilaç tedavi maliyetlerini en aza indirirken hasta gelişimini en üst düzeye çıkarmayı hedefler (Bennett, Hauser 2013: 9-16; Patel vd 2009: 5-8; Thomas, 2018: 270-271). Hekimler karar verme sürecinde doğru hastaya, doğru zamanda, doğru ilacın verilmesini amaçlarken, aynı tedavi edici sınıftaki benzer etki mekanizmasına sahip iki ilacı karşılaştırarak hangi ilacın tercih edilmesi konusunda değerlendirmeler yaparlar (Ahuja vd 2004: 80-81). Dolayısı ile tıbbi bir tedavide ilaçların uygun şekilde kullanılması kıt kaynakların geliştirilmesine ve finansmanın sürekliliğine de fayda sağlar (Baltussen vd. 1999: 457; Revicki, Lori 1999: 433). Bu bağlamda kaynakların tedavi maliyetini karşılayıp karşılayamayacağı ve kimler tarafından tahsis edileceği finansmanın sürdürülebilirliği açısından önemli olmaktadır (Torrance vd., 1972: 118). Hekimlerin talep yaratması ile oluşan tedavi maliyetlerinin dörtte biri hastalar tarafından, geri kalanı ise sigorta şirketleri ve sağlık bakım organizasyonları (hizmet sürekliliği -iyi bakımdan acil ameliyata kadar- sağlayan veya sağlamak üzere düzenleme yapan sağlık kuruluşları) tarafından tahsis edilir (Pauly, 1988: 228; Folland vd. 2016: 323). Bu bağlamda bir ilacın maliyet etkinliği açısından değerli olduğu, ilacın parasal yönden tasarruf sağlayıp sağlamadığı yada mevcut tedaviye göre düşük maliyetle

benzer etkinlik sağlayıp sağlamadığı, önemli bir iyileştirme yapıp yapmadığı ve daha yüksek bir fiyatın haklı gösterilip gösterilemeyeceği önemli olmaktadır (Katsanis, 2015: 31).

Gelişmiş sanayi ülkeleri, sağlık hizmetleri maliyetleri ve ilaç harcamalarındaki artışı dengeleme konusunda endişe duymaktadırlar. İlaç harcamalarının artış nedenlerine bakıldığında yüksek fiyatlar, orijinal ve jenerik ürünlerin pazara sunulması ve hekim reçeteleri olduğu söylenebilir (Griffin, Chew 1993: 54-55). Son yıllarda jenerik ilaçların yaygınlaşması, ilaç firması-hekim arasında asimetrik bilginin mevcudiyeti, hekimlerin ilaç tercihinde kilit karar verici olması, tedaviye doğrudan etki etmesi, reçete yazma hakkındaki fikrinin pazarlama faaliyetleri ile değiştirilebileceği, yeni bir ilacı deneme konusunda ikna edilebileceği, ilaçların doğrudan reklamının yasak olması ve ilaç firmaları arasında artan rekabet; ilaç firmalarının hekimlere olan ilgisini arttırarak hekimlerin ilaç firmalarının tanıtım faaliyetlerinin tam merkezinde yer almasına neden olmaktadır. İlaç endüstrisinin hekimlerin reçete kararları üzerinde etkili olduğu ve aynı zamanda irrasyonel ve objektif olmayan reçete yazma etkisine de neden olabileceği belirtilmektedir. Hekimlerin böyle kilit bir konumda olması reçete yazma alışkanlıklarını etkileyen faktörlerin araştırılmasını önemli kılmaktadır. Literatür taramasında, farmakoekonomik kanıtlar, ilacın etkinliği, güvenliği, hasta uyumu, kullanım kolaylığı, maliyeti, tıbbi satış temsilcileri, hekimin klinik tecrübesi, yan etki, hekimin yan etkilerden kaçınma isteği, yeni teknolojilerin rolü ve etkisi, reklam, promosyon malzemeleri, ilaç firması saygınlığı-itibarı, yerli ilaç firması, bilimsel makale-dergi, sağlık otoriteleri tarafından yapılan düzenleme ve kontrol çalışmaları, hasta beklentileri, kongreler, klinik tecrübe, ilaç numuneleri, ilaca erişimin kolay olması, meslektaş etkisi, fiyat, marka gibi etmenlerin hekim reçeteleme davranışlarında önemli olduğu belirtilmiştir. Dolayısıyla hekimlerin ilaç reçeteleme davranışları içerisinde birçok faktörün doğrudan etkilediği karmaşık bir durumdur (Hemminki, 1975: 111; Hemminki, 1976: 321-322; Avorn vd. 1982: 5-6; Berndt vd. 1995: 101; Cockburn, Pit, 1997: 521-522; Carthy vd. 2000: 41; Chew vd. 2000: 482; Lundin, 2000: 639-657; Steinman vd. 2001: 551; De Laat vd. 2002: 103-108; Gallan, 2004: 4; Schumock vd. 2004: 557; Zimmerman vd. 2004: 1285; Wright, Lundstrom 2004: 33-36; Buusman vd. 2007: 209; Theodorou vd. 2009: 5-9; Oshikoya vd. 2011: 1; Al-Areefi vd. 2013: 986-987; Kasliwal, Bansal 2013: 2; Mintzes vd. 2013: 1368; Shamim-ul-haq vd. 2014: 32-34; Kamuhabwa, Kisoma 2015: 2107; Kesselheim vd. 2016: 858; Fickweiler vd. 2017: 1-10; Narayan vd. 2020: 4888; Kianmehr vd. 2020: 1054; Passalacqua vd. 2020: 6; Parmata, Chetla 2021: 189; Price vd. 2021: 1770; Eldrwich vd. 2022: 469-470; Kabir vd 2022: 121-122; Vandenplas vd. 2022: 17-18).

Hekimlerin %85'i ekonomik ve farmakoekonomik eğitim almamasına rağmen %94 oranında gereksiz yere kullanılan ilaçların sınırlandırılması ve ilaç maliyetlerinin kontrol altına alınması için hekimlik mesleğinin önemli bir role sahip olduğunu belirtmişlerdir (Al-Omar, 2020:1; Alsultan 2011:52; Carthy vd. 2000; 41). Hekimler arasında maliyet bilincine yönelik olarak yapılan ve yalnızca %8'inin

maliyet üzerine eğitim aldığı bir çalışmada; hekimlerin %76'sı sağlık hizmetleri maliyetleri konusunda resmi bir eğitim alınması gerektiğini belirtmiştir. Böylelikle hekimler maliyetlere yönelik olarak maliyet karar alma sürecinde farkındalığının geliştirilmesini, maliyet ve harcama farklarının azaltılabileceğini belirtmişlerdir (Wei vd. 2016: 1018-1019). Hekimlerin farmakoekonomi-maliyet ile olan reçeteleme ilişkisine bakıldığında ilaç tercihinde maliyet alt boyutuna önem verdikleri görülmektedir. Bu bağlamda literatürde hekimlerin, % 88'i ilaç maliyetinin reçete yazma kararında önemli bir faktör olduğunu, %80'inin gerçek maliyetlerin farkında olmadığı, yalnızca %13'ünün ilaç maliyetleri konusunda resmi olarak eğitim aldığı tespit edilmiştir. Hekimlerin reçete yazma alışkanlıklarında maliyet bilincine sahip olma eğiliminde oldukları fakat ilaçların gerçek maliyetleri ve sigorta kapsamı hakkında doğru ve yeterli bilgiye sahip olmadıkları belirtilmiştir. Çalışmaya katılan hekimlerin maliyet konusundaki bilgi kaynaklarına bakıldığında, %65 ilaçlar ve tedaviler üzerine tıbbi mektup, %52 meslektaşları, %45 hastalar, %41 eczacılar, %25 ilaç şirketi temsilcileri, %17 reklamlar ve %10 dergiler olduğu görülmektedir (Reichert vd. 2000: 2799-2801; Ubela vd. 2003: 1736).

Bu çalışmanın amacı, ilaçların tercih edilmesinde esas belirleyici olan hekimlerin reçeteleme davranışlarında etkili olması muhtemel faktörlerin neler olduğunun belirlenmesidir.

Bu çalışma reçeteleme davranışına ilişkin birçok boyut ele alınarak analiz edilmiştir. Böylelikle hekimlerin reçeteleme davranışına yönelik faktörlerin değerlendirilmesi yapılarak konunun anlaşılması, tespit edilmesi, tanımlanması ile ilgili olarak literatüre katkıda bulunacağı düşünülmektedir.

Materyal ve Yöntem

Araştırma Sivas ilinde kolayda örnekleme yöntemi ile Eylül 2022- Şubat 2023 tarihleri arasında anket uygulamasıyla yapılmıştır. Araştırma örnekleminin tespit edilmesi ve uygulanmasında olasılığa dayalı olmayan örnekleme yöntemi olarak kolayda örnekleme yöntemi kullanılmıştır. Kolayda örnekleme, bir araştırmacının bir popülasyondan denek/birim örnekleme seçmek için kullandığı olasılık dışı örnekleme yöntemidir. Olasılıksız örnekleme yönteminin, örnekleme seçimindeki öznel doğası nedeniyle popülasyonu iyi temsil etmemesine rağmen, popülasyonun çok büyük olması gibi durumlarda yararlıdır. Kolayda örnekleme birden fazla yanlılık biçimine tabidir ve örnekleme hatasının istatistiksel olarak değerlendirilmesine izin verir. Araştırmacının kaynaklarının sınırlı olması durumunda, zaman tasarrufu ve iş gücü kolaylığı açısından da tercih edilebilmektedir. Araştırma, tüm popülasyona ilişkin genellemeler oluşturmak için kullanılacak sonuçlar üretmeyi amaçlamadığında da kullanılabilir. Bu nedenle, olasılıklı olmayan örnekleme tekniklerinin kullanılmasına ihtiyaç vardır (Etikan vd. 2016: 1; Taherdoost, 2016: 13; Stratton, 2021: 373-374). Araştırmanın veri toplama aracı, çalışma grubunu oluşturan katılımcılardan katılım bilgi formu

onayı alındıktan sonra 609 anket yüz yüze uygulanmış ve araştırmanın verileri tespit edilmiştir. Araştırma da 609 ankete ulaşıldıktan sonra anket uygulamasına son verilmiş ve verilerin değerlendirilmesi aşamasına geçilmiştir. Anket verileri (1) Kesinlikle Katılmıyorum, (2) Katılmıyorum, (3) Ne katılıyorum ne de katılmıyorum, (4) Katılıyorum, (5) Kesinlikle Katılıyorum ifadeleri yer alan 5'li likert ölçek şeklindedir. Anket formu A kısmında cinsiyet, medeni durum, unvan, hekimlerin çalıştığı kurum, meslekte geçirdiği süre, günlük ortalama baktığı hasta sayısı, haftalık tıbbi satış temsilcisi ziyaret sayısı ve farmakoekonomi üzerine eğitim alıp almadığına yönelik sorular bulunmaktadır. B bölümünde literatür taraması sonucu uzmanına danışılarak ölçek maddeleri belirlenmiş, bu maddeler anlam ve uygunluk açısından değerlendirilerek araştırmacılar tarafından geliştirilen ölçek kullanılmıştır. C ve D kısmındaki ölçekler "Multi Dimensional Factors On Prescription Behavior And Their Impact On Prescription Behavior" (Doğancı, 2015: 192-195) doktora tezinden alıntılanmıştır. Anketin E bölümünde ise, "Hekimlerin İlaç Reçeteleme Davranışlarını Etkileyen Faktörlerin İncelenmesi" (Demirkıran, 2010:206-207) yüksek lisans tezinden faydalanılmıştır.

Anketin B bölümü "Farmakoekonomi Bilgi Düzeyi Ölçeği" ve "Farmakoekonomik değerlendirme", "Farmakoekonominin önemi", "Farmakoekonomi Bilgi", "Farmakoekonomi Farkındalık" alt boyutlarından oluşmaktadır. C bölümünde "Reçeteleme Davranışında Firma Tercihi Ölçeği" ve "Yönetimsel Etkinlik ve Güvenirlik" alt boyutlarından oluşmaktadır. D bölümü "Reçeteleme Davranışında Satış Temsilcisi Rolü Ölçeğine" ilişkin olarak "sosyal iletişim", "güvenilirlik davranış" ve "benzerlik" alt boyutlarından oluşmaktadır. Araştırmanın E bölümü ise "Reçeteleme Davranışında İlaç Tercihi Rolü Ölçeğine" ilişkin "ilaç etkinliği", "hekim bilgisi" ve "maliyet" alt boyutlarından oluşmaktadır.

Araştırmada kullanılan anket formu 50 katılımcı ile pilot çalışma yapılmış, geçerlilik güvenilirlik analizleri uygulandıktan sonra anlaşılmayan ya da eksik ifade olmadığı belirlendikten sonra kitlesel anket uygulamasına geçilmiştir. Sivas ilinde 2021 verilerine göre görev yapan 1693 hekim ve diş hekimi bulunmaktadır.

Araştırmada ideal sayı aşağıdaki formül kullanılarak belirlenmiştir (Karagöz, 2016: 57).

$$n = \frac{N \cdot t_{\alpha/2}^2 \cdot p' \cdot q'}{d^2(N-1) + t_{\alpha/2}^2 \cdot p' \cdot q'}$$

Araştırmanın veri analiz kısmı SPSS 23.0, IBM AMOS 23 ve Nvivo programları kullanılarak değerlendirilmiştir. Verilerin değerlendirilmesinde aritmetik ortalama, yüzde dağılımı gibi istatistiksel metotların yanında güvenilirlik analizi, korelasyon analizi, açıklayıcı faktör analizi (AFA), doğrulayıcı faktör analizi (DFA) yöntemleri kullanılmıştır. Çalışmada ölçek ifadelerin güvenilirliklerini test etmek için ilk olarak iç tutarlılığı denetlenmiş sonrasında ölçeklerin boyutlarını değerlendirmek amacı ile AFA yapılmıştır. Değerlerin AFA uygunluğu Kaiser-Meyer-Olkin (KMO) katsayısı ve Barlett Sphericity testi ile incelenmiştir. AFA

kullanılarak ölçek yapısal geçerliliği test edilmiş, ardından uygunluğunu test etmek için birden fazla faktör içerisinde ale alınarak DFA modeli uygulanmıştır. Hipotezler IBM AMOS 23 Programı ile test edilmiştir.

Ölçeklere ait ortalama puanlar ise içerdikleri maddelerin toplam puanı madde sayısına bölünerek hesaplanmıştır. Anketin uygulanabilmesi için, Sivas Cumhuriyet Üniversitesi Bilimsel Araştırma ve Yayın Etiği Sosyal ve Beşeri Bilimler Kuruluna 01.07.2022 tarih ve 2022-07-10 no ile etik başvurusu yapılmış, incelenmiş ve 13 nolu karar ile ve 04.08.2022 tarihinde etik olarak uygunluğuna karar verilmiştir.

Araştırmanın Sınırlılıkları

Çizelge 1. Katılımcıların Sosyo-Demografik Dağılımları

Table 1. Socio-Demographic Distribution of Participants

Cinsiyet	Sayı	%
Erkek	321	52,7
Kadın	288	47,3
Yaş	Sayı	%
21-30	187	30,7
31-40	247	40,6
41-50	113	18,6
51-60	58	9,5
61 ve üzeri	4	,7
Medeni Durum	Sayı	%
Evli	365	59,9
Bekar	244	40,1
Unvan	Sayı	%
Pratisyen/Aile Hekimi/Araştırma Görevlisi	333	54,7
Uzman hekim/ Uzman Diş Hekimi	251	41,2
Öğretim Üyesi/Dr. Öğr. Üyesi/Doç. Dr./Prof. Dr	25	4,1
Çalışılan Kurum	Sayı	%
Kamu 1. Basamak	139	22,8
Kamu 2. Basamak	262	43,0
Kamu 3. Basamak	161	26,4
Özel 1. Basamak	4	,7
Özel 2. Basamak	43	7,1
Meslekteki Süre	Sayı	%
0-5 yıl	168	27,6
6-10 yıl	126	20,7
11-15 yıl	115	18,9
16-20 yıl	104	17,1
21 yıl ve üzeri	96	15,8
Günlük Ortalama Hasta Sayısı	Sayı	%
0-10	87	14,3
11-20	79	13,0
21 ve üzeri	443	72,7
Haftalık Tıbbi Satış Temsilcisi Ziyaretçi Sayısı	Sayı	%
0-5	289	47,5
6-10	224	36,8
11 ve üzeri	96	15,8
Farmakoekonomi Üzerine Eğitim Alma Durumu	Sayı	%
Evet	90	14,8
Hayır	519	85,2

Türkiye’de sağlık kurumlarında görev yapan tüm hekim-diş hekimlerinin hepsinin araştırmaya dahil edilmesi mümkün değildir. Araştırma Sivas ili ile sınırlandırılmıştır. Araştırma, tüm popülasyona ilişkin genellemeler oluşturmamaktadır.

Bulgular

Demografik Bulgular

Çizelge 1’de katılımcıların cinsiyet, yaş, medeni durum, unvan, çalışılan kurum, meslekteki süre, günlük ortalama hasta sayısı, haftalık tıbbi satış temsilcisi ziyareti, farmakoekonomi eğitimi gibi demografik sorulara verilen cevaplar tablo halinde sunulmaktadır.

Araştırmaya katılan hekim-diş hekimlerinin sosyo-demografik dağılımları incelendiğinde %52,7 sini erkek, %47,3'ünü ise kadınlar oluşturmaktadır. Çalışmaya katılan hekim-diş hekimlerinin yaş aralıklarına baktığımızda %40,6'sı 31-40 yaş, %30,7'si 21-30 yaş, %18,6'sı 41-50 yaş, %9,5'i 51-60 yaş ve %0,7'side 61 ve üzeri yaş grubundan oluşmaktadır. Hekim-diş hekimlerinin %59,9'u evli %40,1 ise bekârdır. Hekimlerin ünvan dağılımına bakıldığında %54,7 Pratisyen/Aile Hekimi/Araştırma Görevlisi, %41,2 Uzman hekim/ Uzman Diş Hekimi, %4,1 Öğretim Üyesi/Dr. Öğr. Üyesi/Doç. Dr./Prof. Dr. oluşturmaktadır. Hekim-diş hekimleri görev yapılan sağlık kurumlarına baktığımızda %43 Kamu 2. Basamak, %26,4 Kamu 3. Basamak, %22,8 kamu 1. Basamak, %7,1 özel 2. Basamak, %0,7 özel 1. Basamaktan oluşmaktadır. Meslekteki çalışma süreleri ile ilgili olarak %27,6'sı 0-5 yıl, %20,7'si 6-10 yıl, %18,9'u 11-15 yıl, %17,1'i 16-20 yıl, %15,8'i 21 yıl ve üzeri meslekte görev yapmaktadır. Günlük ortalama hasta sayılarına baktığımızda %14,3'ü 0-10 hasta, %13'ü 11-20 hasta ve %72,7'si 21 ve üzeri hasta bakmaktadır. Tıbbi satış temsilcilerinden alınan haftalık ziyaret sayıları ile ilgili olarak değerlendirdiğimizde %47,5'i 0-5 ziyaret, %36,8'i 6-10 ziyaret, %15,8'i 11 ve üzeri ziyaret almaktadır. Hekimlere farmakoeкономи üzerine eğitim alma durumuna göre değerlendirdiğimizde %85,2 hekim farmakoeкономи üzerine bir eğitim almadığını, %14,8 hekim ise farmakoeкономи üzerine bir eğitim aldıklarını belirtmişlerdir.

Bir modelin kabul edilebilir uyum ya da mükemmel uyumda olduğunun belirlenmesinde kullanılan en önemli uyum kriterinin X^2/sd ' dir (Schermelele-Engel, Moosbrugger 2003:23-74). X^2 önerilen model ile verinin uyumunu test eder. Anlamsız olması, önerilen model ile örneklem kovaryanslarının benzer olduğunu anlamına gelir. X^2/sd X^2 değeri örneklemden etkilendiğinden serbestlik derecesine oranı daha güvenilir sonuçlar verir. RMSEA Serbestlik derecesini de dikkate alarak modelin örneklem kovaryansı ile ne derecede uyumlu olduğunu sunar. CFI; serbestlik derecesini ve örneklem büyüklüğünü dikkate alarak test edilen modeli temel modele göre mukayese eder. NFI; CFI' dan farklı olarak X^2 dağılımının gerektirdiği şartlara bağlı olmaksızın karşılaştırma yapar. TLI(NNFI); NFI' nın serbestlik derecesi dikkate alarak hesaplanmış halidir. IFI; örneklem büyüklüğü ve modelin karmaşıklık derecesini dikkate alarak modelin uyumunu test eder (Gürbüz 2019: 34).

DFA analizi sonucunda, maddelerin ilgili faktörleri %95 güven seviyesinde doğruladığı ($p<0.05$ $p=0,000$) ve X^2/sd , RMSEA, NFI, CFI değerlerinin mükemmel uyum aralıklarında olduğu belirlenmiştir.

DFA analizine göre, maddelerin ilgili faktörleri %95 güven seviyesinde doğruladığı ($p<0.05$ $p=0,000$) ve X^2/sd , RMSEA, GFI, NFI, CFI değerlerinin kabul edilebilir uyum aralıklarında olduğu belirlenmiştir.

Çizelge 2. Farmakoeкономи Bilgi Düzeyi Ölçeğine Ait Doğrulayıcı Faktör Analizi (DFA) Sonuçları

Table 2. Results of Confirmatory Factor Analysis (CFA) of Pharmacoeconomics Knowledge Level Scale

Ölçüm Adı	Mükemmel Uyum	Kabul Edilebilir Uyum	Modelin Ulaştığı sonuç	Modelin Başarı Düzeyi
χ^2/df	$0 < X^2/sd < 3$	$0 < X^2/sd < 5$	2,361	Mükemmel Uyum
RMSEA	$RMSEA \leq .05$	$RMSEA \leq .10$,047	Mükemmel Uyum
GFI	$.95 \leq GFI < 1.0$	$.90 \leq GFI < 1.0$,958	Mükemmel Uyum
NFI	$.95 \leq NFI < 1.0$	$.90 \leq NFI < 1.0$,944	Kabul Edilebilir Uyum
NNFI (TLI)	$TLI \geq .95$	$TLI \geq .90$,958	Mükemmel Uyum
CFI	$CFI \geq .95$	$CFI \geq .90$,967	Mükemmel Uyum

Schermelele ve Moosbrugger, (2003)

Çizelge 3. Reçeteleme Davranışında Firma Tercih Ölçeğine Ait Doğrulayıcı Faktör Analizi (DFA) Sonuçları

Table 3. Confirmatory Factor Analysis (CFA) Results of the Scale of Company Preference in Prescribing Behavior

Ölçüm Adı	Mükemmel Uyum	Kabul Edilebilir Uyum	Modelin Ulaştığı sonuç	Modelin Başarı Düzeyi
χ^2/df	$0 < X^2/sd < 3$	$0 < X^2/sd < 5$	4,483	Kabul Edilebilir Uyum
RMSEA	$RMSEA \leq .05$	$RMSEA \leq .10$,076	Kabul Edilebilir Uyum
GFI	$.95 \leq GFI < 1.0$	$.90 \leq GFI < 1.0$,908	Kabul Edilebilir Uyum
NFI	$.95 \leq NFI < 1.0$	$.90 \leq NFI < 1.0$,899	Kabul Edilebilir Uyum
NNFI (TLI)	$TLI \geq .95$	$TLI \geq .90$,905	Kabul Edilebilir Uyum
CFI	$CFI \geq .95$	$CFI \geq .90$,920	Kabul Edilebilir Uyum

Schermelele ve Moosbrugger, (2003)

Çizelge 4. Reçeteleme Davranışında Tıbbi Satış Temsilcisi Rolü Ölçeğine Ait Doğrulayıcı Faktör Analizi (DFA) Sonuçları

Table 4. Confirmatory Factor Analysis (CFA) Results of the Medical Sales Representative Role Scale in Prescribing Behavior

Ölçüm Adı	Mükemmel Uyum	Kabul Edilebilir Uyum	Modelin Ulaştığı sonuç	Modelin Başarı Düzeyi
χ^2/df	$0 < X^2/sd < 3$	$0 < X^2/sd < 5$	3,079	Kabul Edilebilir Uyum
RMSEA	$RMSEA \leq .05$	$RMSEA \leq .10$,058	Kabul Edilebilir Uyum
GFI	$.95 \leq GFI < 1.0$	$.90 \leq GFI < 1.0$,904	Kabul Edilebilir Uyum
NFI	$.95 \leq NFI < 1.0$	$.90 \leq NFI < 1.0$,869	Kabul Edilebilir Uyum
NNFI (TLI)	$TLI \geq .95$	$TLI \geq .90$,902	Kabul Edilebilir Uyum
CFI	$CFI \geq .95$	$CFI \geq .90$,909	Kabul Edilebilir Uyum

Schermelele ve Moosbrugger, (2003)

DFA analizine göre, maddelerin ilgili faktörleri %95 güven seviyesinde doğruladığı ($p < 0.05$ $p = 0,000$) ve χ^2/sd , RMSEA, GFI, NFI, CFI değerlerinin kabul edilebilir uyum aralıklarında olduğu belirlenmiştir.

DFA analizine göre, maddelerin ilgili faktörleri %95 güven seviyesinde doğruladığı ($p < 0.05$ $p = 0,000$) ve χ^2/sd , RMSEA, GFI, NFI, CFI değerlerinin kabul edilebilir uyum aralıklarında olduğu belirlenmiştir.

Araştırmada kullanılan ölçekler ve alt boyutları normal dağılım göstermemektedir ($p < 0,05$). Analizlere non parametrik testlerle devam edilmiştir. Hekim-diş hekimlerinin farmakoekonomi bilgi düzeyi, farmakoekonomi değerlendirme, farmakoekonomi önemi, farmakoekonomi bilgi, farmakoekonomi farkındalık, ait ifadeler incelendiğinde tüm ifadelerin 3,50 ve üzerinde olduğu verilen cevaplarda en düşük ifade farmakoekonomi değerlendirme 3,50 $\pm 0,79$ olduğu en

yüksek ifadenin de farmakoekonominin önemi 4,00 $\pm 0,74$ olduğu belirlenmiştir. Reçeteleme davranışında firma tercihi, yönetsel etkinlik, güvenilirlik sonuçları değerlendirildiğinde tüm ifadelerin 3,00 ve üzerinde olduğu verilen cevaplarda en düşük ifade 3,00 $\pm 0,66$ ile güvenilirlik en yüksek ifadenin de 3,20 $\pm 0,61$ ile yönetsel etkinlik olduğu belirlenmiştir. Reçeteleme davranışında satış temsilcisi, sosyal iletişim, güven, etik davranış, benzerlik ifadeleri ile ilgili olarak tüm ifadelerin 2,50 ve üzerinde olduğu verilen cevaplar içerisinde etik davranış 2,50 $\pm 0,69$ ile en düşük, güven 3,37 $\pm 0,60$ ile en yüksek olarak bulunmuştur. Reçeteleme davranışında ilaç tercihi, ilaç etkinliği, hekim bilgi, maliyet ilişkin değerlendirmeler tartışılmıştır. Verilen cevapların 3,66 ve üzerinde olduğu maliyet ile ilgili verilerin 3,66 $\pm 0,86$ ile en düşük, hekim bilgi 4,00 $\pm 0,63$ ile en yüksek olduğu belirlenmiştir.

Çizelge 5. Reçeteleme Davranışında İlaç Tercihi Rolü Ölçeğine Ait Doğrulayıcı Faktör Analizi (DFA) Sonuçları

Table 5. Confirmatory Factor Analysis (CFA) Results of the Role of Medication Preference Scale in Prescribing Behavior

Ölçüm Adı	Mükemmel Uyum	Kabul Edilebilir Uyum	Modelin Ulaştığı sonuç	Modelin Başarı Düzeyi
χ^2/df	$0 < \chi^2/sd < 3$	$0 < \chi^2/sd < 5$	3,782	Kabul Edilebilir Uyum
RMSEA	$RMSEA \leq .05$	$RMSEA \leq .10$	0,068	Kabul Edilebilir Uyum
GFI	$.95 \leq GFI < 1.0$	$.90 \leq GFI < 1.0$	0,941	Kabul Edilebilir Uyum
NFI	$.95 \leq NFI < 1.0$	$.90 \leq NFI < 1.0$	0,939	Kabul Edilebilir Uyum
NNFI (TLI)	$TLI \geq .95$	$TLI \geq .90$	0,942	Kabul Edilebilir Uyum
CFI	$CFI \geq .95$	$CFI \geq .90$	0,954	Mükemmel Uyum

Schermelleh ve Moosbrugger, (2003)

Çizelge 6. Ölçeklere Ait Normal Dağılım Analizi ve Betimsel İstatistik Sonuçları

Table 6. Normal Distribution Analysis and Descriptive Statistics Results for Scales

	Kolmogorov-Smirnov	p	Çarpıklık	Basıklık	\bar{X}	Med.	S.S.
Farmakoekonomi Değerlendirme	,149	,000	-,797	,884	3,34	3,50	,79
Farmakoekonomi Önemi	,157	,000	-1,087	2,488	3,87	4,00	,74
Farmakoekonomi Bilgi	,155	,000	-,889	2,148	3,62	3,75	,65
Farmakoekonomi Farkındalık	,156	,000	-,881	1,753	3,60	3,66	,67
Farmakoekonomi Bilgi Düzeyi	,117	,000	-1,638	6,593	3,61	3,66	,48
Yönetsel Etkinlik	,192	,000	-1,235	3,120	3,15	3,20	,61
Güvenilirlik	,108	,000	-,431	1,151	2,90	3,00	,66
Reçeteleme Davranışında Firma Tercihi	,134	,000	-1,081	2,944	3,05	3,11	,57
Sosyal İletişim	,076	,000	-,130	-,368	2,49	2,57	,77
Güven	,116	,000	-,909	2,404	3,30	3,37	,60
Etik Davranış	,085	,000	,370	,784	2,56	2,50	,69
Benzerlik	,161	,000	-,232	,179	2,67	2,66	,69
Reçeteleme Davranışında Tıbbi Satış Temsilcisi	,080	,000	-,696	3,942	2,80	2,83	,44
İlaç Etkinliği	,157	,000	-,914	1,742	3,77	3,83	,68
Hekim Bilgi	,225	,000	-1,525	5,227	4,15	4,00	,63
Maliyet	,174	,000	-,625	,251	3,50	3,66	,86
Reçeteleme Davranışında İlaç Tercihi	,114	,000	-1,199	4,760	3,82	3,92	,56

Çizelge 7. Farmakoekonomi Bilgi Düzeyi Alt Boyutları ile Reçeteleme Davranışında Firma Tercihi Ölçeği Alt Boyutları ile İlişkisi
Table 7. Relationship between Pharmacoeconomics Knowledge Level Sub-Dimensions and Company Preference Scale in Prescribing Behavior Sub-Dimensions

		Yönetimsel Etkinlik	Güvenilirlik	Firma Tercihi
Farmakoekonomi Değerlendirme	rho	,184**	,172**	,186**
	p	,000	,000	,000
Farmakoekonomi Önemi	rho	,159**	,130**	,158**
	p	,000	,001	,000
Farmakoekonomi Bilgi	rho	,209**	,108**	,183**
	p	,000	,008	,000
Farmakoekonomi Farkındalık	rho	,207**	,094*	,172**
	p	,000	,020	,000
Farmakoekonomi Genel Ölçek	rho	,268**	,190**	,252**
	p	,000	,000	,000

Çizelge 8. Farmakoekonomi Bilgi Düzeyi Alt Boyutları ile Reçeteleme Davranışında Tıbbi Satış Temsilcisi Ölçeği Alt Boyutları ile İlişkisi

Table 8. Relationship between Pharmacoeconomics Knowledge Level Sub-Dimensions and Medical Sales Representative Scale Sub-Dimensions in Prescribing Behavior

		Sosyal İletişim	Güven	Etik Davranış	Benzerlik	Satış Temsilcisi
Farmakoekonomi Değerlendirme	rho	,113**	,156**	-,013	,108**	,135**
	p	,005	,000	,752	,008	,001
Farmakoekonomi Önemi	rho	-,061	,161**	-,001	-,042	,004
	p	,130	,000	,987	,302	,923
Farmakoekonomi Bilgi	rho	-,011	,220**	,024	,021	,075
	p	,793	,000	,561	,597	,063
Farmakoekonomi Farkındalık	rho	,083*	,275**	-,027	,103*	,137**
	p	,040	,000	,509	,011	,001
Farmakoekonomi Genel Ölçek	rho	,052	,285**	-,017	,056	,127**
	p	,196	,000	,675	,169	,002

Çizelge 9. Farmakoekonomi Bilgi Düzeyi Alt Boyutları ile Reçeteleme Davranışında İlaç Tercihi Ölçeği Alt Boyutları ile İlişkisi

Table 9. Relationship between Pharmacoeconomics Knowledge Level Sub-Dimensions and Drug Preference Scale in Prescribing Behavior Sub-Dimensions

		İlaç Etkinliği	Hekim Bilgi	Maliyet	İlaç Temsilcisi
Farmakoekonomi Değerlendirme	rho	,052	,071	,333**	,182**
	p	,196	,081	,000	,000
Farmakoekonomi Önemi	rho	,206**	,276**	,066	,212**
	p	,000	,000	,104	,000
Farmakoekonomi Bilgi	rho	,193**	,211**	,219**	,249**
	p	,000	,000	,000	,000
Farmakoekonomi Farkındalık	rho	,042	,096*	,138**	,107**
	p	,305	,018	,001	,008
Farmakoekonomi Genel Ölçek	rho	,175**	,230**	,299**	,286**
	p	,000	,000	,000	,000

Hekimlerin farmakoekonomi bilgi düzeyleri ile reçeteleme davranışında firma tercihi rolleri arasındaki korelasyon analizlerinden Spearman Rho korelasyon katsayısı ile analiz edilmiştir. Farmakoekonomi alt boyutlarından Farmakoekonomi değerlendirme boyutu ile yönetimsel etkinlik (rho=,184), güvenilirlik (rho=,172), firma tercihi genel ölçek (rho=,186) arasında çok düşük kuvvette pozitif yönlü ilişki vardır. Farmakoekonomi önemi boyutu ile yönetimsel etkinlik (rho=,159), güvenilirlik (rho=,130), firma tercihi genel ölçek (rho=,158) arasında çok düşük kuvvette pozitif yönlü ilişki vardır. Farmakoekonomi bilgi alt boyutu ile yönetimsel etkinlik

(rho=,209), güvenilirlik (rho=,108), firma tercihi genel ölçek (rho=,183) arasında çok düşük kuvvette pozitif yönlü ilişki vardır. Farmakoekonomi farkındalık alt boyutu ile yönetimsel etkinlik (rho=,207), güvenilirlik (rho=,094), firma tercihi genel ölçek (rho=,172) arasında çok düşük kuvvette pozitif yönlü ilişki vardır. Farmakoekonomi genel ölçek bilgi düzeyleri ile yönetimsel etkinlik (rho=,268), firma tercihi genel ölçek (rho=,252) arasında düşük kuvvetli pozitif yönlü, güvenilirlik (rho=,190) boyutu ile çok düşük kuvvette pozitif yönlü ilişki vardır. Bu bağlamda;

H₁: Hekimlerin farmakoekonomi bilgi düzeylerinin firma tercihi rolü ile ilişkisi vardır. Hipotezi Kabul Edilmiştir.

H_{1a}: Hekimlerin farmakoekonomi bilgi düzeylerinin ile yönetsel etkinlik alt boyutu arasında ilişki vardır. Hipotezi Kabul Edilmiştir.

H_{1b}: Hekimlerin farmakoekonomi bilgi düzeyleri ile güvenilirlik alt boyutu arasında ilişki vardır. Hipotezi Kabul Edilmiştir.

Hekimlerin farmakoekonomi bilgi düzeyleri ile reçeteleme davranışında satış temsilcisi rolleri arasındaki korelasyon analizlerinden Spearman Rho korelasyon katsayısı ile analiz edilmiştir. Farmakoekonomi alt boyutlarından Farmakoekonomi değerlendirme boyutu ile sosyal iletişim (rho=,113), güven (rho=,156), benzerlik (rho=,108), satış temsilcisi genel ölçek (rho=,135) arasında çok düşük kuvvette pozitif yönlü ilişki vardır. Farmakoekonomi değerlendirme boyutu ile etik davranış alt boyutları arasında istatistiksel olarak anlamlı bir ilişki yoktur ($p>0,05$). Farmakoekonomi önemi boyutu ile güven (rho=,161) boyutu arasında çok düşük kuvvette pozitif yönlü ilişki vardır. Farmakoekonomi önemi boyutu ile sosyal iletişim, etik davranış, benzerlik ve satış temsilcisi genel ölçek düzeyleri arasında istatistiksel olarak anlamlı bir ilişki yoktur ($p>0,05$). Farmakoekonomi bilgi boyutu ile güven (rho=,220) boyutu arasında düşük kuvvette pozitif yönlü ilişki vardır. Farmakoekonomi bilgi boyutu ile sosyal iletişim, etik davranış, benzerlik ve satış temsilcisi genel ölçek düzeyleri arasında istatistiksel olarak anlamlı bir ilişki yoktur ($p>0,05$). Farmakoekonomi farkındalık boyutu ile sosyal iletişim (rho=,083), benzerlik (rho=,103), satış temsilcisi genel ölçek (rho=,137) arasında çok düşük, güven (rho=,275) boyutu ile düşük kuvvette pozitif yönlü ilişki vardır. Farmakoekonomi farkındalık boyutu ile etik davranış alt boyutu arasında istatistiksel olarak anlamlı bir ilişki yoktur ($p>0,05$). Farmakoekonomi genel ölçek bilgi düzeyleri ile güven boyutu (rho=,285) arasında düşük kuvvetli, satış temsilcisi genel ölçek düzeyi arasında (rho=,127) çok düşük kuvvetli pozitif yönlü bir ilişki bulunmaktadır. Bu bağlamda

H₂: Hekimlerin farmakoekonomi bilgi düzeylerinin satış temsilcisi rolü ile ilişkisi vardır. Kabul Edilmiştir

H_{2a}: Hekimlerin farmakoekonomi bilgi düzeylerinin sosyal iletişim alt boyutu ile ilişkisi vardır. Reddedilmiştir

H_{2b}: Hekimlerin farmakoekonomi bilgi düzeylerinin güven alt boyutu ile ilişkisi vardır. Kabul Edilmiştir **H_{2c}:** Hekimlerin farmakoekonomi bilgi düzeylerinin etik davranış alt boyutu ile ilişkisi vardır. Reddedilmiştir

H_{2d}: Hekimlerin farmakoekonomi bilgi düzeylerinin benzerlik alt boyutu ile ilişkisi vardır. Reddedilmiştir

Hekimlerin farmakoekonomi bilgi düzeyleri ile reçeteleme davranışında ilaç tercihi rolleri arasındaki ilişki korelasyon analizlerinden Spearman Rho korelasyon katsayısı ile analiz edilmiştir. Farmakoekonomi alt boyutlarından Farmakoekonomi değerlendirme boyutu ile maliyet (rho=,333) boyutu arasında düşük kuvvetli, ilaç temsilcisi genel ölçek düzeyi (rho=,182) ile çok düşük kuvvetli pozitif yönlü ilişki vardır. Farmakoekonomi değerlendirme boyutu ile ilaç etkinliği, hekim bilgi alt

boyutları arasında istatistiksel olarak anlamlı bir ilişki yoktur ($p>0,05$). Farmakoekonomi önemi alt boyutu ile ilaç etkinliği (rho=,206), hekim bilgi (rho=,276) ve ilaç tercihi genel ölçek puanı ile (rho=,212) düşük kuvvetli pozitif yönlü ilişki vardır. Farmakoekonomi önemi aly boyutu ile maliyet alt boyutu arasında istatistiksel olarak anlamlı bir ilişki bulunmamaktadır ($p>0,05$). Farmakoekonomi bilgi boyutu ile ilaç etkinliği (rho=,193) arasında çok düşük kuvvetli, hekim bilgi (rho=,211), maliyet (rho=,219) ve ilaç temsilcisi genel ölçek (rho=,249) düzeyi arasında düşük kuvvetli pozitif yönlü ilişki vardır. Farmakoekonomi farkındalık boyutu ile hekim bilgi (rho=,096), maliyet (rho=,138) ve ilaç temsilcisi genel ölçek (rho=,107) düzeyi arasında düşük kuvvetli pozitif yönlü ilişki vardır. Farmakoekonomi farkındalık boyutu ile ilaç etkinliği alt boyutu arasında istatistiksel olarak anlamlı bir ilişki bulunmamaktadır. Farmakoekonomi genel ölçek düzeyleri ile ilaç etkinliği (rho=175) boyutu ile çok düşük kuvvetli, hekim bilgi boyutu (rho=,230), maliyet (rho=,299), ilaç temsilcisi genel ölçek (rho=,286) düzeyleri arasında düşük kuvvetli pozitif yönlü bir ilişki bulunmaktadır. Bu bağlamda

H₃: Hekimlerin farmakoekonomi bilgi düzeylerinin ilaç temsilcisi rolü ile ilişkisi vardır. Kabul Edilmiştir.

H_{3a}: Hekimlerin farmakoekonomi bilgi düzeylerinin ilaç etkinliği alt boyutu ile ilişkisi vardır. Kabul Edilmiştir.

H_{3b}: Hekimlerin farmakoekonomi bilgi düzeylerinin hekim bilgi düzeyleri alt boyutu ile ilişkisi vardır. Kabul Edilmiştir.

H_{3c}: Hekimlerin farmakoekonomi bilgi düzeylerinin maliyet alt boyutu ile ilişkisi vardır. Kabul Edilmiştir.

Tartışma ve Sonuç

Sağlık maliyetleri içinde önemli bir paya sahip olan ilaç maliyetlerinin sağlık kurumları üzerindeki ekonomik yükünün iyi bir şekilde değerlendirilmesinin yapılması ekonomik verimlilik için önemlidir. İlaçların tercihi konusunda hastaya uygun ilacın verilmesi, aynı etki mekanizmasına sahip ilaçlar arasında hangi ilacın önce kullanılması gibi hem fayda hem de maliyetlere yönelik doğru analizlerin yapılması gerekir. Bu bağlamda sağlık hizmetlerinde harcanan paranın bireyde ne kadar yüksek sağlık iyileştirmesi yapacağı, sağlık kazanım maliyetlerini ne kadar artıracacağı, harcanan paranın elde edilecek faydaya değip değmeyeceği gibi hesaplamaların da insani değerler önemsenerak yapılması amaçlanmaktadır. Buradaki temel odak noktası bu değerlendirmenin yapılırken ilacın etkinlik, maliyet ve insani yönünün bir arada ele alınarak farmakoekonomik analiz yöntemleri ile değerlendirilerek maliyetlerin en aza indirilmesi amaçlanır. Farmakoekonomi ilaç maliyetlerinin dengelenmesi hususunda önemli bir araçtır. İnsanların doğuştan, yaşam alışkanlıklarından, çevresel ve kültürel özelliklerinden kaynaklı bireysel farklılıkları vardır. Bireysel farklılıklar aynı hastalığın yaşattığı benzer sorunlar karşısında insanlar aynı ilaçları kullansalar dahi elde edecekleri sağlık kazanımlarının ortaya çıkaracağı faydalarında farklı olmasına neden olmaktadır. Bireysel

farklılıkların insanlarda yarattığı bu durum sağlık maliyetlerinin de farklı olmasına neden olmaktadır. Dolayısı ile hekimlerin tedavide esas belirleyici olması ilaçların reçeteleme davranışına etki eden faktörlerin araştırılmasını önemli olmaktadır.

Hekimlerin tedavide kullandığı ilaçların sağlık bütçeleri içinde önemli bir yer tutması (Walzak vd. 1994: 1159) ilaç firmalarının pazarlama ağırlığının genellikle hekimlere yönelik olmasına sebep olmaktadır. (Manchanda, Honka 2005:785) Bu durum aslında hekimlerin reçetelerinin ilaç harcamalarındaki artışın esas nedeni olduğunu da göstermektedir. Bu araştırma hekimlerin reçeteleme davranışlarına yönelik olarak tercihlerinin belirlenmesi, hekimlerin reçeteleme davranışlarının tespit edilmesi bağlamında hekimlerin katılımı ile yapılmıştır. Bu araştırma hekimlerin reçete yazarken tercihlerini hangi faktörleri dikkate alarak değerlendirdiklerine ilişkin yapılan bir araştırmadır.

Yapılan araştırma da hekimlerin ankete verdikleri cevaplar incelendiğinde Farmakoekonomi Bilgi Düzeyi Ölçeğine ilişkin en yüksek derecede katıldıkları ifade $4,00 \pm 0,74$ ile Farmakoekonominin önemli olduğu, genel olarak ölçekteki ifadeler ile ilgili olarak hekimlerin farmakoekonomi bilgi düzeylerine ilişkin farkındalıklarının yüksek olduğu söylenebilmektedir. Bu sonuçla beraber hekimlerin ilaç tercihinde maliyet boyutuna dikkat ettikleri ve maliyet konusunda ilaç tercihinde maliyet algısının yüksek olduğu söylenebilmektedir. Hekimlerin bilgi düzeyinin yüksek olması, ilaç tercihi konusundaki maliyet ve klinik etkinlik değerlendirmelerine dikkat ettikleri belirtilebilmektedir. Hekimlerin genelde uygun maliyetli ilaçları tercih etme konusunda hem fikir olması uygun maliyetli ilaçları tercih etmenin öneminin farkında olduklarını gösterir. Fakat uygun maliyetli ilaçları tercih etme konusundaki hekimler arasında oranın yüksek olması aslında hekimlerin ideal olan ya da olması gerekeni ifade etmenin bir göstergesi olabilmektedir. Hekimlerin yaptığı bu değerlendirmenin uygulamada aynı olacağı anlamına gelmeyeceği de belirtilebilmektedir. Bu durum hekimlerin maliyetlere ilişkin bilgi durumlarının daha iyi tespit edilmesi açısından farmakoekonomik bilgi düzeylerini ölçmeye yönelik daha fazla ölçek geliştirilerek daha fazla nitel ve nicel çalışmalar yapılması gerektiği anlamına gelebilmektedir.

Hekimlerin reçeteleme davranışında firma tercihinin yönelik değerlendirmeler incelendiğinde $3,00 \pm 0,66$ ve üzeri olduğu, hekimlerin ölçeğe ilişkin olarak en yüksek katıldıkları boyut $3,20 \pm 0,61$ ile yönetsel etkinlik, güvenilirlik olmuştur. İlaç firmaları çeşitli paydaş grupları tarafından bir şirket imajı oluşturmak için kullanılan temel nitelikleri önemsemektedirler. İlaç firmasının ilaç pazarında paydaşlara yönelik değer yaratma girişimleri özellikle paydaşların gözünde kurumsal imajın değerine olan ilgisinin artmasına neden olabilmektedir. Bu bağlamda ilaç firmaları hekimlerin reçeteleme davranışlarını değiştirmeye yönelik bir takım pazarlama faaliyetleri kullanırlar. Literatürde pazarlama faaliyetleri arasında kongre, literatür desteği, tanıtım materyalleri, tıbbi satış temsilcileri, çevreye karşı duyarlı ilaç üretimi, Ar-

Ge yatırımları, ilaçlara aşinalık, paranın karşılığını vermesi gibi faktörler bulunmaktadır. İlaç firmasının kurumsal itibarının iyi ve yüksek olması hekimlerin reçeteleme davranışını değiştirmeye yönelik olarak kullandığı faktörleride doğrudan etkileyebilmektedir (Ahmed vd. 2016: 163-164; Rahmner vd. 2009: 125; Srivastava, Wagh 2020:120; Wright, Fill 2001:100-106). Hekimler yeni bir ilacı ilk kez reçete etme konusunda ilk bilgileri ilaç firmaları aracılığı ile öğrendiklerini belirtmişlerdir. Bunun yanında bilgi edinme konusunda yeni bir ilacı reçete ederken ilaç şirketinin çalıştığı broşürleri kullandıklarını ve ilaç firmaları tarafından sağlanan bilgilerin faydalığı olduğunu bildirmişlerdir (Anderson vd. 2009: 994-1000; Hossain vd. 2013: 115-116). Bu pazarlama faaliyetleri ilaç firmasının hekimin algısında iyi bir şekilde tanınması, firma üzerindeki olumlu algının artmasına neden olacağından aslında stratejik bir öneme sahiptir. İlaç firmasının sahip olacağı profesyonel yönetim- hizmet, finansal sağlamlık, kurumsal sosyal sorumluluk marka bilinirliğini artırarak hekimin gözünde kurumsal itibarın artmasına sebep olabilmektedir. Böylelikle kurumsal itibarı iyi olan ilaç firmasının kullandığı pazarlama argümanlarının da kolay kabul edilmesini sağlayabilir. Bu durum ilaç firmasının rakiplerine kıyasla performansının artmasını sağlayarak rekabet avantajı elde etmesine de neden olabilmektedir. Hekimlerin ilaç firmaları ile ilgili olarak ilaç seçiminde ilaç firmasına duyulan itibar ve güvenin önemli bir etki olduğu, ilaç firmasının saygın, kaliteli, ilacın piyasada kolay bulunabilir olması, fiyatı, yerli ilaç firması özelliği, ilaç lansmanları önemli bir etkiye sahiptir. Bunun yanında hekimlere yönelik yapılan sponsorlukların da ilgiyi artırdığı belirtilmiştir. Dolayısı ile tüm bu etkenlerin firma tercihi olasılığını artırdığı halde hekimlerin genellikle firma etkisini inkâr ettikleri fakat bu etkinin önemli olduğu belirtilmiştir (Carthy vd. 2000: 36-41; Oshikoya vd. 2011: 1; Al-Areefi vd. 2013: 986-987; Narayan vd. 2020; 4888; Parmata, Chetla 2021: 189; Vandenplas vd. 2022: 17-18). Hekimin gözünde iyi itibarı olan, kurumsal imajı güçlü olan ilaç firmasının çalıştırdığı tıbbi satış temsilcisinin de hekim ile daha kolay ilişkiler kurmasını ve tıbbi satış temsilcisinin kendisini hekime daha kolay kabul ettirmesini sağlayarak ziyaretlerindeki kaliteyi ve farkındalığı da artırabilmektedir. Bu durum ilaç firmasının tercih edilme olasılığını da artırabilir. İlaç firmasına rakiplerine kıyasla rekabet avantajı da sağlayabilmektedir. Hekimlerin firma tercihi konusunda yönetsel etkinliğin ve güvenilirliğin yüksek olması ilaç firmasının faaliyetlerine bakarak bu değerlendirmeleri yaptığı söylenebilmektedir.

Hekimlerin, farmakoekonomi bilgi düzeyi ile ilaç tercihi arasındaki ilişkiye önem verdikleri görülmektedir. Bu durum hekimlerin ilaç tercihi konusunda etkinlik ve güvenlik kriterlerini dikkate alarak ilaçları tercih ettiklerinin göstergesi olabilmektedir. Literatürde hekimlerin ilaç tercihi konusunda reçete yazma davranışları ile ilgili olarak, özellikle ilaç etkinliği konusuna önem verdikleri, ilacın güvenliğine dikkat ettikleri, hastanın durumunu gözeterek ilaçları reçete ettikleri belirtilmiştir (Goold vd. 1994: 549; Walzak vd. 1994: 1159; Ryan vd. 1996: 326; Özata vd. 2008: 539; Theodorou vd.

2009: 5-9). Hekimlerin farmakoekonomi ve satış temsilcisi arasındaki ilişkiye bakıldığında algının düşük olduğunu söylenebilmektedir. Hekimlerin reçeteleme davranışına etki eden faktörlerden satış temsilcisi faktöründe en yüksek etki oranının ise güven ve benzerlik alt boyutu olduğu görülmektedir, fakat istatistiksel olarak anlamlı değildir. Bu durum hekimlerin kendilerini uzun süre ziyaret eden tıbbi satış temsilcilerini daha kolay kabul ettiklerini, ikili ilişkilerde daha yakın hissettiği tıbbi satış temsilcisini daha kolay kabul etme olasılığını artırdığı ile alakalı olabilmektedir. Literatürde hekimlerin ilaç tercihi konusunda ilaç firmalarının yapmış olduğu pazarlama faaliyetlerinden olumlu yönde etkilendikleri, tıbbi satış temsilcilerinin yapmış olduğu aktif pazarlama faaliyetlerinden de olumlu yönde etkilendiklerini belirtmişlerdir (Oshikoya vd. 2011: 1).

Hekimlerin Reçeteleme Davranışında Satış Temsilcisi ölçeğine ilişkin olarak değerlendirmelerin $2,50 \pm 0,69$ ve üzeri olduğu, en yüksek değer olarak $3,37 \pm 0,60$ ile güven, en katılım sağlanan ifade ise $2,50 \pm 0,69$ ile etik davranış gelmektedir. Hekimlerin satış temsilcisine ilişkin algılarının yüksek olduğu söylenebilmektedir. Bu sonuç hekimlerin ilaç tercihi konusunda ziyaret aldığı tanıtım temsilcisinin çalıştığı ilaçları reçete etme konusunda daha duyarlı olabilecekleri, hekimlerin ikili ilişkilerinde etik davranış boyutuna dikkat ettikleri, ilaç tercihi ile ilgili olarak da güven duydukları ve etik davranış sergileyen tıbbi satış temsilcilerinin ilaçlarını tercih etme konusunda daha istekli olabilecekleri söylenebilmektedir.

Literatürde hekimlerin ilaç firmalarından tıbbi satış temsilcileri aracılığı ile düzenli ziyaret istedikleri, tıbbi satış temsilcilerinin ilaç tanıtımı ile ilgili yapacağı detaylandırma faaliyetlerinin (yan etki gibi) önemli olduğu belirtilmiştir (Spiller, Wymer 2002: 23-26). Araştırmada hekimlerin tıbbi satış temsilcilerindeki etik davranış ilkelerinin yüksek çıkması hekimlerin kendilerini ziyaret eden tıbbi satış temsilcilerinin nitelik ve eğitimine önem verdiklerinin de göstergesi olabilir. Literatürde hekimlerin tıbbi satış temsilcilerin özelliği hakkındaki ilaç firmalarından beklentileri arasında iyi eğitilmiş, iyi ürün bilgisi, iyi iletişim, iyi tutum/davranış ve iyi bir kişilik gibi birtakım niteliklere sahip olması gerektiği belirtilmiştir (Dhanawade vd. 2009: 55).

Hekimlerin Reçeteleme Davranışında İlaç Tercihi ölçeğine ilişkin alt boyutlar incelendiğinde yapılan değerlendirmelerin $3,66 \pm 0,86$ ve üzeri olduğu ölçeğin alt boyutlarında hekim bilgi düzeyine ilişkin algının $4,00 \pm 0,63$ ile en yüksek olduğunu söylenebilmektedir. Bu durum bize hekimlerin reçeteleme alışkanlıklarının yüksek olması, kendi hekim bilgilerinin reçete yazma alışkanlıklarına karşı geçmişten gelen bağlılıklarının ve alışkanlıklarının olması olarak belirtilebilmektedir. Hekimlerin firma, ilaç, fiyat hakkındaki bilgisinin yüksek olması pazarlama faaliyetlerinin daha agresif olmasına, tıbbi satış temsilcilerinin hekimlerin reçetelerine girmek için daha çok çaba sarf etmelerine neden olabilmektedir. Literatürde hekimlerin ilaç firması, ilacın maliyet gibi hekim bilgi farkındalığının yüksek olması hekimlerin reçeteleme alışkanlıklarına daha dirençli olmasına ve farkındalıklarının yüksek olmasına neden olmaktadır

(Carthy vd. 2000: 36-41; Anderson vd. 2009: 994-1000; Oshikoya vd. 2011: 1; Al-Areefi vd. 2013: 986-987; Hossain vd. 2013: 115-116; Narayan vd. 2020; 4888; Parmata, Chetla 2021: 189; Vandenplas vd. 2022: 17-18).

Araştırmada elde edilen sonuçlar özetlenirse hekimlerin farmakoekonomi bilgi düzeylerine ilişkin olarak hekimlerin farmakoekonomiye önem verdikleri, farmakoekonomi bilgi düzeyi algılarının yüksek olduğu görülmektedir. Bu bağlamda hekimlerin firma, ilaç, maliyet, etkinlik, tıbbi satış temsilcisi, hekimlik bilgisi gibi faktörlere yönelik değerlendirmelerin reçeteleme alışkanlıklarında etkili olduğu belirtilebilir. Araştırmadan elde edilen sonuçlara bakıldığında hekimlerin reçeteleme davranışlarının aslında tek bir etkenden ziyade aynı anda birden fazla faktörün neden olduğu söylenebilir.

İlaç pazarında ilaçların son kullanıcının hasta olması hekimin ise hastanın kullanacağı ilaçlar konusunda tek belirleyici olması ilaç pazarını diğer pazarlardan ayıran en önemli farklardan birisini oluşturmaktadır. Hekimin ilaçları tercih konusunda esas belirleyici olması ilaç firmalarının hekimlere yönelik pazarlama faaliyetlerinin daha agresif olmasına neden olmaktadır. İlaç firmalarının en önemli ve etkili pazarlama faaliyeti tıbbi satış temsilcileridir. Tıbbi satış temsilcileri hekimleri düzenli ve sık ziyaretler yaparak hekimlerle olan ilişkilerini geliştirirler. Böylelikle hekimlerin kişisel tutumları hakkında daha ayrıntılı fikir sahibi olarak, hekimlerin reçete tercihindeki fikirlerini değiştirmeye yönelik olarak olumlu algı yaratırlar. İlaç firmalarının hekimlere yönelik olarak gerçekleştirdiği yoğun pazarlama faaliyetleri rasyonel olmayan reçeteleme davranışlarını da ortaya çıkarabilir. Bu durum ilaç tüketimine ve maliyetlerin artmasına neden olabilmektedir.

Hekimlerin tedavi hakkındaki kararları, sağlık harcamalarını ve hasta bakımının kalitesini doğrudan etkilemektedir. Hekimlerin tedavide kilit bir konumda olması, ilaçların tercihi konusunda esas belirleyici olması reçete yazma alışkanlıklarını etkileyen faktörlerin araştırılmasını önemli kılmaktadır. Bu çalışma ve literatür araştırması, hekimlerin reçeteleme davranışında etkili birden fazla faktör olduğunu göstermektedir. Hekimlerin reçeteleme davranışı ile ilgili olarak Dünyada ve Türkiye’de literatürler ve araştırmalar bulunmaktadır. Bu çalışmayı diğer çalışmalardan ayıran en büyük özellik hekimlerin reçeteleme davranışını farmakoekonomik bilgi düzeyleri ile değerlendirildiği bir çalışma olmasıdır.

Öneriler

Sağlık harcamaları içerisinde önemli bir yeri olan ilaçların maliyetlerine ilişkin olarak hekimlerin reçeteleme davranışlarını rasyonel hale getirilmesi için mutlaka tıp fakültesi eğitiminden başlayarak bilgilendirilmesi gereklidir. İlaç firmalarının pazarlama faaliyetlerini hekimin ilaç tercihinin saygı gösterilerek yapılması gereklidir. Farmakoekonomi hakkında daha fazla uygulama ve araştırmaların teşvik edilmesi, farklı örneklem gruplarında çalışılması farmakoekonominin önemini ve farkındalığını daha da artıracaktır.

Extended Abstract

Medicines are generally provided through doctors. Physicians are the only decision makers regarding patients' medication use (Smith, 1991: 15-54; Ding vd. 2014: 6; Katsanis, 2015: 32). Patients trust physicians with all their professional knowledge and give them the responsibility of making important decisions in their lives. For this reason, pharmaceutical companies try to influence prescribing behavior by paying more attention to physicians in their drug marketing activities. Pharmaceutical companies try to change physicians' prescriptions by using sales-marketing strategies in order to get a larger share in the relevant indication of the drugs they offer to the market. Physicians' prescribing behavior may change due to their interactions with pharmaceutical companies (Lexchin, 1993: 1401; Gönül vd. 2001: 79). Therefore, the main customer focus of pharmaceutical companies is physicians (Alt, Puschmann 2005: 297-311). This situation may also lead to irrational use of limited health resources and unnecessary consumption of medicines (Soumerai, Avorn 1990: 549). Relatedly, in the literature, it is stated that more efficient use of health resources can be achieved by researching and understanding the factors affecting physicians' prescribing, better dissemination of information and more conscious decision-making (Gallan, 2004: 3). Limited resources in health services require that drugs, which have a significant share in health expenditures, be consumed in a way that produces the highest benefit for patients (Beylik et al. 2022: 6; Dawes, Lens 2002: 1239-1240; Donaldson et al., 1996: 267; Drummond et al. ., 2015: 2-3; Mooney, Drummond 1982: 950; Simon et al. In the modern healthcare system, physicians aim to minimize drug treatment costs and maximize patient development by using clinical guidelines as well as personal expertise in the clinical decision-making process under uncertainty (Bennett, Hauser 2013: 9-16; Patel et al. 2009: 5-8; Thomas, 2018: 270-271). In the decision-making process, physicians evaluate which drug to choose by evaluating the administration of the right drug to the right patient at the right time and by comparing two drugs with similar mechanisms of action in the same therapeutic class (Ahuja et al. 2004: 80-81). Therefore, the appropriate use of drugs in medical treatment will also benefit the development of scarce resources and the continuity of financing (Baltussen et al. 1999: 457; Revicki, Lori 1999: 433). In this context, whether the resources can cover the cost of treatment and who will allocate them are important in terms of the sustainability of the financing (Torrance et al., 1972: 118). One quarter of the treatment costs incurred by physicians creating demand are allocated by patients, and the rest by insurance companies and health care organizations (health institutions that provide or arrange to provide continuity of service - from good care to emergency surgery) (Pauly, 1988: 228; Folland et al. 2016: 323). In this context, it is important whether a drug is valuable in terms of cost-effectiveness, whether the drug saves money and

provides similar effectiveness to the current treatment at the same or lower cost, or whether it makes a significant improvement and whether a higher price can be justified (Katsanis, 2015: 31). Developed industrial countries are concerned about balancing healthcare costs and, in particular, the rise in pharmaceutical spending. When we look at the reasons for the increase in drug expenditures, it can be said that they are high prices, the introduction of original and generic products to the market, and physicians' prescriptions (Griffin, Chew 1993: 54-55).

With the widespread use of generic drugs in recent years, the existence of asymmetric information between the pharmaceutical company and the physician, the physician being the key decision-maker in drug preference and directly affecting the treatment, physicians' opinions about prescribing can be changed by marketing activities, physicians can be persuaded to try a new drug, direct advertising of drugs is prohibited. The growing competition among pharmaceutical companies heightens their focus on physicians, placing physicians at the center of their promotional activities. It is stated that the pharmaceutical industry has an impact on the prescription decisions of the physicians it visits, and that the influence of the pharmaceutical industry on the prescribing habits of physicians may also cause irrational and non-objective prescribing effects. The fact that physicians are in such a key position makes it crucial to investigate the factors affecting prescribing habits. In the literature review, pharmacoeconomic evidence, drug effectiveness, safety, patient compliance, ease of use, cost, medical sales representatives, physician's clinical experience, side effects, physician's desire to avoid side effects, role and impact of new technologies, advertising, promotional materials, pharmaceutical company reputation. Factors such as reputation, domestic pharmaceutical companies, scientific articles-journals, regulation, and control studies by health authorities, patient expectations, congresses, clinical experience, drug samples, ease of access to the drug, peer influence, price, and brand are important in physician prescribing behavior. Therefore, it is a complex situation that is directly affected by many factors in the drug prescribing behavior of physicians (Hemminki, 1975: 111; Hemminki, 1976: 321-322; Avorn et al. 1982: 5-6; Berndt et al. 1995: 101; Cockburn, Pit, 1997: 521-522; Carthy et al. 2000: 41; Chew et al. 2000: 482; Lundin, 2000: 639-657; Steinman et al. 2001: 551; De Laat et al. 2002: 103-108; Gallan, 2004: 4; Schumock et al. 2004: 557; Zimmerman et al. 2004: 1285; Wright, Lundstrom 2004: 33-36; Buusman et al. 2007: 209; Theodorou vd. 2009: 5-9; Oshikoya vd. 2011: 1; Al-Areefi vd. 2013: 986-987; Kasliwal, Bansal 2013: 2; Mintzes et al. 2013: 1368; Shamim-ul-haq et al. 2014: 32-34; Kamuhabwa, Kisoma 2015: 2107; Kesselheim et al. 2016: 858; Fickweiler et al. 2017: 1-10; Narayan et al. 2020: 4888; Kianmehr et al. 2020: 1054; Passalacqua et al. 2020: 6; Parmata, Chetla 2021: 189; Price et al. 2021: 1770; Eldrwich et al. 2022: 469-470; Kabir et al. 2022: 121-122; Vandemplas et al. 2022: 17-18).

Part A of the survey form contains demographic characteristics. In section B, the scale items were determined in consultation with an expert as a result of the literature review, the items were evaluated in terms of meaning and suitability, and the scale developed by the researchers was used. The scales in parts C and D are quoted from the doctoral thesis "Multidimensional Factors On Prescription Behavior And Their Impact On Prescription Behavior" (Doğancı, 2015: 192-195). Section E of the survey was used from the master's thesis "Investigation of Factors Affecting Physicians' Drug Prescribing Behaviors" (Demirkiran, 2010:206-207).

To conduct the survey, an ethical application was submitted on 01.07.2022, with reference number 2022-07-10, to the Sivas Cumhuriyet University Scientific Research and Publication Ethics Social and Human Sciences Board. After review, the application was deemed ethically appropriate, as confirmed by decision number 13 on 04.08.2022.

The survey form used in the research was piloted with 50 participants, and after validity and reliability analyzes were performed and it was determined that there were no incomprehensible or missing statements, mass survey application was started. According to 2021 data, there are 1693 physicians and dentists working in Sivas province. The research was conducted in Sivas province with 609 surveys using convenience sampling method between September 2022 and February 2023. The data collection tool of the research was applied face to face a total of 609 surveys were applied after obtaining approval from the participants in the study group via the participation information form, and the research was limited to the province of Sivas.

When the socio-demographic distribution of the physicians-dentists participating in the research is examined, 52.7% are men and 47.3% are women. When we look at the age ranges of the physician-dentists participating in the study, 40.6% are 31-40 years old, 30.7% are 21-30 years old, 18.6% are 41-50 years old, 9.5% are 51-51 years old. The population is 60 years old and 0.7% is 61 and over. 59.9% of physician-dentists are married and 40.1% are single. Looking at the title distribution of physicians, 54.7% are General Practitioner/Family Physician/Research Assistant, 41.2% are Specialist Physician/Specialist Dentists, 4.1% are Lecturer/Dr. Lecturer Member/Assoc. Dr./Prof. It consists of Dr. When we look at the health institutions where physicians and dentists work, 43% are public 2nd level, 26.4% are public 3rd level, 22.8% are public 1st level, 7.1% are private 2nd level, 0.7% are private 1st level. It consists of steps. Regarding the duration of employment in the profession, 27.6% of them are 0-5 years, 20.7% are 6-10 years, 18.9% are 11-15 years, 17.1% are 16-20 years, 15.8% have been working in the profession for 21 years or more. When we look at the daily average number of patients, 14.3% are caring for 0-10 patients, 13% are caring for 11-20 patients and 72.7% are caring for 21 and more patients. When we evaluate the number of weekly visits received from medical sales representatives, 47.5%

receive 0-5 visits, 36.8% receive 6-10 visits, and 15.8% receive 11 or more visits. When we evaluated physicians according to whether they received training in pharmacoeconomics, 122 85.2% of physicians stated that they did not receive any training in pharmacoeconomics, and 14.8% of physicians stated that they received training on pharmacoeconomics. Regarding the statistical results of the thesis study, when the Reliability Analysis Results for the Pharmacoeconomics Knowledge Level Scale were examined, some items in the scale were removed from the scale because their correlation with other items was below 0.25. When the reliability levels were examined again, it was determined that the reliability of the scale was at a high level.

When the evaluations regarding the company preference of physicians in prescribing behavior were examined, it was found that it was 3.00 ± 0.66 and above, and the dimension that physicians agreed with the most regarding the scale was administrative efficiency with 3.20 ± 0.61 . When the relationship between the level of pharmacoeconomics knowledge and other factors is examined, it is seen that the highest factor is drug preference with 0.286. This is followed by company preference with 0.252. The lowest relationship is seen to be the sales representative with 0.127. It is seen that the highest impact rate in the company preference factor, which is among the factors affecting the Prescribing Behavior of Physicians, is the administrative effectiveness sub-dimension with 0.268. This is followed by the reliability sub-dimension with 0.190.

Among the factors affecting the Prescribing Behavior of Physicians, the highest impact rate in the sales representative factor is seen to be the trust sub-dimension with 0.285. This is followed by the similarity subscale with 0.056, but it is not statistically significant. This may increase the likelihood that physicians will more easily accept medical promotion representatives who have been visiting them for a long time, and to whom they feel closer in bilateral relations. Regarding the Sales Representative scale in Physicians' Prescribing Behavior, the evaluations are 2.50 ± 0.69 and above, the highest value is trust with 3.37 ± 0.60 , and the most agreed statement is ethical behavior with 2.50 ± 0.69 .

It is seen that the highest impact rate in the drug preference factor, which is among the factors affecting the Prescribing Behavior of Physicians, is the cost sub-dimension with 0.299. This is followed by the physician knowledge level sub-dimension with 0.230. The drug effectiveness sub-dimension has an effect rate of 0.175.

In the pharmaceutical market, one of the most important differences that distinguishes the pharmaceutical market from other markets is that the end user is the patient and the physician is the key decision-maker about the drugs that the patient will use. The fact that the physician is the main determinant of preference causes physicians to become the focal point of pharmaceutical companies, and this causes pharmaceutical companies to be more aggressive in their marketing activities toward physicians. The most important and effective marketing activity of pharmaceutical companies

is medical sales representatives. Companies visit physicians frequently through their medical sales representatives and follow the physicians closely. Medical sales representatives develop relationships with physicians by making regular and frequent visits. In this way, they have a more detailed and more insightful understanding of physicians' personal attitudes. In this way, they try to get into doctors' prescriptions by doing marketing activities specific to doctors. Intensive marketing activities carried out by pharmaceutical companies towards physicians may also reveal irrational prescribing behaviors. This may lead to increased drug consumption and costs. Health policymakers have introduced strict rules and controls to ensure that pharmaceutical companies' relationships with physicians do not lead to inappropriate behavior. In this context, it guides physicians, pharmaceutical companies, and medical sales representatives to make rational drug choices by controlling and limiting their practices.

This study shows that multiple and changing factors are effective in physicians' prescribing behavior. There is literature and research in the world and in Turkey regarding the prescribing behavior of physicians. The most important feature that distinguishes this study from other studies is that it is a study in which the pharmacoeconomic knowledge levels of physicians are also evaluated.

Among the suggestions to be made regarding the research; Physicians should be informed to rationalize their prescribing behavior regarding the costs of drugs, which have a significant cost in health expenditures, and strategic information should be given to physicians about drug costs. In order to make more rational prescription decisions in the future, it may be beneficial to be supported in drug costs, starting from medical school education. Marketing activities of pharmaceutical companies should be constantly monitored and investigated to see how much they affect physicians' prescribing behavior. Marketing activities between physicians and pharmaceutical companies should be carried out by

respecting the physician's drug preference, and medical sales representatives, in particular, should be respectful of physicians' personal prescription preferences.

H1: Physicians' pharmacoeconomics knowledge levels have a relationship with the role of company preference.

H1a: There is a relationship between physicians' pharmacoeconomics knowledge levels and the managerial effectiveness sub-dimension.

H1b: There is a relationship between physicians' pharmacoeconomics knowledge levels and the reliability sub-dimension.

H2: Physicians' pharmacoeconomics knowledge levels have a relationship with their sales representative role.

H2a: There is a relationship between physicians' pharmacoeconomics knowledge levels and the social communication sub-dimension.

H2b: Physicians' pharmacoeconomics knowledge levels have a relationship with the trust sub-dimension.

H2c: Physicians' pharmacoeconomics knowledge levels have a relationship with the ethical behavior sub-dimension.

H2d: There is a relationship between physicians' pharmacoeconomics knowledge levels and the similarity sub-dimension.

H3: Physicians' level of pharmacoeconomics knowledge has a relationship with their pharmaceutical representative role.

H3a: There is a relationship between physicians' pharmacoeconomics knowledge levels and the drug effectiveness sub-dimension.

H3b: Physicians' pharmacoeconomics knowledge levels have a relationship with the physician knowledge levels sub-dimension.

H3c: There is a relationship between physicians' pharmacoeconomics knowledge levels and the cost sub-dimension.

Katkı Oranları ve Çıkar Çatışması / Contribution Rates and Conflicts of Interest

Etik Beyan	Bu çalışmanın hazırlanma sürecinde bilimsel ve etik ilkelere uyulduğu ve yararlanılan tüm çalışmaların kaynakçada belirtildiği beyan olunur.	Ethical Statement	It is declared that scientific and ethical principles have been followed while carrying out and writing this study and that all the sources used have been properly cited.
Yazar Katkıları	Çalışmanın Tasarlanması: TE (%60), EBB (%40) Veri Toplanması: TE (%60), EBB (%40) Veri Analizi: TE (%60), EBB (%40) Makalenin Yazımı: TE (%60), EBB (%40) Makale Gönderimi ve Revizyonu: TE (%60), EBB (%40)	Author Contributions	Research Design: TE (%60), EBB (%40) Data Collection: TE (%60), EBB (%40) Data Analysis: TE (%60), EBB (%40) Writing the Article: TE (%60), EBB (%40) Article Submission and Revision: TE (%60), EBB (%40)
Etik Bildirim Çıkar Çatışması	iibfdergi@cumhuriyet.edu.tr Çıkar çatışması beyan edilmemiştir.	Complaints Conflicts of Interest	iibfdergi@cumhuriyet.edu.tr The author(s) has no conflict of interest to declare.
Finansman	Bu araştırmayı desteklemek için dış fon kullanılmamıştır.	Grant Support	The author(s) acknowledge that they received no external funding in support of this research.
Telif Hakkı & Lisans	Yazarlar dergide yayınlanan çalışmalarının telif hakkına sahiptirler ve çalışmaları CC BY-NC 4.0 lisansı altında yayımlanmaktadır.	Copyright & License	Authors publishing with the journal retain the copyright to their work licensed under the CC BY-NC 4.0

Etik Kurul	Bu çalışmada kullanılan veriler, Sivas Cumhuriyet Üniversitesi Bilimsel Araştırma ve Yayın Etiği Sosyal ve Beşerî Bilimler Kurulu tarafından 04.08.2022 tarihinde verilen 191645 onay numarası ile onaylanmıştır.	Ethics Committee	The data used in this study were approved by the Scientific Research and Publication Ethics Committee of Social and Human Sciences at Sivas Cumhuriyet University with the approval number 191645, dated August 4, 2022.
-------------------	---	-------------------------	--

Kaynakça

- Ahmed Rizwan Raheem, Vveinhardt Jolita, Streimikiene Dalia and Awais Muhammad (2016). Mediating and Marketing factors influence the prescription behavior of Physicians: An Empirical Investigation. *Amfiteatru Economic Journal*, 18(41), 153-167.
- Ahuja Jaya, Gupta Madhur, Gupta Ajay Kumar and Kohli Kamles (2004). Pharmacoeconomics. *The National medical journal of India*, 17(2), 80-83.
- Al-Areefi, Mahmoud Abdullah, and Mohamed Azmi Hassali (2013). The role of pharmaceutical marketing and other factors in prescribing decisions: the Yemeni experience. *Research in Social and Administrative Pharmacy*, 9(6), 981-988.
- Al-Omar Hussain Abdulrahman (2020). Cost-conscious medications-prescribing behavior among physicians working in Saudi Arabia. *Arch. Pharm. Pract*, 1, 143.
- Alowi May and Kani Yusuf (2019). Promotion of prescription drugs and its impact on physician's choice behavior. *Journal of Pharmaceutical Care and Health Systems*, 6, 1-7.
- Alsultan Mohammed S. (2011). The role of pharmacoeconomics in formulary decision making in different hospitals in Riyadh, Saudi Arabia. *Saudi Pharmaceutical Journal*, 19(1), 51-56.
- Alt Rainer and Thomas Puschmann (2005). Developing customer process orientation: the case of Pharma Corp. *Business Process Management Journal*, 11(4), 297-315.
- Anderson Britta L., Silverman Gabriel K., Loewenstein George F., Zinberg Stanley and Schulkin Jay (2009). Factors associated with physicians' reliance on pharmaceutical sales representatives. *Academic Medicine*, 84(8), 994-1002.
- Avorn Jerry, Milton Chen and Robert Hartley (1982). Scientific versus commercial sources of influence on the prescribing behavior of physicians. *The American journal of medicine*, 73(1), 4-8.
- Baltussen Rob, Reiner Leidl and Andre Ament (1999). Real world designs in economic evaluation: bridging the gap between clinical research and policy-making. *Pharmacoeconomics*, 16, 449-458.
- Bennett Casey C. and Kris Hauser (2013). Artificial intelligence framework for simulating clinical decision-making: A Markov decision process approach. *Artificial intelligence in medicine*, 57(1), 9-19.
- Berndt Ernst R., Bui Linda, Reiley David R. and Urban Glen L. (1995). Information, marketing, and pricing in the US antiulcer drug market. *The American economic review*, 85(2), 100-105.
- Beylik Umut, Cirakli Umit, Cetin Murat, Ecevit Eyyup and Senol Osman (2022). The relationship between health expenditure indicators and economic growth in OECD countries: A Driscoll-Kraay approach. *Frontiers in Public Health*, 10, 1050550,1-12.
- Buusman Allan, Andersen Morten, Merrild Camilla and Elverdam Beth (2007). Factors influencing GPs' choice between drugs in a therapeutic drug group. A qualitative study. *Scandinavian Journal of primary health care*, 25(4), 208-213.
- Carthy Patricia, Harvey Ian, Brawn, Richard and Watkins Chris (2000). A study of factors associated with cost and variation in prescribing among GPs. *Family practice*, 17(1), 36-41.
- Chew Lisa D., O'Young Theresa S., Hazlet Thomas K., Bradley Katharina A., Maynard Charles and Lessler Daniel S. (2000). "A Physician Survey of The Effect of Drug Sample Availability on Physicians' Behavior". *Journal of General Internal Medicine*, 15(7), 478-483.
- Cockburn Jill and Pit Sabrina (1997). Prescribing behaviour in clinical practice: patients' expectations and doctors' perceptions of patients' expectations—a questionnaire study. *Bmj*, 315(7107), 520-523.
- Dawes Martin and Lens Marko B. (2002). Economic evaluation in evidence-based practice. *Expert Opinion on Pharmacotherapy*, 3(9), 1239-1243.
- De Laat Eric, Windmeijer Frank and Douven R. C. M. H. (2002). How does pharmaceutical marketing influence doctors' prescribing behaviour?. Den Haag: CPB. Netherlands.
- Demirkiran Mustafa, Hekimlerin ilaç reçeteleme davranışlarını etkileyen faktörlerin incelenmesi, Hacettepe Üniversitesi, Sağlık Bilimleri Enstitüsü, Yüksek Lisans, Ankara, 2010.
- Dhanawade S., S. Pawar, and A. Ghewari (2009). Effective promotional tools for pharmaceutical products in the perception of physicians: an analysis. *Ethos*, 2(1), 46-56.
- Ding Min, Eliashberg Jehoshua and Stremersch Stefan (2014). Innovation and marketing in the pharmaceutical industry. International series in quantitative marketing. Business Media New York.
- Doğancı Buğra İbrahim, Multi dimensional factors on prescription behavior and their impact on prescription behavior, Bahçeşehir Üniversitesi, Sosyal Bilimler Enstitüsü, Doktora, İstanbul, 2015.
- Donaldson Cam, Vanora Hundley and Emma McIntosh (1996). Using economics alongside clinical trials: why we cannot choose the evaluation technique in advance. *Health Economics*, 5(3), 267-269.
- Doubilet Peter, Weinstein Milton C., McNeil Barbara J. (1986). Use and misuse of the term "cost effective" in medicine. *New England Journal of Medicine*, 314(4), 253-256.
- Drummond Michael F., Sculpher Mark J., Claxton Karl, Stoddart Greg L. and Torrance George W. (2015). *Methods for the economic evaluation of health care programmes*. Oxford university press.
- Eldrwish May Alowi, Aigbogun Osaro, Kani Yusuf and Sambasivan Muralli (2022). Attitude towards pharmaceutical promotional tools and its influence on physicians' prescribing behaviour in Sudan. *International Journal of Pharmaceutical and Healthcare Marketing*, (ahead-of-print), 469-489.
- Etikan Ilker, Sulaiman Abubakar Musa and Rukayya Sunusi Alkassim (2016). "Comparison of Convenience Sampling and Purposive Sampling". *American Journal of Theoretical and Applied Statistics*, 5(1), 1-4.
- Fickweiler Freek, Ward Fickweiler and Ewout Urbach (2017). Interactions between physicians and the pharmaceutical industry generally and sales representatives specifically and their association with physicians' attitudes and prescribing habits: a systematic review. *BMJ*, 7(9), 1-12.
- Folland Sherman, Goodman Allen C. and Stano Miron (2016). *The economics of health and health care: Pearson new international edition*. Routledge. 7th Edition.
- Gallan Andrew (2004). Factors that influence physicians' prescribing of pharmaceuticals: a literature review. *Journal of Pharmaceutical Marketing & Management*, 16(4), 3-46.
- Goold Susan Dorr, Timothy Hofer, Marc Zimmerman, Rodney A. Hayward (1994). Measuring physician attitudes toward cost,

- uncertainty, malpractice, and utilization review. *Journal of General Internal Medicine*, 9, 544-549.
- Gönül Füsün F, Carter Franklin, Petrova Elina and Srinivasan Kannan (2001). Promotion of prescription drugs and its impact on physicians' choice behavior. *Journal of Marketing*, 65(3), 79-90.
- Griffin, J. P. and Chew R. B. (1993). Growth in prescription medicines expenditure: a European comparison. *Journal of the Royal College of Physicians of London*, 27(1), 54-55.
- Gürbüz, Sait (2019). AMOS ile Yapısal Eşitlik Modellemesi. Birinci Baskı, Ankara: Seçkin yayıncılık.
- Hemminki Elina (1975). Review of literature on the factors affecting drug prescribing. *Social Science & Medicine*, 9(2), 111-115.
- Hemminki Elina (1976). Factors influencing drug prescribing inquiry into research strategy. *Drug Intelligence & Clinical Pharmacy*, 10(6), 321-329.
- Hossain Mir, Kawsar Sumaiya, Tanmy Tasmuna Tamrin and Yousuf Abu (2013). Assessment of influencing factors on prescription practices of physicians in Bangladesh. *Int Res J Pharm*, 4, 112-6.
- Kabir Sardar, Humayun Maulan Suharni, Manaf Noor Hazilah Abd and Nasir Zaireena Wan (2022). The influence of direct-to-physician promotion towards physicians' prescription behaviour in Malaysia. *International Journal of Pharmaceutical and Healthcare Marketing*, 16(1), 101-122.
- Kamuhabwa Appolinary, and Sunday Kisoma (2015). Factors influencing prescribing practices of medical practitioners in public and private health facilities in dar es salaam, Tanzania. *Tropical Journal of Pharmaceutical Research*, 14(11), 2107-2113.
- Karagöz, Yalçın (2016). Bilimsel Araştırma Teknikler ve Yayın Etiği, Ankara: Nobel Akademik Yayıncılık.
- Kasliwal Neeti and Bansal Ipshita (2013). Influence of pharmaceutical promotional tools on doctors prescribing behaviour: an exploratory study. *Indian Journal of Marketing*, 43(8), 23-34.
- Katsanis Lea Prevel (2015). *Global issues in pharmaceutical marketing*. Routledge.
- Kesselheim Aaron S., Jerry Avorn and Ameet Sarpatwari (2016). The high cost of prescription drugs in the United States: origins and prospects for reform. *Jama*, 316(8), 858-871.
- Kianmehr Hamed, Sabounchi Nasim S. Sabounchi Shabnam Seyedzadeh and Cosler Leon E. (2020). A system dynamics model of infection risk, expectations, and perceptions on antibiotic prescribing in the United States. *Journal of evaluation in clinical practice*, 26(3), 1054-1064.
- Lexchin Joel (1993). Interactions between physicians and the pharmaceutical industry: what does the literature say? *CMAJ: Canadian Medical Association Journal*, 149(10), 1401-1407.
- Lundin Douglas (2000). Moral hazard in physician prescription behavior. *Journal of health economics*, 19(5), 639-662.
- Manchanda Puneet and Honka Elisabeth (2005). The effects and role of direct-to-physician marketing in the pharmaceutical industry: an integrative review. *Yale J. Health Pol'y L. & Ethics*, 5, 785,785.
- McCaffree and Kenneth M. (1968). The economic basis for the development of community mental health programs. *Medical Care*, 6(4), 286-299.
- Mintzes Barbara, Lexchin Joel, Sutherland Jason M, Beaulieu Marie-Dominique, Wilkes Michael S., Durrieu Geneviève and Reynolds Ellen (2013). Pharmaceutical sales representatives and patient safety: a comparative prospective study of information quality in Canada, France and the United States. *Journal of general internal medicine*, 28, 1368-1375.
- Mooney G. H. and Drummond M. F. (1982). Essentials of health economics: Part I--What is economics?. *British Medical Journal (Clinical research ed.)*, 285(6346), 949- 950.
- Narayan Madhusudan, Birajit Mohanty and Mahesh Kumar (2020). Examining the effect of marketing promotional strategies of pharmaceutical companies on doctors' prescription behaviour. *Research Journal of Pharmacy and Technology*, 13(10), 4888-4894.
- Oshikoya Kazeem Adeola, Oreagba Ibrahim, and Olayinka Adeyemi (2011). Sources of drug information and their influence on the prescribing behaviour of doctors in a teaching hospital in Ibadan, Nigeria. *Pan African Medical Journal*, 1-9.
- Özata Musa, Şebnem Aslan ve Mete Mustafa (2008). Rasyonel ilaç kullanımının Hasta Güvenliğine Etkileri: Hekimlerin Rasyonel ilaç kullanımına Etki Eden Faktörlerin Belirlenmesi. *Selçuk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, (20), 529-542.
- Parmata Uma Maheswari Devi and Chetla Surya Prakash (2021). Effect of service quality on doctor's satisfaction and prescribing behavior in pharmaceutical supply chain—a study with reference to a major Indian pharmaceutical company. *International Journal of Pharmaceutical and Healthcare Marketing*, 15(2), 173-211.
- Passalacqua Giovanni, Musarra Antonino, Senna Gianenrico, Bousquet Jean, Ferrara Carmen, Lonati Caterina and Canonica Giorgio Walter (2020). Physicians' prescribing behaviour and clinical practice patterns for allergic rhinitis management in Italy. *Clinical and Molecular Allergy*, 18, 1-11.
- Patel Vimla L., Shortliffe Edward H, Stefanelli Mario, Szolovits Peter, Berthold Michael R., Bellazzi Riccardo, and Abu-Hanna Amen (2009). "The coming of age of artificial intelligence in medicine. *Artificial Intelligence in Medicine* 46.1: 5-17.
- Pauly Mark V. (1988). Is medical care different? Old questions, new answers. *Journal of Health Politics, Policy and Law*, 13(2), 227-237.
- Peter Zweifel, Friedrich Breyer, Mathias Kifmann (2009). *Health Economics*, *J Public Health* 2-12.
- Price Simani, O'Donoghue Amie C., Rizzo Lou, Sapru Saloni and Aikin Kathryn J. (2021). What influences healthcare providers' prescribing decisions? Results from a national survey. *Research in Social and Administrative Pharmacy*, 17(10), 1770-1779.
- Rahmner Pia Bastholm, Gustafsson Lars L., Larsson Jan, Rosenqvist Urban, Tomson Göran. and Holmström Inger (2009). Variations in understanding the drug-prescribing process: a qualitative study among Swedish GPs. *Family Practice*, 26(2), 121-127.
- Reichert Steven, Todd Simon and Ethan A. Halm (2000). Physicians' attitudes about prescribing and knowledge of the costs of common medications. *Archives of internal medicine*, 160(18), 2799-2803.
- Revicki Dennis A. and Lori Frank (1999). Pharmacoeconomic evaluation in the real world: effectiveness versus efficacy studies. *Pharmacoeconomics*, 15, 423-434.
- Ryan Mandy, Brian Yule, Christine Bond and Ross J. Taylor (1996). Do physicians' perceptions of drug costs influence their prescribing?. *Pharmacoeconomics*, 9, 321-331.
- Schermelleh-Engel Karin, Helfried Moosbrugger and Hans Müller (2003). "Evaluating The Fit of Structural Equation Models: Tests of Significance and Descriptive Goodness-of-Fit Measures". *Methods of Psychological Research Online*, 8(2), 23-74.
- Schumock Glen, Walton Surrey M, Park Hayley Y, Nutescu Edith A, Blackburn Juan C, Finley Jamie M and Lewis Richard K

- (2004). Factors that influence prescribing decisions. *Annals of Pharmacotherapy*, 38(4), 557-562.
- Shamim-ul-Haq Saad, Ahmed Rizwan, Ahmad Nawaz, Khoso Imamuddin and Vishnu Parmar (2014). Factors influencing prescription behavior of physicians. *The Pharma Innovation Journal*, ISSN, 30-35.
- Simon Gregory E., Psaty Bruce M., Hrachovec Jennifer Berg and Marc Mora Simon (2005). Principles for evidence-based drug formulary policy. *Journal of general internal medicine*, 20, 964-968.
- Smith Mickey C. (1991). *Pharmaceutical marketing: strategy and cases*. CRC Press. USA.
- Soumerai Stephen B. and Avorn Jerry (1990). "Principles of Educational Outreach ('Academic Detailing') To Improve Clinical Decision Making". *Jama*, 263(4), 549-556.
- Spiller Lisa D. and Wymer W. Walter (2002). Physicians' responses to marketing strategies of pharmaceutical companies. *Journal of Pharmaceutical Marketing & Management*, 15(1), 15-30.
- Srivastava, R. K. and Wagh Sadhna (2020). Factors impacting consumer purchase behaviour for pharmaceutical products. *International Journal of healthcare management*, 13(2), 113-121.
- Steinman Michael A., Michael G. Shlipak and Stephen J. McPhee (2001). Of principles and pens: attitudes and practices of medicine housestaff toward pharmaceutical industry promotions. *The American journal of medicine*, 110(7), 551-557.
- Stinnett Aaron A. and John Mullahy (1998). Net health benefits: a new framework for the analysis of uncertainty in cost-effectiveness analysis. *Medical decision making*, 18(2_suppl), 68-80.
- Stratton, Samuel J. (2021). "Population Research: Convenience Sampling Strategies". *Prehospital and Disaster Medicine*, 36(4), 373-374.
- Taherdoost, Hamed (2016). "Sampling Methods in Research Methodology; How to Choose A Sampling Technique for Research". *How To Choose A Sampling Technique for Research* (April 10, 2016). 8-19.
- Theodorou Mamas, Tsiantou Vasiliki, Pavlakis Andreas, Maniadakis Nikos, Fragoulakis Vasilis, Pavi Elpida and Kyriopoulos John (2009). Factors influencing prescribing behaviour of physicians in Greece and Cyprus: results from a questionnaire based survey. *BMC health services research*, 9(1), 1-9.
- Thomas Dixon (2018). *Clinical pharmacy education, practice and research: clinical pharmacy, drug information, pharmacovigilance, pharmacoconomics and clinical research*. Elsevier United Kingdom.
- Torrance George W., Warren H. Thomas and David L. Sackett (1972). A utility maximization model for evaluation of health care programs. *Health services research*, 7(2), 118.
- Ubela Peter A., Christopher Jepsom, Jonathan Barone, John C. Hershey and David A. Asch (2003). The influence of cost-effectiveness information on physicians' cancer screening recommendations. *Social science & medicine*, 56(8), 1727-1736.
- Vandenplas Yannick, Steven Simoens, Philippe Van Wilder, Arnold G. Vulto, Florian Turk and Isabelle Huys (2022). Determinants of prescribing decisions for off-patent biological medicines in Belgium: a qualitative study. *BMC Health Services Research*, 22(1), 1-17.
- Yeğenoğlu Selen ve Emre Hale (2004). Farmakoekonomi Alanında Temel Kavramlar Main Concepts In Pharmacoconomics. *J. Fac. Pharm*, 33(1), 41-61.
- Zimmerman Mark, Posternak Michael, Friedman Michael, Attiullah Naureen, Baymiller Scott, Boland Robert, Berlowitz Stacie, Rahman Shahzad, Uy Kristen and Singer Steve (2004). Which factors influence psychiatrists' selection of antidepressants?. *American Journal of Psychiatry*, 161(7), 1285-1289.
- Walzak Doris, Susan Swindells and Ajay Bhardwaj (1994). Primary care physicians and the cost of drugs: a study of prescribing practices based on recognition and information sources. *The Journal of Clinical Pharmacology*, 34(12), 1159-1163.
- Wei D, C Osman, D Dukhovny, J Romley, M Hall, S Chin, T Ho, P S Friedlich and A Lakshmanan (2016). Cost consciousness among physicians in the neonatal intensive care unit. *Journal of Perinatology*, 36(11), 1014-1020.
- Wright Hilary and Fill Chris (2001). Corporate images, attributes and the UK pharmaceutical industry. *Corporate Reputation Review*, 4, 99-110.
- Wright Robert F. and Lundstrom William J. (2004). Physicians' perceptions of pharmaceutical sales representatives: A model for analysing the customer relationship. *Journal of medical marketing*, 4(1), 29-38.



Evaluating Active Labour Market Policies in Türkiye by Regions via Multidimensional Scaling and Clustering Analysis

Batuhan Ersöz^{1,a,*}, Özlem Demir^{2,b}

¹Department of Social Work, Faculty of Health Sciences, Tokat Gaziosmanpaşa University, Tokat, Türkiye

²Department of Social Work, Faculty of Health Sciences, Tokat Gaziosmanpaşa University, Tokat, Türkiye

*Corresponding author

Research Article

History

Received: 02/07/2024

Accepted: 29/10/2024

JEL Codes: J48, J6, C38

ABSTRACT

Unemployment causes significant problems in society and governments develop different policies to mitigate unemployment. Active labour market policies (ALMP), which are among such policies, constitute crucial instruments for the re-adaptation of the unemployed to the labour markets. However, significant social groups and regional differences occupy an essential role while formulating the programmes. Moreover, economic, cultural, and political factors are also effective in labour force participation rates. Therefore, regarding the participation of social groups such as women, youth, and disabled individuals in employment, ALMP represents a policy instrument that enables a connection between the needs of the labour market and the demands of these groups. The factors affecting the structural characteristics of employment are also applies to regional differences, and many factors ranging from economic development levels of regions to cultural differences have an impact on participation in ALMP programmes. In this study, regional similarities and differences of female, male, and total participation in ALMP programmes in Türkiye according to NUTS-I classification are examined using multidimensional scaling and K-means clustering analysis. Given the importance of the differences between women and men in participation levels in employment, relevant analyses have also been carried out focusing on gender differentiation at the regional level. According to the results of the study, it is observed that Southeast Anatolia (TRC) is significantly separated from other regions in terms of total participation rates. On the other hand, when participation rates are analysed based on unemployment, different regional clusters are encountered and the West Black Sea Region (TR8) is differentiated from other regions. Moreover, different clustering patterns are also observed at the regional scale in the participation of women and men in the programmes.

Keywords: Active Labour Market Policies, Unemployment, Multidimensional Scaling Analysis

Türkiye'de Aktif İşgücü Piyasası Politikalarının Bölgelere Göre Çok Boyutlu Ölçekleme ve Kümeleme Analizi ile Değerlendirilmesi

Süreç

Geliş: 02/07/2024

Kabul: 29/10/2024

Jel Kodları: J48, J6, C38

Copyright

This work is licensed under Creative Commons Attribution-NonCommercial 4.0 International License International License

ÖZ

İşsizlik toplumda önemli sorunlara yol açmakta ve devletler işsizliği azaltmak için farklı politikalar geliştirmektedir. Bu politikalar arasında yer alan aktif işgücü piyasası politikaları (AİPP), işsizlerin işgücü piyasalarına yeniden uyum sağlamaları için önemli araçları oluşturmaktadır. Bu programların hazırlanmasında sosyal gruplar ve bölgesel farklılıklar önemli bir rol oynamaktadır. Ayrıca ekonomik, kültürel ve siyasi faktörler de işgücüne katılım oranlarında etkili olmaktadır. Dolayısıyla kadınlar, gençler ve engelli bireyler gibi sosyal grupların istihdama katılımı açısından AİPP, işgücü piyasasının ihtiyaçları ile bu grupların talepleri arasında bağlantı kurulmasını sağlayan bir politika aracına işaret etmektedir. İstihdamın yapısal özelliklerini etkileyen faktörler bölgesel farklılıklar için de geçerlidir ve bölgelerin ekonomik gelişmişlik düzeylerinden kültürel farklılıklara kadar pek çok unsur AİPP programlarına katılım düzeyini etkilemektedir. Bu çalışmada, İBSS-I sınıflandırmasına göre Türkiye'de AİPP programlarına kadın, erkek ve toplam katılımın bölgesel benzerlik ve farklılıkları çok boyutlu ölçekleme ve K-ortalama kümeleme analizi kullanılarak incelenmiştir. İstihdama katılım düzeylerinde kadınlar ve erkekler arasındaki farklılıkların önemi düşünüldüğünde, ilgili analizler ayrıca bölgesel düzeyde cinsiyet ayrımına da odaklanılarak gerçekleştirilmiştir. Çalışmanın sonuçlarına göre, Güneydoğu Anadolu Bölgesi'nin (TRC) toplam katılım oranları açısından diğer bölgelerden önemli ölçüde ayrıldığı görülmektedir. Öte yandan, katılım oranları işsizlik temelinde incelendiğinde farklı bölgesel kümelenmelerle karşılaşmakta ve Batı Karadeniz Bölgesi (TR8) diğer bölgelerden farklılaşmaktadır. Ayrıca, kadın ve erkeklerin programlara katılımında da bölgesel ölçekte farklı kümelenme örüntüleri gözlenmektedir.

Anahtar Kelimeler: Aktif İşgücü Piyasası Politikaları, İşsizlik, Çok Boyutlu Ölçekleme Analizi

batuhan.erso@qop.edu.tr

[0000-0002-1094-8220](https://orcid.org/0000-0002-1094-8220)

ozlem.demir@qop.edu.tr

[0000-0002-8974-3825](https://orcid.org/0000-0002-8974-3825)

How to Cite: Ersöz B, Demir Ö (2025) Evaluating Active Labour Market Policies in Türkiye by Regions via Multidimensional Scaling and Clustering Analysis, Journal of Economics and Administrative Sciences, 26(1): 17-31, DOI: 10.37880/cumuiibf.1509055

Introduction

As in many other countries, the problem of unemployment in Türkiye is a multidimensional socioeconomic problem. The unemployment phenomenon is influenced by various factors, including labor force participation, the economy's capacity to create jobs, and overall employability. To overcome unemployment, governments are implementing various labour force programmes such as vocational training programmes, programmes to increase labour market flexibility, entrepreneurship promotion programmes, public sector job creation programmes, support and counselling services.

These policies, which aim to prevent unemployment, increase employability and strengthen the labour market, need to be well coordinated and effectively organised. The process of implementing these policies is shaped within a structure formed by national, regional, and local networks. Along with national indicators, regional differences are also an important determinant in terms of employment processes. Therefore, identifying regional differences and similarities within the framework of active labor market policies (ALMP) is crucial for developing more effective strategies. Within the scope of this study, it is aimed to examine the regional similarities and differences of the ALMP programmes carried out by Turkish Employment Agency (İŞKUR). Within this framework, multidimensional scaling analysis, which is used to obtain quantitative estimates of similarity between groups of items (Hout *et al.*, 2013: 93), and K-means clustering analysis, which clusters the relations between objects, were used in the study. According to the NUTS-I regional classification in Türkiye, a comparison of the regions in terms of women, men, and overall total within the scope of participation in ALMP programmes (Vocational Training Courses and On-the-Job Training Programmes) carried out by İŞKUR was made and their positions were mapped according to their similarities and differences. The data used in the study were obtained from the 2022-İŞKUR statistical yearbook and analysed with R 4.0.3 software. In addition, the fact that there are significant differences in employment participation rates for men and women in accordance with structural effects makes it necessary to conduct the relevant analyses in a gender-sensitive manner within the regional framework. Therefore, while examining ALMPs at the regional level, analyses have also been carried out by focusing on gender differentiation.

In this context, first, the characteristics and effectiveness of active labour market policy programmes at various levels are discussed, followed by an assessment of the institutionalisation process and general outlook of the programmes in Türkiye. Finally, regional analyses were made according to the ratios obtained from both the number of participants of the programmes and the number of unemployed, and the locations of the regions were mapped and the related ones were grouped. Thus, within the context of active labour market policies, it has become possible to evaluate regional outlooks and similarities in terms of both programme participation and unemployment.

Active Labour Market Policies: Concept, Development and Policies in Türkiye

Unemployment constitutes one of the most important problems in social life and creates problems for different levels of labour categories. Therefore, states define many different policy instruments to reduce unemployment and aim to eliminate the problems caused by it. Active labour market policies offer a wide range of policies that constitute crucial instruments for the reintegration of the unemployed into the labour markets. In this regard, within the scope of this sub-section, first, active labour market policies will be defined and the effectiveness of the programmes will be evaluated, and then the ALMP instruments in Türkiye will be elaborated.

Conceptual Framework, Implementations and Effects of Active Labour Market Policies

The phenomenon of unemployment points to an important problem area not only for the unemployed individual but also for society. In this context, it is pointed out that unemployment as a social problem is global, structural, persistent, and extensive and among the main causes of unemployment, factors such as the globalisation process and technological change are emphasised (Koray, 2012: 175). In addition, it is pointed out that unemployment has many various features according to countries and regions and is affected by different micro and macro factors (Lordoğlu & Özkaplan, 2007: 380).

Unemployment is defined as *"a situation in which the main factor of production, 'labour', is not fully utilized"* (Biçerli, 2014: 427), and the unemployed basically refers to those who have the desire to work and the action of searching for a job but are unable to be employed (Lordoğlu & Özkaplan, 2007: 379). The Turkish Statistical Institute (TÜİK) makes a similar definition and defines unemployed as *"all non-institutionalized persons of working age who have used at least one of the active job search channels in the last four weeks to look for a job and who are able to start work within two weeks"* (TÜİK, 2024a).

Unemployment has an impact on the social existence of individuals, and social risks such as poverty and sickness pose a significant danger to these individuals (Deacon & Patrick, 2012: 324). Moreover, although unemployment is a personal situation, its consequences extend its impact on the social dimension as it affects families. Individuals may face physical or psychological illnesses due to unemployment, long-term unemployment may lead to loss of skills, weaken the sense of social belonging, and increase the risk of social exclusion (Tokol & Alper, 2014: 128-129). Due to its results, unemployment is an extremely crucial problem at social level and defines an area of intervention within the scope of social policies for states (Acar & Kazancı Yabanova, 2017: 88). Active labour market policies (ALMPs) are one of these intervention tools, referring to the whole set of public policies aimed at eliminating the effects of unemployment. In the most general framework, ALMPs can be defined as improving

the employment opportunities of the unemployed and ensuring adequate job placement (Kasapoğlu & Murat, 2018a: 486). Thus, ALMPs characterise policies that aim to increase the employability of the unemployed without direct financial support (Kapar, 2005: 344).

ALMPs include programmes such as counselling, placement services, vocational training programmes, private sector incentive programmes and job creation programmes, and these programmes target social groups such as women, young people, the long-term unemployed and migrants (Uşen, 2007; Erol, 2013). A multitude of programmes addressing ALMPs are organised in a wide range of categories, including training programmes, wage subsidies, matching services, and public work programmes. Vocational training programmes are designed to address the need for upskilling among individuals whose skills may be inadequate due to technological transformation. These programmes aim to facilitate the re-employment of individuals whose skills may be insufficient due to technological transformation. Another active labour market policy is wage subsidies. The objective of wage subsidies is to reduce the employment costs of specific groups to employers during periods of unemployment and to enhance the employability of these groups. Furthermore, programmes that encourage the unemployed to become entrepreneurs by facilitating the establishment of their own businesses are regarded as active labour market policies. Through these programmes, individuals may be provided with opportunities such as counselling, training, and tax incentives. Another component of ALMP programmes is direct public employment programmes, which are institutionalised in Türkiye as "Public Work Programmes". In these programmes, the objective is to enable the unemployed to generate income through short-term work, particularly during periods of high unemployment (Kasapoğlu & Murat, 2018a: 488-490). Unlike other ALMP instruments, programmes involving direct public employment are defined as "last resort" programmes, especially for groups whose employment cannot be provided by existing policies (Biçerli, 2014: 512). Even if these programmes are described as relatively costly programmes, they can be shown as a tool to eliminate poverty, especially for groups and periods that require urgent intervention (Brown & Koettl, 2015: 26).

In this regard, ALMPs prioritise the re-employment of individuals who are located outside the labour market in groups and regions affected by unemployment (Guzmán, 2014: 4). Furthermore, considering the unemployment-reducing effect of training programmes (Borjas, 2015: 584), it is stated that ALMPs developed on the basis of training can be considered as a tool in the mobility of individuals within labour markets and in eliminating structural unemployment (Biçerli, 2005: 9). These characteristics also make ALMPs a tool for restructuring labour markets.

The role of ALMPs in the restructuring of labour markets can be observed historically in the transformation of the features of the programmes. ALMPs have been on

the agenda since the 1950s, but have reached their main operational area after the 1980s (Uşen, 2007: 66; Immervoll & Scarpetta, 2012). ALMPs play an important role especially in the economic restructuring processes of the 1990s and aim to bring together the actors of the labour market through public employment services (Kuddo, 2009). It is emphasised that the transformation in policies also refers to individual responsibilities developed within the framework of neoliberal policies. Thus, these programmes have a significant framework in the context of active citizenship and the transformation of the welfare state, and ALMPs describe a means of intervention in socio-economic problems that arise due to this transformation (Haikkola, 2019: 335; Işığışık & Emirgil, 2009: 218).

In this context, the differentiation of policies is closely linked to the transformation of welfare state policies. ALMPs have a distinct place within the framework of flexibility policies; moreover, these policies are designed simultaneously with the restructuring of labour markets along the lines of flexibility (Haapanala, 2022; Bolukbasi & Ertugal, 2013). Flexibility in this area can be effective not only in terms of programmes or the structure of the labour market, but also at the governance level. Thus, it is noted that programmes organised flexibly at local level and involving many different social actors can generate positive results (Damgaard & Torfing, 2010).

The dynamic structure of the programmes has led to the transformation of the target groups. While the programmes focused on fulfilling the need for qualified labour in the 1950s, in the 1990s, the programmes shifted their focus to the employability of disadvantaged groups (Bayrakdar, 2019: 341). After the 1990s, it is noted that the scope of the programmes has been formed to cover broader groups (Immervoll & Scarpetta, 2012: 2). This situation causes ALMPs to present various forms as dynamic policies both historically and in terms of employment strategies.

Bonoli (2010: 441) categorises ALMPs in terms of their impact on employment orientation and human capital and describes their effects as strong or weak. As a result of the classification, incentive programmes among ALMPs are generally categorised as strong programmes in terms of employment orientation without any impact on human capital. Public employment programmes and non-employment-related training programmes are characterised as weak programmes in terms of both employment orientation and human capital impact. Employment matching and counselling services define programmes that are weak in terms of human capital investment but strong in terms of employment orientation. Finally, employment-oriented vocational training programmes that indicate an increase in skills are categorised as strong programmes in terms of both classifications.

ALMPs have two main functions in employment increase: individual and market-oriented. First, ALMPs aim to prevent the unemployed from leaving the labour market. Maintaining links with the market is ensured

through factors such as creating employment in times of recession and increasing the qualifications of individuals through training programmes. Secondly, it aims to eliminate imbalances between labour supply and demand in the long run (Calmfors & Skedinger, 1995: 94). In this context, it is stated that ALMPs serve two main functions, economic and social, and it is argued that while the elimination of unemployment and labour productivity are central at the economic level, socially, it is aimed to create a participatory and inclusive social structure (Kuddo, 2009: 39).

ALMPs are essentially expected to have an impact on labour supply/demand and the efficient functioning of labour markets, but the effectiveness of programmes at different degrees is controversial (Uşen, 2007: 68). In addition, programmes also involve significant financial costs. This makes impact evaluations and monitoring processes of programmes crucial (Kuddo, 2009: 40). In fact, in several studies evaluating the effectiveness of programmes, various results are encountered. For example, Kluve (2010), examining 137 programmes in 19 countries, states that training programmes are effective to a limited extent and the most significant effects are observed in programmes that include practices such as employment counselling and wage subsidies. On the other hand, it is emphasized that programmes involving direct public employment have negative effects.

Similarly, a study analysing 97 studies conducted between 1995 and 2007 (Card *et al.*, 2010) also highlights the differences between the short- and long-term effects of ALMPs. Among the programmes examined in the study, training programmes are described as ineffective in the short term but effective in the medium term. In addition, the study finds that job creation support services have a positive impact on employment, while public employment programmes are defined as less effective programmes. ALMPs indicate a diversified pattern depending on the structural features of countries' labour markets and the limitations of public employment services (Immervoll & Scarpetta, 2012). As a result of the different outcomes of the programmes, it is not possible to establish a single valid model for countries (Kasapoğlu & Murat, 2018a: 500).

Therefore, while analysing ALMPs, structural problems, micro, and macro indicators of different countries are deemed to be of utmost importance. It is underlined that ALMPs alone will be insufficient in eliminating structural problems in the labour market (Erdil Şahin & Sevimli, 2013; Biçerli, 2005). In fact, O'Higgins (2001: 119-120), who highlights the inadequacy of the results of ALMPs in terms of youth unemployment in the UK, cites the lack of a proper definition of the problems, the inadequacy of monitoring and evaluation processes, the design of training programmes that are far from providing universal qualifications, the lack of involvement of the various social partners and the inadequate identification of the target group. It is pointed out that ALMPs are complementary policies that should be regulated together with other policies, and it is stated that

programmes defined in a holistic framework can create effective tools in the relevant problem areas (Kapar, 2005: 335; Acar & Kazancı Yabanova, 2017: 90).

ALMPs have three main direct effects on labour markets: the establishment of an effective matching mechanism, the emergence of an improved labour supply and an increase in labour demand (Brown & Koettl, 2015: 5). Thus, ALMPs refer to a wide range of programmes, from the continuation of existing employment relations to the creation of new areas of employment. However, ALMPs also have indirect effects on the labour market, which makes it necessary to evaluate the effectiveness of the programmes in a much more complex structure. Providing employment incentives to certain groups within the scope of the programmes may have an impact on the employment of the groups which are excluded from these incentives, while the fact that the incentive mechanisms are subject to regulations that involve significant sanctions for employers may result in these groups not being preferred as employees. The indirect effects of programmes can be grouped under several headings. Firstly, it is possible to observe a phenomenon known as deadweight loss when groups that would have been employed even in the absence of ALMPs are employed within the scope of the programmes. Secondly, the substitution effect may occur, whereby the employment of groups with incentives may be preferred over other groups, in which case the long-term employment effect is zero. In addition, by selecting the most employable candidates for participation in the programmes (selection bias), controversial results can be obtained on the effectiveness level of the programmes (Fay, 2009: 43; Brown & Koettl, 2015: 5; Kuddo, 2009: 46).

Furthermore, depending on the perception of being unemployed in social life, the risk of stigmatisation may arise for individuals participating in these programmes, and participants may encounter issues in their employment processes in the following periods (Biçerli, 2014: 499). In addition to these effects, individuals may not prefer mobility from regions where programmes are implemented to regions where labour demand is high or may lead to a decrease in the general wage level due to the increase in labour supply (Akbaş, 2017: 45). Consequently, programmes aiming to protect certain groups may both indirectly have negative consequences for those who are not included in the programmes and may also have controversial consequences for the disadvantaged groups they directly aim to protect.

Active Labour Market Policies and Institutional Context in Türkiye

The Turkish Employment Agency (İŞKUR) is responsible for implementing ALMPs in Türkiye. The agency, which commenced operations in 1946 as the "Institution of Providing Jobs and Employees (İPJE)" within the scope of public employment services, has essentially served as an intermediary in the labour market. The socio-economic changes experienced on a global scale in the 1980s necessitated the restructuring of this institution. In 2000, the İPJE was closed down and the "Turkish Employment

Agency (İŞKUR)" was established in accordance with the Statutory Decree No. 617 (İŞKUR, 2024a). After its establishment, İŞKUR gained its legal basis with the Turkish Employment Agency Law No. 4904 enacted in 2003, and its efficiency in the labour market has expanded in the direction of conducting active and passive policies in addition to its previous roles (Uşen, 2007: 84). In addition, these policy processes were shaped on the basis of social dialogue and had an organizational structure involving many different institutions and actors (Kasapoğlu & Murat, 2018a: 491). As a result of this transformation, it is pointed out that İŞKUR has a more systematic approach in terms of policies and its institutional capacity has been strengthened in line with the projects developed in the European Union (Bolukbasi & Ertugal, 2013: 243).

ALMPs organised within İŞKUR in Türkiye appear in various forms similar to the examples described above. Within the scope of active labour market policies, İŞKUR organises basic vocational training programmes, on-the-job training programmes, projects for people with disabilities and ex-convicts, vocational training of employees and public work programmes. It is also stated that İŞKUR conducts "labour market needs assessments" and provides consultancy services (İŞKUR, 2024b). Although different requirements and working processes are defined for each programme, vocational training programmes and on-the-job training programmes need to be elaborated as they provide the main set of data for the analysis presented in this study.

Considering the connection between qualifications and employment, training programmes targeting the development of new qualifications constitute valuable examples in terms of ALMPs. In this context, policy instruments including both vocational training and on-the-job training programmes have an impact on employability by contributing to the acquisition of new skills or updating existing skills (Şen, 2016; Acar & Kazancı Yabanova, 2017). A comparable programme structure is evident in the context of the İŞKUR. A significant number of ALMPs defined by İŞKUR are organised in a way that prioritises training and focuses on the employability of individuals through upskilling.

Vocational Training Programmes (VTP) aim to improve the employability of those who do not have a profession or who want to improve their skills in the field relevant to their profession. In order to participate in the courses, conditions such as being registered unemployed, being over the age of 15, not having completed the programmes organised by the agency in the same profession, benefiting from counselling services and not being retired are sought. The courses are designed for a minimum of 5 and a maximum of 8 hours per day. It lasts a maximum of 160 days, maximum 6 days a week. A certain level of expenses and insurance of the participants in vocational training programmes are covered by the agency and participants are not charged for the training programmes (İŞKUR, 2024c). On-the-job training programmes (OTP) have similar conditions to vocational training courses in terms of participation and can be designed to last no more than 45 hours per week. Although their duration is variable, it is stated that the programmes can be extended up to 9 months for young people between

the ages of 18-29 in fields such as software/IT, which are described as "professions of the future" (İŞKUR, 2024d). Therefore, before moving on to regional level analyses, the next sub-heading will detail the general structure of ALMPs in Türkiye, especially in terms of VTPs and OTPs.

General Overview of Active Labour Market Policies in Türkiye

Unemployment represents one of the significant socio-economic challenges in Türkiye, along with the problem of employment creation. The prevalence of unemployment in Türkiye is contingent upon a multitude of variables, including the prevailing economic conditions, the actions of the government, shifts within specific sectors, and the evolving demands of the labour market. The resolution of the unemployment problem and the mitigation of the effects of unemployment are regarded as the responsibility of the government. Consequently, a range of employment policy implementations have been developed, although these differ from one country to another. The main labour force indicators of a country provide a significant rationale for the formulation of employment policies. For this reason, the main labour force indicators for Türkiye are first examined, after which the general outlook of ALMPs by education level, age, sectors and regions is evaluated.

Main Labour Force Indicators in Türkiye

Before examining the ALMPs implemented in Türkiye, it is essential to review the key labour force indicators that show the dimensions of unemployment and employment on the basis of gender segregation. This distinction also embodies important regional differences and provides opportunities to observe the differences in the functioning of ALMPs. Gender inequality is reflected in the basic indicators of the labour market as it is seen in almost every field. Wage and non-wage factors (labour market conditions, social attitudes towards women's employment, the development level of societies, job opportunities for women, education level, age, marital status and having children) affect women's labour demand and women's labour supply decisions (Biçerli, 2014). Since gender differentiation is also taken into account when analysing ALMPs at the regional level in this study, the general outlook of ALMPs in Türkiye and basic labour market indicators are also classified according to gender differentiation. Therefore, presenting the relevant data separately in this framework and explaining the reasons for this differentiation in Türkiye is particularly meaningful. In such a framework, women's participation in the labour force points to a set of structural reasons including economic, social, cultural and political factors. As Table 1 indicates, women's labour force participation and employment rates are considerably lower than the rates of men. Accordingly, unemployment rates are also higher than the rates of men in the following years. For example, in 2023, the labour force participation rate is 71.0% for men and 35.8% for women, while the employment rate is 65.8% for men and 31.6% for women. While the unemployment rate is 7.2% for men, this rate increases to 11.8% for women.

Table 1. Main Labour Force Indicators (15+ age) (2014-2023)

YEAR	Labour Force			Employment			Unemployment		
	Participation Rate			Rate			Rate		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
2014	55,1	76,6	33,6	49,5	69,5	29,5	10,1	9,2	12,2
2015	56,1	77	35	50,2	69,8	30,5	10,5	9,4	12,9
2016	57	77,6	36,2	50,6	70	31,2	11,1	9,8	14
2017	58	78,2	37,6	51,5	70,7	32,2	11,1	9,6	14,4
2018	58,5	78,6	38,3	52	70,9	32,9	11,2	9,7	14,2
2019	58,5	78,2	38,7	50,3	68,3	32,2	14	12,7	16,8
2020	54,9	74,6	35	47,5	65,2	29,7	13,4	12,6	15,3
2021	57,2	76,9	37,3	50,2	68,6	31,7	12,2	10,9	15,1
2022	59,2	78,2	40	52,9	71,1	34,5	10,7	9,1	13,7
2023*	53,2	71,0	35,8	48,6	65,8	31,6	8,8	7,2	11,8

Source: Derived from the Labour Force Statistics of the Turkish Statistical Institute. www.tuik.gov.tr

*Quarter IV October-December 2023.

Economic factors in the low rate of women's participation in employment are mostly centred around wage-related debates. Cultural factors can be traced in a wide range from gender roles to physical, sexual and psychological violence in the workplace. Political factors directly refer to social power relations and the role of the state, and it is stated that all these factors cannot be considered independently of spatial factors (Tuysuz & Mutlu, 2021: 134-135). Although the identified factors provide a general framework, the evaluation of socio-cultural effects on women's participation in employment is particularly significant for the analysis of women's labour supply. Women are considered responsible for domestic reproduction and care activities due to the gender-based division of labour. In addition, women's participation in labour markets can be shaped according to the decision of men, and this decision is valid only in terms of jobs "suitable" for women. Inadequacies in public services related to care also constitute an obstacle to women's participation in labour markets (Toksöz, 2007: 58).

However, women's participation in employment has increased since the 1970s. Although this process, which was observed due to the restructuring of production on the basis of flexibility and globalisation, had a significant impact on women's participation in employment, parallel to the recognition of women as low-cost labour (Burtan Doğan & Kaya, 2014: 95-96). As women's participation in employment involves restructuring through flexibility at the global scale, informal employment has become an important determinant for women (Dedeoğlu, 2000: 153). In addition to the changes in production, education levels are also decisive for women's employment. Especially in urban areas, having attained high school and higher education is effective in terms of participation in employment, whereas it is indicated that education does not have such an effect on men. Moreover, although education is an important determinant, it is not the sole explanatory factor and significant regional differences can be observed in labour force participation at the same level of education. This situation highlights the importance of evaluating regional differences and examining socio-cultural factors in this context (Toksöz, 2007; Burtan Doğan & Kaya, 2014). When women's participation in the labour market is evaluated from a multi-faceted perspective, it is evident that

macroeconomic indicators play a pivotal role. A multitude of factors, ranging from the demand for women's labour to the stratification in labour markets, influence the participation process (Dedeoğlu, 2000).

This is also reflected in the differences between men and women in participation in ALMPs. Both the existence of conditions affecting women's participation in the labour markets and the fact that women are among the target groups of the ALMPs impact women's participation in the programmes. In their studies, İşçiçok and Emirgil (2009) underline the need for establishing sectoral programmes that are sensitive to women's employment, while Akbaş (2017) emphasises that women's participation in ALMP programmes should be evaluated simultaneously with policies such as care policies. Therefore, it is important to examine the prospects of the programmes in terms of different ALMPs prior to the regional analysis.

Active Labour Market Policies in Türkiye based on Different Categories

Active labour market policies within the scope of VTPs and OTPs by education level

Another important data on the characteristics of the Turkish labour market is the distribution of participants in active labour market programmes according to their educational level. Of the participants in vocational programmes, 39.5% are primary school graduates. This is followed by secondary education with 27%. Similarly, when the education levels of the participants in on-the-job training programmes are examined, 37.3% are primary education graduates, followed by 37.2% secondary education graduates (Table 2). Considering the aim of ALMPs to add qualifications to individuals, it seems noteworthy that the relevant groups have higher rates. In addition, when participation by gender is evaluated in terms of educational status, it is observed that women with primary and secondary education graduates participate more in both programmes. While a total of 5,683 women participated in vocational training programmes, 78,996 women participated in the on-the-job training programmes (Table 2). The participation of women with low education levels in ALMPs is important in terms of supporting women's participation in the labour force.

Table 2. Types of Active Labour Market Programmes by Education Level -2022

	Vocational Training Program (Employment Guaranteed)			Vocational Training Program (Without Employment Guaranteed)			On-the-Job Training Program		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
	TÜRKİYE	10,479	4,797	5,682	80	79	1	156,356	77,360
Illiterate	11	1	10	0	0	0	68	37	31
Literate	896	254	642	0	0	0	4,303	1,826	2,477
Primary Education	4,139	1,670	2,469	0	0	0	58,290	28,715	29,575
Secondary Education	2,832	1,350	1,482	0	0	0	58,252	32,034	26,218
Associate Degree	869	417	452	80	79	1	19,181	7,816	11,365
Bachelor's Degree	1,683	1,076	607	0	0	0	15,841	6,755	9,086
Postgraduate Degree	49	29	20	0	0	0	411	173	238
Doctoral Degree	0	0	0	0	0	0	10	4	6

Source: Turkish Employment Agency, Statistical Yearbook 2022.

Table 3. Types of Active Labour Market Programmes by Age Groups-2022

	Vocational Training Program (Employment Guaranteed)			Vocational Training Program (Without Employment Guaranteed)			On-the-Job Training Program		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
TÜRKİYE	10,479	4,797	5,682	80	79	1	156,356	77,360	78,996
15-19	1,501	638	863	0	0	0	19,239	10,355	8,884
20-24	3,402	1,682	1,720	61	60	1	52,654	28,487	24,167
25-29	2,471	1,436	1,035	17	17	0	32,721	18,341	14,380
30-34	1,054	488	566	2	2	0	17,726	8,560	9,166
35-39	792	259	533	0	0	0	14,439	5,211	9,228
40-44	674	167	507	0	0	0	11,177	3,517	7,660
45-49	381	81	300	0	0	0	5,669	1,889	3,780
50-54	151	38	113	0	0	0	2,005	746	1,259
55-59	38	8	30	0	0	0	588	197	391
60-64	5	0	5	0	0	0	112	44	68
65+	10	0	10	0	0	0	26	13	13

Source: Turkish Employment Agency, Statistical Yearbook 2022.

Active labour market policies within the scope of VTPs and OTPs by age

Another variable that should be taken into account when evaluating ALMPs is the distribution of participants according to age groups. The first three groups regarding the distribution of ALMPs according to age groups are important in terms of presenting data on youth unemployment in Türkiye. Youth unemployment in Türkiye is above the general unemployment rate. As of December 2023, while the general unemployment rate was 8.8%, the youth unemployment rate (aged 15-24) was 15.5% with a difference of 6.7 percentage points (TÜİK, 2024b). Therefore, it is not surprising that the participation of young people in employment policies is high. As can be seen in Table 3, participation in VTPs is highest in the 20-24 age group with 33%. Participation in OTPs is highest in the 20-24 age group with 33.7%.

Share of VTPs and OTPs by sectors

Sectoral distribution of employment also refers to an important economic indicator. While assessing ALMPs, it is essential to identify which sectors stand out in terms of the number of participants by sector in order to evaluate factors such as competition, economic diversity and resource management. Table 4 shows the prominent sectors in terms of the number of participants in VTPs and OTPs. The manufacturing sector ranks first with 104,553 participants (67%) in OTPs, followed by accommodation and food services activities with 13,911 participants and human health and social service activities with 10,184 participants. Within the scope of VTPs, the manufacturing sector ranks first with 8,255 participants (77%) and the education sector ranks second with 1,325 participants.

Table 4. Types of Active Labour Market Programmes by Prominent Sectors-2022

Sectors	On-the-Job Training Programmes			Vocational Training Programmes			Total		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Information and Communication	2,347	1,283	1,064	373	256	117	2,720	1,539	1,181
Education	4,194	932	3,262	1,328	895	433	5,522	1,827	3,695
Administrative and Support Service Activities	5,600	2,763	2,837	107	32	75	5,707	2,795	2,912
Manufacturing	104,553	54,251	50,302	8,255	3,385	4,870	112,808	57,636	55,172
Human Health and Social Work Activities	10,184	2,112	8,072	48	8	40	10,232	2,120	8,112
Construction	1,638	1,040	598	38	2	36	1,676	1,042	634
Accommodation and Food Service Activities	13,911	7,533	6,378	19	15	4	13,930	7,548	6,382
Professional, Scientific and Technical Activities	3,841	1,633	2,208	313	232	81	4,154	1,865	2,289
Wholesale and Retail Trade; Repair of Motor Vehicles	3,104	1,661	1,443	0	0	0	3,104	1,661	1,443
Transportation and Storage	2,701	1,725	976	80	79	1	2,781	1,804	977
Other Service Activities	1,573	861	712	151	79	72	1,724	940	784

Source: Turkish Employment Agency, Statistical Yearbook 2022.

Table 5. Number of ALMP Participants by Regions-2022

Code	Region (NUTS-I)	Vocational Training Programmes			On-the-Job Training Programmes			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
TR1	Istanbul	1100	436	1536	7323	7225	14548	8423	7661	16084
TR2	West Marmara	55	138	193	1400	2802	4202	1455	2940	4395
TR3	Aegean	36	234	270	7970	10498	18468	8018	10732	18750
TR4	East Marmara	700	355	1055	8653	9004	17657	9353	9359	18712
TR5	West Anatolia	96	145	241	4070	4516	8586	4169	4668	8837
TR6	Mediterranean	69	107	176	13354	11731	25085	13454	11860	25314
TR7	Central Anatolia	58	125	183	3081	3188	6269	3139	3313	6452
TR8	West Black Sea	107	326	433	9405	11270	20675	9523	11608	21131
TR9	East Black Sea	34	124	158	2657	3131	5788	2691	3255	5946
TRA	Northeast Anatolia	542	610	1152	1479	1578	3057	2021	2188	4209
TRB	Central East Anatolia	721	1065	1786	4960	4152	9112	5705	5233	10938
TRC	Southeast Anatolia	1358	2018	3376	13008	9901	22909	14376	11921	26297
Total		4876	5683	10559	77360	78996	156356	82355	84764	167119

Source: Turkish Employment Agency, Statistical Yearbook 2022.

Active labour market policies within the scope of VTPs and OTPs by regions

The differences in terms of social and economic development between regions in Türkiye varies considerably. These differences also have an impact on regional employment policies. Compared to other regions, regions that are relatively socio-economically disadvantaged require intensive employment policies.

Thus, the level of effectiveness of ALMPs can be enhanced through more efficient use of resources (Cam & Altan, 2018: 103). The population density in the region, the number of courses opened, and local employment policies affect the level of regional participation in the programmes. It is argued that regional/local measures should be emphasised especially when macro policies are insufficient for the unemployment (Kasapoğlu & Murat, 2018a: 501).

Table 6. Nomenclature of Territorial Units for Statistics-I (NUTS-I)

Code	Region (NUTS-I)	Province
TR1	İstanbul	İstanbul
TR2	West Marmara	Tekirdağ, Edirne, Kırklareli, Balıkesir, Çanakkale
TR3	Aegean	İzmir, Aydın, Denizli, Muğla, Manisa, Afyon, Kütahya, Uşak
TR4	East Marmara	Bursa, Eskişehir, Bilecik, Kocaeli, Sakarya, Düzce, Bolu, Yalova
TR5	West Anatolia	Ankara, Konya, Karaman
TR6	Mediterranean	Antalya, Isparta, Burdur, Adana, Mersin, Hatay, Kahramanmaraş, Osmaniye
TR7	Central Anatolia	Kırıkkale, Aksaray, Niğde, Nevşehir, Kırşehir, Kayseri, Sivas, Yozgat
TR8	West Black Sea	Zonguldak, Karabük, Bartın, Kastamonu, Çankırı, Sinop, Samsun, Tokat, Çorum, Amasya
TR9	East Black Sea	Trabzon, Ordu, Giresun, Rize, Artvin, Gümüşhane
TRA	Northeast Anatolia	Erzurum, Erzincan, Bayburt, Ağrı, Kars, Iğdır, Ardahan
TRB	Central East Anatolia	Malatya, Elazığ, Bingöl, Tunceli, Van, Muş, Bitlis, Hakkari
TRC	Southeast Anatolia	Gaziantep, Adıyaman, Kilis, Şanlıurfa, Diyarbakır, Mardin, Batman, Şırnak, Siirt

Method and Research Findings

Research Method

The organisation of the labour market is affected by many different structural elements, which vary not only at the national level but also regionally. In addition, regional differences in this field directly include different dynamics for women and men (Tuysuz & Mutlu, 2021). This situation leads to the differentiation of many aspects from the policies implemented to the participation processes. The aim of this study is to make a comparison of ALMPs in terms of similarities and differences between regions of Türkiye by using multidimensional scaling analysis. As research variables, province-based data on Vocational Training Programmes (VTP) and On-the-Job Training Programmes (OTP) obtained from İŞKUR statistical yearbook were categorised according to the regions and the values calculated according to the regions were used. These programmes are preferred due to their high level of utilisation as ALMP programmes and the systematic availability of data at the provincial level. However, "Public Work Programmes (Toplum Yararına Programlar - TYP)", which are among the ALMPs, were excluded from the analysis both due to the criticisms of the programmes in terms of constituting a direct public employment (Eren, 2023) and due to the lack of regionally consistent data on the programmes. Therefore, the analysis was carried out within the scope of two programmes (VTP and OTP) in order to ensure that the data are consistent and clearly reflect the participation patterns in the regions. The regional grouping is categorised according to the Nomenclature of Territorial Units for Statistics-I (NUTS-I) as shown in Table 6 and the 2022-İŞKUR statistical yearbook is used for the data.

Multidimensional scaling, which is a graph-based statistical method, is used to analyse the data in two dimensions according to the VTP and OVP variables: female, male and total. The results obtained from multidimensional sampling and k-nearest neighbour analysis, which shows clustering, are also used. Analyses were performed using the packages "magrittr"¹, "dplyr"², "ggpubr"³ in R 4.0.3⁴ software. Multidimensional scaling analysis is a widely used data analysis technique in the social sciences that attempts to represent high-dimensional data in space. The input data is measured by the difference and similarity of the observed objects and the output is given by a spatial mapping technique. In this analysis, similar objects are located close to each other and dissimilar objects are located far away from each other on the spatial map (Groenen & Velden, 2004: 389; Saeed *et al.*, 2018:2). In other words, it is a graph-based data analysis method that reveals the relations between objects and helps to obtain a map in space in cases where the relations between objects are unknown, but the distances related to "n" objects and "p" variables can be calculated (Alpar, 2011: 383). The "K-means Clustering" analysis method, which clusters the relations between objects, was also used in the study. K-means is a numerical, non-deterministic, iterative clustering algorithm that can produce decent clustering results. This method clusters the variables of the dataset based on common extracted features (Na *et al.*, 2010: 64-65). Cluster analysis is a general term for a set of methods that use multivariate and quantitative measures to group objects or incidents according to their similarities or distances (Jaeger & Banks, 2023: 17). In other words, the main function of cluster analysis is to bring together the data with high similarity and separate the data with low similarity (Hu *et al.*, 2023: 2). Therefore, cluster analysis was preferred in the study for grouping the regions according to their similarities.

¹ Stefan Milton Bache and Hadley Wickham (2022). magrittr: A Forward-Pipe Operator for R. R package version 2.0.3. <https://CRAN.R-project.org/package=magrittr>.

² Hadley Wickham, Romain François, Lionel Henry, Kirill Müller and Davis Vaughan (2023). dplyr: A Grammar of Data Manipulation. R package version 1.1.4. <https://CRAN.R-project.org/package=dplyr>.

³ Alboukadel Kassambara (2023). ggpubr: 'ggplot2' Based Publication Ready Plots. R package version 0.6.0. <https://CRAN.R-project.org/package=ggpubr>.

⁴ R Core Team (2021). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL <https://www.R-project.org/>.

Findings

Regarding the multidimensional scaling analysis, separate analyses were made for men and women according to two variables (VTP and OTP) and the general total was also analysed separately. In this analysis, firstly, the stress value and the number of iterations of development should be calculated. Iteration history for the 2 dimensional solution (in squared distances) Young's S-stress formula 1 is used. According to the result of Young's S-stress calculation in terms of female, male and general total, the S-stress value was ",00000" in the 1st iteration⁵. Iterations stopped because S-stress is less than ,005000. Stress and squared correlation (RSQ) in distances RSQ values are the proportion of variance of the scaled data (disparities) in the partition (row, matrix, or entire data) which is accounted for by their corresponding distances. Stress values are Kruskal's stress formula 1 (Stress = ,00000; RSQ = 1,00000).

Following the evaluation of stress values and RSQ values, the distribution of regions on the coordinate axis was determined by both multidimensional scaling analysis and K-means clustering analysis, with the resulting data presented as female, male and total. The analyses employed in the study were conducted using two dimensions (Dis-1 and Dis-2). In the multidimensional scaling analysis, the similarity of

indicators that are in close proximity is high, while the similarity between those that are distant is low.

According to the results of multidimensional scaling analysis in terms of female indicators in Figure-1; TR2, TR9, TR7, TR5 are located close to each other, while TR1, TR4, TR3, TR8, TR6 regions are also located close to each other. TRA, TRB and TRC regions are mapped in different locations. In terms of female indicators, K-means Clustering analysis clustered the regions that are related to each other. Based on the results of the analysis, a total of four cluster groups have been formed: TRA and TRB as one cluster, TR2, TR9, TR7, TR5 regions as one cluster, TR1, TR4, TR3, TR8, TR6 as another cluster and TRC as a separate cluster.

In Figure-2, according to the results of multidimensional scaling analysis in terms of male indicators; TR2, TR9, TR7, and TR5 regions are located close to each other, TR3 and TR8 are located close to each other, while the other regions are located apart from each other. K-means Clustering analysis results in terms of male indicators show that the regions that are related to each other are represented by four clustering groups. According to the results; TR2, TR9, TR7, and TR5 formed one cluster, TR3, TR8, and TR6 formed another cluster, TRA, TRB, and TR4 formed a single cluster, TR1 and TRC formed a separate cluster.

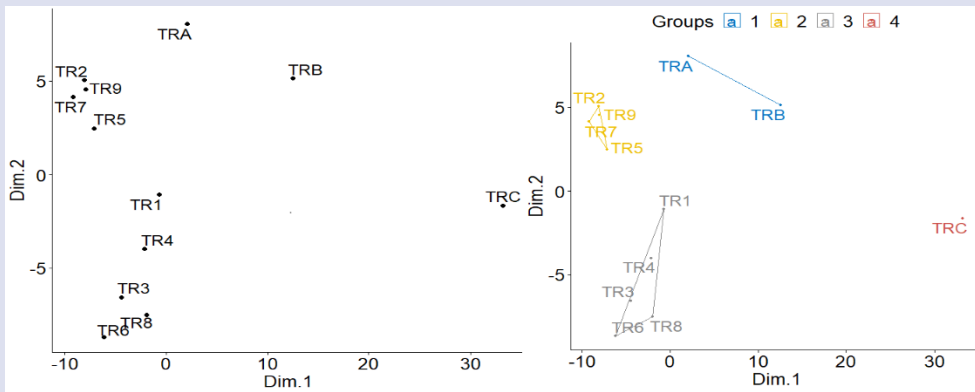


Figure 1. Multidimensional Scaling and K-means Clustering for Female (Participation-Based)

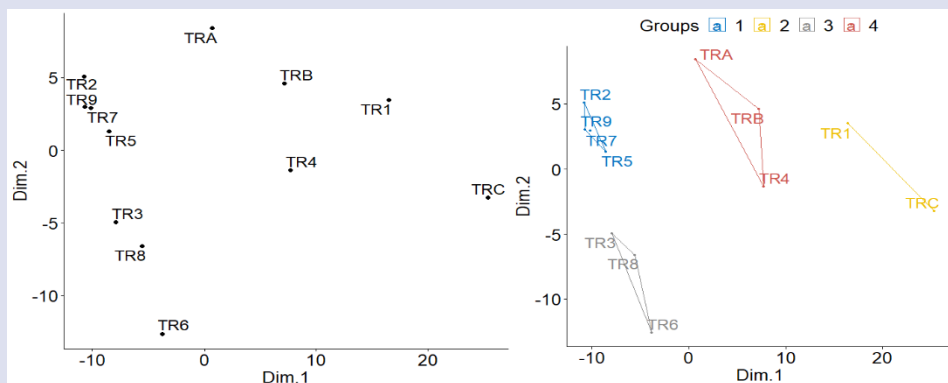


Figure 2. Multidimensional scaling and K-means clustering for Male (Participation-Based)

⁵ Classification of the compliance of the positioning distances with the original distances according to the magnitudes of the stress values: Stress 1 value and degrees of compliance: ≥ 0.20 poor, $0.10 - < 0.20$ fair, $0.05 - < 0.10$ good, $0.025 - < 0.05$ excellent and $0.00 - < 0.025$ perfect compatibility (Alpar, 2011: 403).

Apart from gender-based differences, according to the results of the multidimensional scaling analysis in terms of total indicators in Figure-3, TR2, TR9, TR7 and TR5 are located close to each other, TR3, TR8, TR6 are located close to each other, and the other regions are located apart from each other. According to the results of K-means Clustering analysis, TR2, TR9, TR7, and TR5 formed a cluster, TRA, TRB, TR1, and TR4 formed another cluster, TR3, TR8, TR6 formed another cluster in relation to each other and TRC formed a single cluster.

The analyses described above indicate a clustering based on regional shares within the total number of participants. Although the results obtained in this context provide a meaningful framework for the similarities in the regional participation rates of female and male participants in terms of overall participation, it is not sufficient to see regional similarities, especially in terms of employment and unemployment. Therefore, in addition to direct programme participation, a separate analysis was also conducted on ALMP participation rates among the unemployed within the scope of NUTS-I.

The establishment of ALMPs requires a proactive approach in preventing unemployment. The most important requirement for participation in ALMPs is the criteria of being "unemployed". Therefore, it is meaningful to evaluate the connection between unemployment data and participation in ALMPs at the regional scale. In the analysis carried out with the VTP and OTP participant rates in the number of unemployed in each region, it is possible to identify the link between unemployment data and participation in ALMPs. According to the multidimensional scaling and K-means clustering analysis

conducted by considering the VTP and OTP rates in the number of unemployed, the regions exhibited different distributions and clustering.

As illustrated in Figure-4, according to the multidimensional scaling analysis calculated with the female participant rates in the number of unemployed, TRA, TRC, TRB and TR8 show separate distributions, while TR1, TR2, TR5, TR7, TR3, TR4, TR6, and TR9 are located close to each other. According to K-means Clustering analysis, TRA formed a separate cluster, TRC and TR8 formed a cluster, TR1, and TR5 formed a related cluster, TRB, TR2, TR3, TR4, TR6, TR7 and TR9 formed a different cluster.

In Figure-5, according to the multidimensional scaling analysis conducted according to the male participant indicators among unemployed individuals, TRA, TR8 are located separately, TRB, TRC, and TR4 are located closer, TR1, TR2, TR3, TR5, TR6, TR7, and TR9 are located close to each other. K-means Clustering analysis, where the related ones are evaluated, TRA, TR1, TR2, and TR5 formed a cluster, TRB, TRC, TR4, TR6, and TR9 formed another cluster, TR3 and TR7 formed a different cluster and TR8 formed a single cluster.

Finally, as seen in Figure-6, according to the multidimensional scaling analysis performed by considering the total participant rates among unemployed individuals, TR8, TRC, and TRA are located separately, while TR1, TR2, TR3, TR4, TR5, TR6, TR7, and TR9 are located close to each other. According to the K-means clustering analysis, TR8 formed a single cluster, TR1 and TR5 formed a different cluster, TR2, TR3, TR7, TRB, and TRA formed a separate cluster, TR4, TR6, TR9, and TRC formed another cluster.

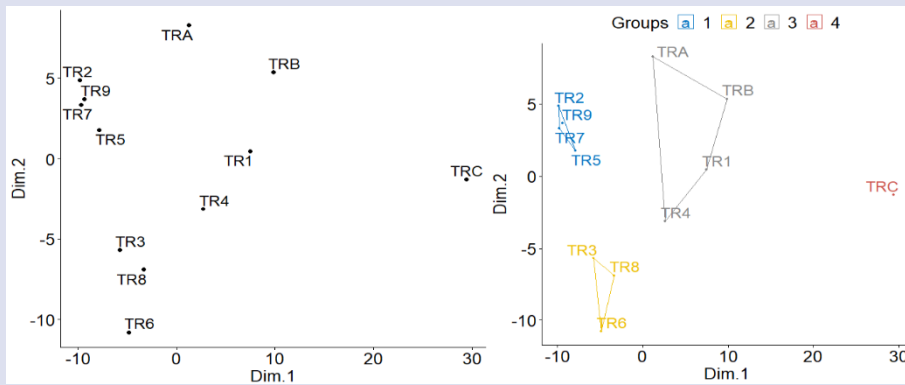


Figure 3. Multidimensional scaling and K-means clustering for Total (Participation Based)

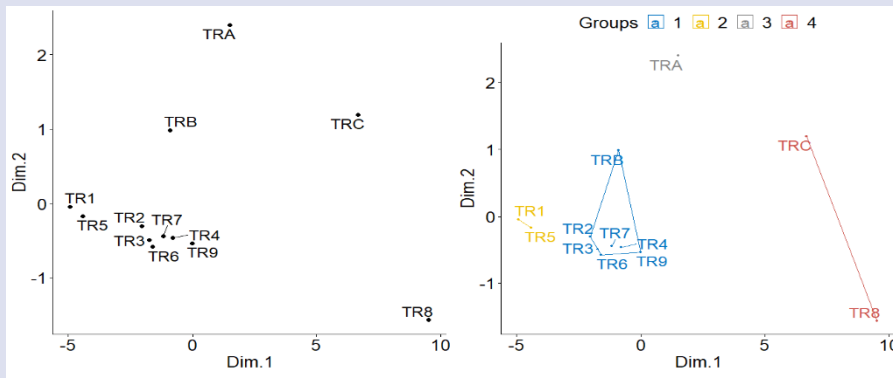


Figure 4. Multidimensional Scaling and K-means Clustering for Female (Unemployment-Based)

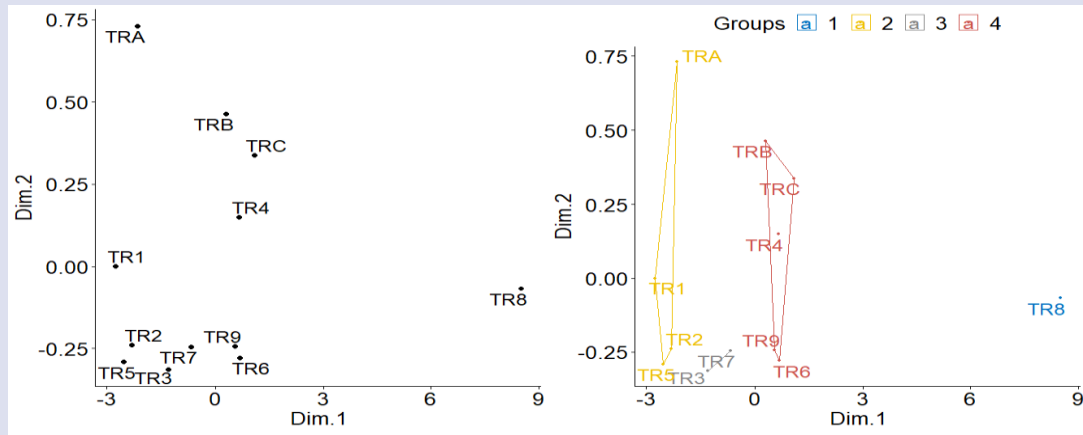


Figure 5. Multidimensional scaling and K-means clustering for Male (Unemployment-Based)

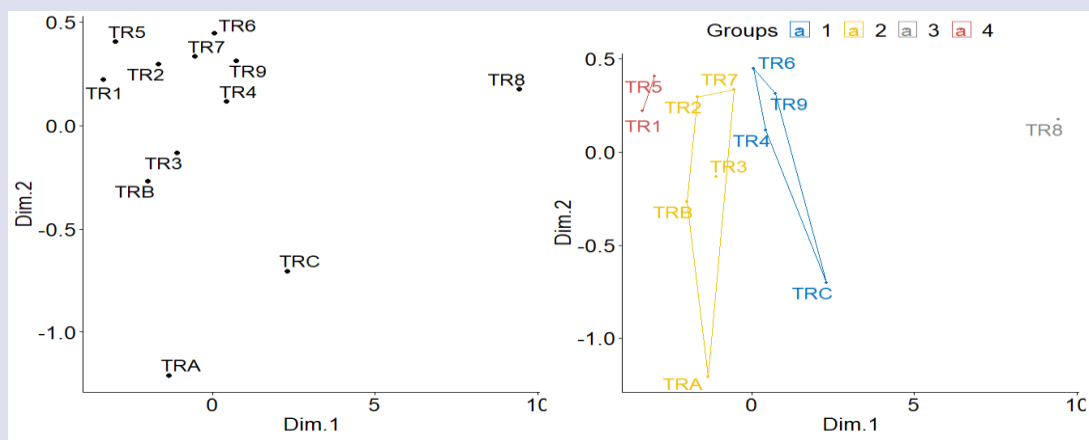


Figure 6. Multidimensional scaling and K-means clustering for Total (Unemployment-Based)

Conclusion

Unemployment rates in Türkiye vary across regions. There are many reasons for this difference such as migration, lack of infrastructure, transport facilities, socio-economic development level and education level. However, in this study, regardless of these variables, analyses were carried out firstly according to the number of participants and then by taking into account the proportion of those who participated in ALMPs among the unemployed. Clustering was performed according to the groups formed by these regions in terms of relevant variables. Comparison of cluster groups in terms of different variables requires additional analysis techniques and exceeds the limits of this study. The cluster groups are formed by taking into account the distances of the observations to each other in terms of variables. Moreover, in regional comparisons, other quantitative variables such as the rate of labour force in total population, the rate of labour force of working age, labour force participation rates are excluded from the analysis. Therefore, in multidimensional scaling analysis, the proximity and distance of the regions from each other and the clusters obtained as a result of K-means clustering

analysis should be interpreted by neglecting these variables. Within the scope of ALMPs, VTP and OTP data were taken into account in the study and analyses were calculated regionally according to the participant rate of these two programmes. The main objective of the study is to make a comparison of regions in terms of participation in ALMPs and to identify regions that are similar and differentiated from each other. Thus, within the context of ALMPs, different coordinates and clustering of female, male and overall total analyses according to regions have been identified.

The analyses carried out in the study can be briefly described in several points:

-According to the participant-based results, it is seen that the Southeast Anatolia region forms a separate group among women. This situation can be explained by the higher rate of female participants compared to other regions.

-As a result of the clustering obtained as a result of female and male data, it is noteworthy that while the Southeast Anatolia (TRC) region is located separately and forms a single cluster for women, İstanbul (TR1) and Southeast Anatolia (TRC) regions are clustered as one for men. When considered independently from other

variables, it is possible to say that the percentage of male participants in ALMPs is close in Southeastern Anatolia (TRC) and İstanbul (TR1). In general, it is observed that the Southeast Anatolia (TRC) region is clustered separately. This differentiation can be explained by the fact that ALMPs are opened frequently and more participants take part in ALMPs due to the high unemployment rate in the Southeast Anatolia (TRC) region compared to other regions. Furthermore, in a study where regional unemployment data for the years 2008, 2009 and 2016 were analysed (Kasapoğlu & Murat, 2018b: 257), it was emphasised that the TR1 and TRC regions are among the regions with the highest unemployment rates and these regions also have high numbers in terms of labour force. Therefore, it is a significant finding that these two regions are related in terms of participation in ALMPs.

-Considering the participant rates among the unemployed, it is seen that the Northeast Anatolia (TRA) region is categorised separately, particularly for women. This may be explained by the low unemployment rate of women due to their predominant share in agricultural employment.

Unemployment is an important macroeconomic phenomenon that affects and is affected by factors such as economic growth, productivity of enterprises, labour supply and demand. ALMPs are designed to mitigate unemployment and support the labour market. Moreover, the implementation of ALMPs has also been subject to criticism, which has placed the evaluation of ALMPs on the basis of differences in a crucial frame. Within the limits of the study, it is seen that the participant rates in ALMPs differ according to the regions. It is possible to say that this difference is not directly related to the number of unemployed in the regions (e.g. TR1, TR6, and TR3 regions, which have the highest number of unemployed, are not grouped in the same cluster according to the result of the analysis based on unemployment), and the determinants of the number of participants depend on various indicators. These variables may differ depending on regional labour market conditions (Altavilla & Caroleo, 2013). Therefore, programmes based on general and sectoral economic conditions, demographic structure, labour market supply and demand balance and cost estimates by regions will exhibit a more effective and robust structure.

Katkı Oranları ve Çıkar Çatışması / Contribution Rates and Conflicts of Interest

Etik Beyan	Bu çalışmanın hazırlanma sürecinde bilimsel ve etik ilkelere uyulduğu ve yararlanılan tüm çalışmaların kaynakçada belirtildiği beyan olunur.	Ethical Statement	It is declared that scientific and ethical principles have been followed while carrying out and writing this study and that all the sources used have been properly cited
Yazar Katkıları	Çalışmanın Tasarlanması: BE (%50) ÖD (%50) Veri Toplanması: BE (%40) ÖD (%60) Veri Analizi: BE (%40) ÖD (%60) Makalenin Yazımı: BE (%60) ÖD (%40) Makale Gönderimi ve Revizyonu: BE (%60) ÖD (40%)	Author Contributions	Research Design: BE (%50) ÖD (%50) Data Collection: BE (%40) ÖD (%60) Data Analysis: BE (%40) ÖD (%60) Writing the Article: BE (%60) ÖD (%40) Article Submission and Revision: BE (%60) ÖD (40%)
Etik Bildirim	iibfdergi@cumhuriyet.edu.tr	Complaints	iibfdergi@cumhuriyet.edu.tr
Çıkar Çatışması	Çıkar çatışması beyan edilmemiştir.	Conflicts of Interest	The author(s) has no conflict of interest to declare.
Finansman	Bu araştırmayı desteklemek için dış fon kullanılmamıştır.	Grant Support	The author(s) acknowledge that they received no external funding in support of this research.
Telif Hakkı & Lisans	Yazarlar dergide yayınlanan çalışmalarının telif hakkına sahiptirler ve çalışmaları CC BY-NC 4.0 lisansı altında yayımlanmaktadır.	Copyright & License	Authors publishing with the journal retain the copyright to their work licensed under the CC BY-NC 4.0
Etik Kurul	Etik kurul iznine ihtiyaç bulunmamaktadır.	Ethics Committee	Ethics committee approval is not required.

References

- Acar, O. K., & Kazancı Yabanova, E. (2017). Aktif İşgücü Piyasası Politikaları Çerçevesinde Kütahya İŞKUR'un Mesleki Eğitim Faaliyetleri'nin İncelenmesi. *Mehmet Akif Ersoy Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 4(2), 85-111.
- Akbaş, S. (2017). *Aktif İşgücü Piyasası Politikalarının Etki Değerlendirmesi: Denizli İli Örneği*. Ankara: Türk Metal Sendikası Araştırma ve Eğitim Merkezi Yayınları.
- Alpar, R. (2011). *Uygulamalı Çok Değişkenli İstatistiksel Yöntemler*. İstanbul: Detay Yayıncılık.
- Altavilla, C., & Caroleo, F. E. (2013). Asymmetric Effects of National-based Active Labour Market Policies. *Regional Studies*, 47(9), 1482-1506.
- Bayrakdar, S. (2019). İşsizliğin Çözümünde Uygulanan Aktif İstihdam Politikalarının Etkinliği Üzerine Genel Bir Değerlendirme. *Atatürk Üniversitesi İktisadi ve İdari Bilimler Dergisi*, 33(1), 339-351.
- Biçerli, M. K. (2005). Aktif İstihdam Politikaları İşsizliği Azaltır mı?, *Çimento İşveren Dergisi*, 19(6), 4-15.
- Biçerli, M. K. (2014). *Çalışma Ekonomisi* (8. ed.). İstanbul: Beta Yayınları.
- Bolukbasi, H. T., & Ertugal, E. (2013). Europeanisation of Employment Policy in Turkey: Tracing Domestic Change through Institutions, Ideas and Interests. *South European Society and Politics*, 2(18), 237-257.
- Bonoli, G. (2010). The Political Economy of Active Labor-Market Policy. *Politics & Society*, 4(38), 435-457.
- Borjas, G. J. (2015). *Çalışma Ekonomisi* (6. ed.). (Ç. E. Şahin, K. Gökten, & Ü. Akçay, transl.) Bursa: Dora Yayınları.
- Brown, A. J., & Koettl, J. (2015). Active labor market programs - employment gain or fiscal drain? *IZA Journal of Labor Economics*, 12(4), 1-36.
- Burtan Doğan, B., & Kaya, M. (2014). TRC2 Bölgesinde Kadın İstihdamı Sorunları ve Çözüm Önerileri. *Uluslararası Sosyal ve Ekonomik Bilimler Dergisi*, 2(4), 91-106.
- Calmfors, L., & Skedinger, P. (1995). Does Active Labour-Market Policy Increase Employment? Theoretical Considerations and Some Empirical Evidence From Sweden. *Oxford Review of Economic Policy*, 1(11), 91-109.
- Cam, E., & Atan, M. (2018). Türkiye'de il bazında istihdam politikalarının etkinliği. *Bilgi Sosyal Bilimler Dergisi*, (1), 102-123.
- Card, D., Kluve, J., & Weber, A. (2010). Active Labour Market Policy Evaluations: A Meta-Analysis. *The Economic Journal*, (120), 452-477.
- Damgaard, B., & Torfing, J. (2010). Network governance of active employment policy: the Danish experience. *Journal of European Social Policy*, 3(20), s. 248-262.
- Deacon, A., & Patrick, R. (2012). Employment. P. Alcock, M. May, & S. Wright (ed.), In *The Student's Companion to Social Policy* (pp. 324-330). Oxford: John Wiley & Sons.
- Dedeoğlu, S. (2000). Toplumsal cinsiyet rolleri açısından Türkiye'de aile ve kadın emeği. *Toplum ve Bilim*, (86), 139-170.
- Erdil Şahin, B., & Sevimli, Y. (2013). Aktif İstihdam Politikaları Kapsamında Uygulanan İşgücü Yetiştirme Kursları ve İŞKUR'un Önemi. *Hukuk ve İktisat Araştırmaları Dergisi*, 5(1), 1-10.
- Eren, C. (2023). Taşeron İşçiden Toplum Yararına Program "Katılımcısına": Kamuda Güvencesizliğin Dönüşümü. S. Oran (ed.), In *Sosyal Politika - Yeniden İnşanın Eleştirisi* (s. 349-386). Ankara: Nika Yayınevi.
- Erol, I. S. (2013). Gençlere Yönelik Aktif İstihdam Politikaları: Japonya, Kore, Çin ve Türkiye Örnekleri. *TÜHİS İş Hukuku ve İktisat Dergisi*, 6(25), 15-43.
- Fay, R. G. (2009). *Enhancing the Effectiveness of Active Labour Market Policies: Evidence from Programme Evaluations in OECD Countries*. Paris: OECD.
- Groenen, P.J.F. & Velden, M. V. (2004). Inverse Correspondence Analysis. *Linear Algebra and its Applications*, 388, 221-238.
- Guzmán, G. (2014). How effective are active employment policies to reduce unemployment in EU countries? *Atlantic Review of Economics*(2), 1-15.
- Haapanala, H. (2022). Carrots or sticks? A multilevel analysis of active labour market policies and non-standard employment in Europe. *Social Policy & Administration*, 3(56), 360-377.
- Haikkola, L. (2019). Shaping activation policy at the street level: Governing inactivity in youth employment services. *Acta Sociologica*, 3(62), 334-348.
- Hout, M. C., Papesch, M. H., & Goldinger, S. D. (2013). Multidimensional scaling. *Wiley Interdisciplinary Reviews: Cognitive Science*, 4(1), 93-103.
- Hu, H., Liu, J., Zhang, X., & Fang, M. (2023). An effective and adaptable K-means algorithm for big data cluster analysis. *Pattern Recognition*, 139, 109404.
- Immervoll, H., & Scarpetta, S. (2012). ctivation and employment support policies in OECD countries. An overview of current approaches. *IZA Journal of Labor Policy*, 9(1), 1-20.
- İşığışık, Ö., & Emirgil, B. F. (2009). Aktif İşgücü Piyasası Politikaları Ve Mesleki Yetiştirme: "İşgücü Yetiştirme Kursları"nın Etkinliğinin Bursa İli Örneğinde İncelenmesi. *Sosyal Siyaset Konferansları Dergisi*(57), 213-233.
- İŞKUR. (2024a). *Tarihçe*. İŞKUR: <https://www.iskur.gov.tr/kurumsal-bilgi/tarihce/> (Access Date: 01.03.2024).
- İŞKUR. (2024b). *Aktif İşgücü Programları*. İŞKUR: <https://www.iskur.gov.tr/is-arayan/aktif-isgucu-programlari/> (Access Date: 02.03.2024).
- İŞKUR. (2024c). *Mesleki Eğitim Kursları*. İŞKUR: <https://www.iskur.gov.tr/is-arayan/aktif-isgucu-programlari/mesleki-egitim-kurslari/> (Access Date: 10.03.2024).
- İŞKUR. (2024d). *İşbaşı Eğitim Programları*. İŞKUR: <https://www.iskur.gov.tr/is-arayan/aktif-isgucu-programlari/isbasi-egitim-programlari/> (Access Date: 10.03.2024).
- Jaeger, A., & Banks, D. (2023). Cluster analysis: A modern statistical review. *Wiley Interdisciplinary Reviews: Computational Statistics*, 15(3), e1597.
- Kapar, R. (2005). Aktif İşgücü Piyasası Politikaları. *İstanbul Üniversitesi İktisat Fakültesi Mecmuası*, 55(1), 341-371.
- Kasapoğlu, M. M., & Murat, S. (2018a). Aktif İstihdam Politikaları ve Türkiye'de İŞKUR Tarafından Uygulanan Aktif İstihdam Politikalarına Güncel Bir Bakış. *Mehmet Akif Ersoy Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 10(25), 485-502.
- Kasapoğlu, M. M., & Murat, S. (2018b). Türkiye'de İstihdam, İşsizlik ve İstihdam Politikalarında Yerelleşme: İİMEK'e Dair Kısa Bir Değerlendirme. *Hak İş Uluslararası Emek ve Toplum Dergisi*, 7(18), 248-278.
- Kluve, J. (2010). The effectiveness of European active labor market programs. *Labour Economics*, (17), 904-918.
- Koray, M. (2012). *Sosyal Politika* (4. ed.). Ankara: İmge Kitabevi.
- Kuddo, A. (2009). *Employment Services and Active Labor Market Programs*. Washington DC: World Bank.
- Lordoğlu, K., & Özkaplan, N. (2007). *Çalışma İktisadı* (3. ed.). İstanbul: Der Yayınları.

- Na, S., Xumin, L., & Yong, G. (2010). Research on k-means clustering algorithm: An improved k-means clustering algorithm. In *2010 Third International Symposium on intelligent information technology and security informatics* (pp. 63-67).
- O'Higgins, N. (2001). *Youth unemployment and employment policy: A global perspective*. Geneva: International Labour Organization.
- Saeed, N., Nam, H., Haq, M. I. U., & Muhammad Saqib, D. B. (2018). A survey on multidimensional scaling. *ACM Computing Surveys (CSUR)*, 51(3), 1-25.
- Şen, M. (2016). Aktif İşgücü Piyasası Politikaları Kapsamında Türkiye'de Mesleki Eğitim Kurslarının Analizi. *Uluslararası Ekonomi ve Yenilik Dergisi*, 2 (1), 67-89.
- Tokol, A., & Alper, Y. (2014). *Sosyal Politika* (5. ed.). Bursa: Dora Yayınları.
- Toksöz, G. (2007). İşgücü Piyasasının Toplumsal Perspektifinden Analizi ve Bölgeler Arası Dengesizlikler. *Çalışma ve Toplum*, (15), 57-79.
- Tuysuz, S., & Mutlu, K. (2021). Kadın istihdamının coğrafyası ve bölgesel yakınsama. *Türk Coğrafya Dergisi*, (77), 131-144.
- TÜİK. (2024a). *İstatistik Veri Portalı*. TÜİK: <https://data.tuik.gov.tr/Kategori/GetKategori?p=Istihdam,-Issizlik-ve-Ucret-108/> (Access Date: 12.02.2024).
- TÜİK, (2024b). *Türkiye İstatistik Kurumu, İşgücü İstatistikleri*, IV. Çeyrek, Haber Bülteni, TÜİK: <https://data.tuik.gov.tr/Bulten/Index?p=Isgucu-Istatistikleri-IV.-Ceyrek:-Ekim---Aralik,-2023-49382/> (Access Date: 12.02.2024).
- Uşen, Ş. (2007). Avrupa Birliği Ülkeleri ve Türkiye'de Aktif Emek Piyasası Politikaları. *Çalışma ve Toplum*, (13), 65-94.



The Effect of Environmental Concern, Green Perceived Value and Green Trust On Green Purchase Intention: Electric Vehicle Sector

Deniz Deral^{1,a,*}, Keti Ventura^{2,b}

¹Department of Business Administration, Faculty of Economics and Administrative Sciences, Ege University, İzmir, Türkiye

²Department of Business Administration, Faculty of Economics and Administrative Sciences, Ege University, İzmir, Türkiye

*Corresponding author

Research Article

History

Received: 12/07/2024

Accepted: 28/10/2024

JEL Codes: M31, Q54, Q55

ABSTRACT

The environmental issue, a critical concern in our era, has gained prominence for both businesses and consumers. As awareness among consumers has grown, their environmental concerns now influence their consumption patterns. This study aims to assess how environmental concern, green trust, and green perceived value impact consumers' intention to purchase electric vehicles. Besides, in the conceptual model, the potential effect of green perceived value and green trust as a mediator and/or moderator is analysed. Within the context of the Stimulus-Organism-Response theory, this study elucidates the factors influencing consumers' pro-environmental behavior in relation to their intention to buy electric vehicles. To assess the hypotheses using a quantitative approach, researchers conducted an online survey with 423 individuals in Turkey who either currently use electric vehicles or intend to purchase them. The researchers employed the SPSS program to test the hypotheses and empirically validate the proposed model. As a result of the study, environmental concern positively influences perceived green value and green purchase intention. Additionally, green perceived value also positively impacts green purchase intention. The study presents a model that explains the factors influencing consumers' pro-environmental behavior regarding their intention to buy electric vehicles. The study findings can inform the development of marketing strategies for electric vehicles.

Keywords: Environmental Concern, Green Trust, Green Perceived Value, Green Purchase Intention, Stimulus-Organism-Response Theory (SOR Model)

Çevresel Kaygı, Yeşil Algılanan Değer ve Yeşil Güvenin Yeşil Satın Alma Niyeti Üzerindeki Etkisi: Elektrikli Otomobil Sektörü

Süreç

Geliş: 12/07/2024

Kabul: 28/10/2024

Jel Kodları: M31, Q54, Q55

Öz

Çağımızın en önemli problemlerinden biri olan çevre sorunu günümüzde hem işletmelerin hem de tüketicilerin üzerinde önemle durduğu bir konu haline gelmiştir. Zaman içinde tüketicilerin daha da bilinçli hale gelmesiyle birlikte çevreye yönelik kaygıları tüketim alışkanlıklarını da etkilemeye başlamıştır. Bu doğrultuda çalışmanın amacı; çevresel kaygı, yeşil güven ve yeşil algılanan değerlerin tüketicilerin elektrikli araç yeşil satın alma niyeti üzerindeki etkilerini ölçmek ve oluşturulan kavramsal model çerçevesinde yeşil algılanan değer ve yeşil güvenin aracılık ve düzenleyici etkisini araştırmaktır. Bu doğrultuda Uyarıcı-Organizma-Tepki Teorisi çerçevesinde tüketicilerin elektrikli araç satın alma niyeti üzerindeki çevre yanlısı davranışlarını etkileyen faktörler açıklanmıştır. Nicel yöntem kullanılarak önerilen hipotezleri test etmek için Türkiye'de hem elektrikli araç kullanan hem de elektrikli araç satın almayı planlayan tüketicilerden veri toplamak amacıyla 423 kişiyle çevrimiçi bir anket gerçekleştirilmiştir. Çalışmada oluşturulan hipotezleri test etmek ve önerilen modeli ampirik olarak doğrulamak için SPSS programı kullanılmıştır. Sonuçta, çevresel kaygının, algılanan yeşil değer üzerinde, yeşil algılanan değer, yeşil satın alma niyeti üzerinde ve çevresel kaygının, yeşil satın alma niyeti üzerinde olumlu bir etkisi olduğu ortaya konmuştur. Çalışmanın, tüketicilerin elektrikli araç satın alma niyeti üzerindeki çevre yanlısı davranışlarını etkileyen faktörleri açıklayan bir model önermesi ve çalışma sonunda elde edilen bulguların, pazarlama stratejileri geliştirmeleri anlamında elektrikli araba üreticilerine yol göstermesi beklenmektedir.

Anahtar Kelimeler: Çevresel Kaygı, Yeşil Güven, Yeşil Algılanan Değer, Yeşil Satın Alma Niyeti, Uyarıcı-Organizma-Tepki Teorisi (SOR Modeli)

Copyright



This work is licensed under Creative Commons Attribution-NonCommercial 4.0 International License International License

^a dnzderal@gmail.com

^b [0000-0002-4914-0632](tel:0000-0002-4914-0632)

^b keti.ventura@ege.edu.tr

^b [0000-0002-6422-0518](tel:0000-0002-6422-0518)

How to Cite: Deral D, Ventura K (2025) The Effect of Environmental Concern, Green Perceived Value and Green Trust On Green Purchase Intention: Electric Vehicle Sector, Journal of Economics and Administrative Sciences, 26(1): 32-49, DOI: 10.37880/cumuiibf.1515317

Giriş

Son zamanlarda dünyamız açısından belki de en önemli konulardan biri olan küresel ısınma ve bunun çevreye etkileri gerek bireylerin gerekse işletmelerin üzerinde bir hayli düşünmeye başladıkları konular olarak karşımıza çıkmaktadır. Söz konusu konulara yönelik gün geçtikçe bilinç düzeyi artmakta, bu durum da çevre dostu yaşam tarzının uygulanması gerekliliğini ortaya çıkarmaktadır (Chairy ve Alam, 2019: 131). Çevreye olumsuz etkileri olan çok sayıda endüstri dalı olsa da günümüzde enerji sektörünün ve özellikle de motorlu taşıtların bu olumsuz etkisi yadsınamaz bir gerçektir. IEA (2023) raporuna göre enerji sektörü, küresel olarak toplam sera gazı emisyonlarının yüzde 75'ini oluşturmaktadır. Enerji sektöründen sonra en fazla emisyon yayan ikinci sektör de 2022 yılında küresel fosil karbon emisyonlarının yüzde 20,7'sini oluşturan ulaştırma sektörüdür (Avrupa Ekonomik Komisyonu, 2024). Karbondioksit (CO₂), küresel ısınmaya katkıda bulunan sera gazlarının (GHGs) kritik bileşenlerinden biri olmaktadır. Bu nedenle, karbon emisyonlarının evrensel olarak azaltılması oldukça önemli olmakla birlikte, CO₂ emisyonlarının en son kullanım kaynağı olan ulaştırma sektöründe bu durum büyük bir zorluk olarak karşımıza çıkmaktadır. Bu nedenle, daha iyi ve daha etkili olan elektrikli araçlara geçiş, birçok ülke tarafından CO₂ emisyonlarının azaltılması için etkili bir yöntem olarak kabul edilmektedir (Dutta ve Hwang, 2021: 1). Elektrikli araç satın alma kararında son dönemde çevreye olan bilinç düzeyi ve çevresel kaygının etkisi de oldukça fazla olsa da (Zhao ve Chen, 2021: 6), potansiyel olarak elektrikli araç satın alım kararını etkileyen birçok başka faktör de bulunmaktadır. Aracın özellikleri, fiyatı, yakıt ekonomisi, boyutu, performansı, işletme maliyetleri, görünümü, imajı, konforu ve güvenilirliği bunlardan bazılarıdır. Bir diğer faktör grubu ise alıcının niteliği ile ilgili olmaktadır, örneğin aile büyüklüğü ve yapısı, yıllık kilometresi, geliri, eğitim seviyesi, ikamet yeri, yaşı, cinsiyeti ve hanedeki sürücü sayısı gibi. Bir başka husus da bir hanenin sahip olduğu araç sayısı olmaktadır (Bennett vd., 2016: 4, 5). Ayrıca elektrikli araçların tercih edilmesinin diğer sebepleri arasında sessiz, akıcı ve vitessiz sürüş deneyimi; iyi yol tutuşu ve hızlı ivmelenme; satın alma fiyatında devlet sübvansiyonu ve tabii ki benzinden tasarruf yer almaktadır.

Günümüzde, toplumun daha çok bilinçlenmesiyle birlikte, yeşil davranış sergilemeye yönelik artan bir eğilim olduğu görülmektedir. Bu durum da bireyleri çevre dostu ürünler satın alma konusunda daha istekli davranmaya yöneltmektedir. Bu eğilim de en çok yeşil ürünlerin satın alınmasında görülmektedir. Reshmi ve Johnson (2014: 39) yeşil ürünleri, çevreye olumsuz etkisi düşük olan, insanların sağlığını etkilemeyen ve genellikle geri dönüştürülebilir, organik ve yeşil malzemelerden yapılan veya biyolojik olarak parçalanabilen bileşenler içeren ürünler olarak tanımlamaktadır. Çevresel kaygıları daha yüksek olan tüketicilerin çevre dostu tüketim yapma olasılıkları daha yüksek olup (Laroche, vd., 2001: 508), yeşil ürünleri satın alma niyetleri daha fazla olmakta, bu durum da yeşil davranışların oluşmasına katkıda bulunmaktadır (Kirmani ve Khan 2016: 162; Paul vd., 2016:

124). Yeşil tüketici davranışı, kişinin hayatında oldukça büyük değişiklikler yapmasını gerektiren bir süreç olup, sadece çevrenin korunması ile ilgili olmamakta, aynı zamanda bireyin sağlığı üzerinde olumlu etkisi olan eylemlerin uygulanmasını da gerektirmektedir. (Dabija vd., 2018: 174). Çevresel kaygının dışında tüketicileri yeşil ürün satın alma niyetlerini etkileyen en önemli faktörlerden biri de yeşil algılanan değer olmaktadır. Tüketicilerin zihninde yeşil bir ürüne sahip olmak için harcanan tüm maliyetler ile yeşil ürünün sağladığı fayda arasında yapılan bir değerlendirme sonucu algılanan olası olumlu değer, tüketicilerin yeşil satın alma niyetini de arttırmaktadır (Chen ve Chang, 2012: 507; Kresno ve Wahyono, 2019: 80). İşletmeler açısından değerlendirildiğinde yeşil pazarlama stratejisinin uygulanması, işletmelerin yeşil tüketicilerin güvenini kazanmasını sağlayan uzun soluklu bir yol olurken, bu durum sadece ürünler hakkında güvenilir bilgi toplamaya yardımcı olmakla kalmaz, aynı zamanda tüketicilerin işletmelere güven duymasına da yardımcı olmaktadır (Wasaya vd., 2020: 3).

Yukarıda sözü edilen ve başta büyük otomobil üreticileri olmak üzere tüm dünyada elektrikli araçların üretiminin ve tüketiminin artmasıyla değişen ve dönüşen pazar yapısı ve ülkemizde özellikle elektrikli araçlar satın alma konusunun nispeten yeni bir konu olması bu araştırmanın gerçekleştirilmesindeki en önemli itici güç olmuştur. Ayrıca ülkemizde tüketicilerin elektrikli araçlara ilgi göstermelerine rağmen, yeşil tüketim niyetleri açısından elektrikli araç satın alma niyetleri ve niyeti etkileyen faktörler üzerinde sınırlı sayıda araştırmanın olması ve gelecekte elektrikli araç satışlarının artması beklentisi nedeniyle söz konusu faktörlerin ortaya konması gerekliliği bu araştırmanın yapılmasının diğer itici güçleri olmaktadır. Bu anlamda bu çalışma, Uyarıcı-Organizma-Tepki (Stimulus-Organism-Response SOR) Modeli'nin, tüketicilerin elektrikli araçları satın alma niyetleri üzerinde çevresel kaygı ile yeşil algılanan değer etkisini ölçme amacı doğrultusunda uygulanarak sürdürülebilir pazarlama literatürüne katkı sağlamayı hedeflemektedir. Bu modelin kullanılmasının nedeni, uyarıcıların tüketicilerin zihinsel durumunu nasıl etkilediğini anlamak ve çevre dostu davranış şeklini incelenmektedir. Bu kapsamda araştırmanın ilk bölümünde SOR modeli sürdürülebilirlik ve yeşil pazarlama konularına değinilmiş ardından da çevresel kaygı, yeşil algılanan değer ve satın alma niyeti kavramları açıklanmıştır. Son bölümde de yapılan alan araştırmasına yönelik analizler, bulgular ile sonuç ve öneriler yer almaktadır.

Sürdürülebilirlik ve Yeşil Pazarlama

Hızlı ekonomik büyüme ve teknolojik yenilikler bir yandan insanların yaşamlarını daha konforlu hale getirirken, bir yandan da atmosferik kirlenme, su kirliliği ve biyolojik çeşitliliğin yok edilmesi gibi çeşitli çevresel tehlikelere de neden olmaktadır (Li vd., 2022: 1). Bununla birlikte özellikle gelişmekte olan ülkelerin kentsel nüfuslarındaki artış ve buna paralel olarak mobil hareketlilik için fosil yakıt bazlı araçların kullanımı, şehirlerin sürdürülebilirliği üzerinde olumsuz bir etkiye neden olmaktadır (Franzò ve Nasca, 2021: 2). Bu denli

büyük bir riskin altında olan dünyamızda kendini yenileme ve kaynak üretme yeteneğinin de azalmış olması riskin boyutunu da arttırmaktadır (Zengin ve Aksoy, 2021: 365). Bu risklere karşı ülkelerin ya da ülke gruplarının aldıkları önlemler ve belirledikleri hedeflerin yanı sıra, işletmeler de kendi bünyelerinde bir yeşil kültür yaratmak ve yaptıkları pazarlama faaliyetlerinde de yeşil pazarlama stratejilerini benimsemektedirler.

Yeşil pazarlama, "müşterilerin ve toplumun gereksinimlerini karlı ve sürdürülebilir bir şekilde belirlemeye, öngörmeye ve karşılamaya yönelik bütünsel bir yönetim" olarak tanımlanmaktadır (Lam vd., 2016: 48). Yeşil pazarlama, işletmelerin, sistemlerinde, politikalarında ve üretim veya pazarlama süreçlerinde çevresel unsurları kullanarak bir ürün/hizmeti tanıtmaya stratejilerini ifade etmektedir. Bu strateji, işletmenin çevreyi korumaya yönelik tutumu ile paydaşların ihtiyaçları arasında bir köprü görevi görmektedir (Dhewi vd., 2018: 412). Yeşil pazarlama stratejisi, üretim sürecindeki araç ve malzemelerin kullanımında ve nihai ürünün üretilmesindeki her bir sürecin çevre üzerinde zararlı etkilerinin bertaraf edildiği çeşitli faaliyetlerden oluşmaktadır. Bunun yanı sıra tüketicileri bilinçlendirmeye yönelik faaliyetler ile çevre için olumlu bir etki ve katma değer sağlayarak ürünleri geliştirme ve yenileme faaliyetlerini de kapsamaktadır. Bu strateji aynı zamanda bu ürünlerin satışından elde edilen gelirlerin çevre ile ilgili kuruluşlar veya etkinlikler yararına kullanılabilmesi faaliyetleri de içermektedir (Wahyoedi vd., 2023: 18). Yeşil pazarlamaya bakış açısı geçmişte tüketici tarafından çok güven vermeyen bir strateji olarak algılsa da, daha ileri teknolojilerin uygulanması, aldatici iddialara yönelik daha sıkı devlet yaptırımları, hükümet düzenlemeleri ve teşviklerinin yanı sıra çeşitli çevre örgütleri ve medyanın daha yakından incelemesiyle, birçok yeşil ürün 2000'li yıllarda büyük ölçüde gelişmiş ve tüketici güvenini yeniden kazanmıştır (Lee, 2008 : 575).

SOR Modeli

S-O-R modeli ilk olarak, çevrenin insan davranışı üzerindeki etkisinin insan psikolojisi tarafından üretildiğini açıklığa kavuşturmak için kullanılan çevre psikolojisi disiplininin gelmiştir (Wu ve Long, 2024: 02). S-O-R modeli tüketim sürecini açıklamak için kullanılabilirliğinden pazarlama bağlamlarına da oldukça uygun olmaktadır (Cheng vd., 2022 : 192). Mehrabian ve Russell (1974)'in geliştirdiği S-O-R modeli, çevresel uyarıcıların bireyin duygusal durumunu etkileyebileceğini ve bunun da yakınlaşma veya kaçınma tepkilerini etkileyeceğini öne sürmektedir (Gil ve Jacob, 2018: 303). İlk olarak 1974 yılında Mehrabian ve Russell tarafından önerilen bu model, çevresel uyarıcıların kişinin bilişsel ve duygusal tepkilerini etkileyerek tepki davranışına yol açtığını savunmaktadır (Hashish vd., 2022: 4). S-O-R modelinde uyarıcılar kişinin dış dünyasında bulunmakta ve fiziksel atmosferin çeşitli unsurlarından oluşmaktadır (Bagozzi, 1986). Bagozzi (1986) ve Mehrabian ve Russell (1974) organizmayı, kişinin dışındaki uyarılara ve tepkilerine veya uyarıcının tüketici davranışı üzerindeki etkisine, tüketicinin duygusal durumunun aracılık ettiğini ifade etmiş bu durumu da organizma olarak

tanımlamışlardır. Model, çevrenin bireyleri etkileyen uyarıcı bir faktör olduğunu belirtmekte ve bu uyarıcı unsurlar bireylerin algılarını etkileyebilecek nitelikler olarak tanımlanmaktadır (Su & Swanson, 2017). Bu uyarıcı faktörler (S), tüketicilerin bilişsel veya duygusal durumlarında (O) değişikliklere yol açmaktadır. Bu tür bir değişim, esas olarak uyarıldıktan sonra vücudun bilinçli veya bilinçsiz psikolojik durumunu ifade etmektedir. Modelin özünde, "algı, fizyoloji, duygu ve düşünme faaliyetlerinden" oluşan bireyin içsel bir durumunun olduğu (Bagozzi, 1986) ve bilişsel organizmanın, uyarım aldıktan sonra tüketicilerin davranışlarını daha da etkilediğini belirtmektedir (R) (Wu ve Long, 2024: 03).

Yeşil pazarlama çerçevesinde S-O-R modeli, insanların uyarılara nasıl tepki verdiğini araştırmak için önemli bir paradigma olarak kabul edilmektedir. Model çok sayıda araştırmada uygulanmıştır (örneğin; Gil ve Jacob, 2018; Dehghani Soltani vd., 2019; Luo vd., 2020; Mansoor vd., 2021; Rivas vd., 2022; Le vd., 2022; Chen vd., 2023; Wong vd., 2023; Lin vd., 2024). Bu teorinin ana fikri, çevresel uyarıcıların (S) tüketicilerin algılarını (O) nasıl etkilediğine ve bunun da tüketicilerin tepkilerini (R) oluşturan duyguları nasıl tetiklediğine dair anlayışı ortaya koymaktır (Rivas vd., 2022: 3). Uyarıcı değişken (S), tüketici satın alımları bağlamında tüketiciyi uyaran ana itici güçtür (Han, vd., 2022: 3). Uyarıcılar, farklı bağlamlarda yer alabilen harici etkileyici faktörlerdir. Organizma (O) ise, bir kişinin uyarıcı ile beklenen sonuç davranışı ya da niyeti arasında ortaya çıkan içsel durumlarını (yani algıları veya duyguları) ifade ederken, Tepki (R) terimi, tutumlar ve/veya davranışsal niyetler gibi psikolojik tepkileri içeren nihai sonuçları veya eylemleri ifade etmektedir (Xu ve Lin, 2018: 248). Başka bir anlatımla, bireyin psikolojik durumu, dış güç (uyarıcı) uyaran aracılığıyla etkilenmektedir. Uyarıcı, "bireyi harekete geçiren etki" olarak tanımlanırken (Eroğlu vd., 2001: 180), organizma, bir bireyin dış uyarıları ile sonuçları (tepkiler, yanıtlar, eylemler) arasına giren iç süreçleri ve yapıları ifade etmektedir. Bu nedenle organizmalar, uyarımlarla karşılaştıktan sonraki psikolojik ve duygusal süreçleri temsil etmektedirler (Upadhyay ve Kamble, 2023: 2).

S-O-R modeli, tüketicinin çevreye verdiği tepkiyi üç adımda açıklamaktadır: bir kişi dış çevresel uyarıcıya maruz kaldığında (S), bireyin iç dünyasında bir algı ya da duygu oluşmakta (O) ve belirli tepkiler (R) verilmektedir (Su ve Swanson, 2017: 310). Bu düşünceye dayanarak, çevre dostu tüketicilerin belirli bir uyarıcıya verdikleri tepki, içsel duygusal tepkilerine dayanmaktadır. İnsan davranışları, çoğu zaman bireyin belirli bir uyarıya nasıl ilişki kurduğundan etkilenen zihinsel durumlar tarafından motive edilmektedir. Başka bir deyişle, bir tüketicinin çevre dostu davranış şekli deyinmek istendiğinde, uyarıcının tüketicinin zihinsel durumunu nasıl etkilediğini anlamak gerekmektedir (Hameed vd., 2022: 1048). SOR modeli, tüketicilerin ekolojik bir uyarıya maruz kaldıklarında (S), içsel değerlendirmeler inşa edildiğinde (O) ve bu değerlendirmelerin tepkileri tetiklediğinde (R) çevreye üç aşamada tepki verdiklerini öne sürmektedir. Uyarımlar ve tepkiler arasındaki ilişkiye içsel değerlendirmeler aracılık etmektedir (Ahmad ve Zhang, 2020: 10).

Bu doğrultuda çevreye yönelik farkındalık, endişe ve kaygı, yeşil ürün veya yeşil hizmetlere yönelik güveni tetikleyebilecek bir duygu olmaktadır (Sultana vd., 2022: 4). Mehrabian ve Russell (1974)'in S-O-R modeli, çevresel uyarıcıların insanların duygusal durumlarını etkileyebileceğini ve bunun da belirli yaklaşımlara veya tepkilere yol açacağını öne sürmektedir. Burada, çevre ile ilgili bilgiler neticesinde oluşan kaygı (Uyarıcı - S) yeşil güveni (Organizma - O) etkileyebilmekte ve bu durum da müşterilerin yeşil ürünleri tercih etmesini yani yeşil satın alma niyetini sağlayabilmektedir (Tepki- R) (Sultana vd., 2022: 6). Tüketici güveni, tüketici tutumsal davranışının şekillendirilmesi ve sürdürülmesi için kritik bir belirleyici olmaktadır (Lee vd., 2011: 201). Çevresel konuların farkında olan müşteriler, yeşil güvenin varlığından dolayı yeşil ürünlere yani yeşil satın almaya daha fazla ilgi gösterebilmektedirler (Sultana vd., 2022: 4). S-O-R çerçevesinde, yeşil güven bazı akademisyenler tarafından organizmanın içsel durum değişkenleri olarak kabul edilmiştir (Ahmad ve Zhang, 2020; Zafar vd., 2023; Wu ve Long, 2024). Bu doğrultuda bu çalışmada, tüketicilerin elektrikli araçlara yönelik çevre yanlısı yönelimlerini dikkate alarak, değer-tutum-davranış ilişkisini araştırmak amacıyla SOR modeli yaklaşımı benimsenmiştir. Bu doğrultuda, çevre ile ilgili bilgiler neticesinde oluşan çevresel kaygı uyaran (S), yeşil güven organizma (O), yeşil satın alma niyeti de tepki (R) olarak belirlenmiştir.

Çevresel Kaygı

Çevresel kaygı, tüketicilerin çevre sorunlarının farkında olma derecesi ve bu sorunların çözümüne kişisel olarak katkıda bulunma istekliliği olarak tanımlanmaktadır (Kirmani ve Khan, 2016: 159). Bu kavram ayrıca, insanların çevre sorunlarının ne ölçüde farkında olduklarını ve bu sorunların çözümüne yönelik çabalara ne ölçüde destek verdiklerini ya da sorunların çözümü için çaba göstermeye ne ölçüde istekli olduklarını ifade etmektedir (Dunlap ve Jones 2002: 488). Çevresel kaygı, çevresel sorunlarla ilgilenme derecesi ve bu sorunları çözmeye yönelik çabaların bir göstergesi olmaktadır.

Stafford vd. (2006: 46), çevresel kaygının üç boyutu bulunduğunu ileri sürmüştür: vahşi tabiata yönelik, atıklara yönelik ve enerji kaybına yönelik çevresel kaygı. Buna göre, vahşi tabiata yönelik çevresel kaygı, tüketicilerin kaçak avlanma, yağmur ormanlarının korunması, yaban hayatı, habitatın korunması, vahşi doğanın korunması ve türlerin korunmasına yönelik endişelerini yansıtmaktadır. Atıklara yönelik çevresel kaygılar, tüketicilerin çöp sahaları, atık azaltma, zehirli atıklar, atık kontrolü ve atıkların bertaraf edilmesine yönelik kaygılarını ifade etmektedir. Enerjiye yönelik çevresel kaygılar ise tüketicilerin enerji tasarrufu, enerji verimliliği, ve kaynakların korunmasına yönelik kaygılarını yansıtmaktadır.

Çevresel kaygı bireysel düzeyde, Planlı Davranış Teorisini ve Çevre Dostu Davranış Modeli, çerçevesinde bireysel çevre koruma davranışını teşvik eden önemli bir iç faktör olarak görülmektedir (Li ve diğ., 2021: .4). Çevre koruma davranışını teşvik eden en önemli faktörlerden biri olan çevresel kaygı düzeyi, tüketicilerin de tüketim tercihlerinde ya da alışveriş davranışlarında etkili

olabilmektedir. Çevresel kaygıları yüksek olan tüketiciler, ürünlerin çevresel performansını değerlendirmeye daha yatkın olmaktadır. Söz konusu tüketiciler, ürünlerin çevresel özelliklerine dikkat etmeye daha istekli ve çevre dostu ürünlere karşı duyarlı olmakta ve çevre dostu ürünlerden yeşil değeri kolayca algılayabilmektedirler. Ayrıca bu tüketiciler, özgün yaşam tarzlarını değiştirerek ekolojik ayak izlerini azaltmaya yönelik önlemleri alma konusunda daha duyarlı olmaktadır (Zhao ve Chen, 2021: 6).

Yeşil Algılanan Değer

Algılanan değer, tüketicilerin satın aldıkları ürün veya hizmeti zihinlerinde değerlendirerek, "kar ya da zarar" ettikleri algılarına dayanan öznel bir yargıyı veya genel değerlendirmeyi ifade etmektedir (Chen vd., 2021: 3). Chen ve Chang (2012: 507), yeşil algılanan değer kavramını, tüketicinin çevresel arzuları, sürdürülebilir beklentileri ve yeşil ihtiyaçları temelinde bir ürün veya hizmetten elde edilen kazanç ile ürünü elde etmek için verilen tüm maddi ve manevi unsurlar arasındaki net faydaya ilişkin genel değerlendirmesi olarak tanımlamaktadır. Bu değerlendirme, yeşil ürünlerin tüketiciler tarafından satın alınma niyetini belirleyecektir (Kresno ve Wahyono, 2019: 80). Yeşil algılanan değer, tüketicilerin çevre dostu ürünlerden net kar elde etmek için yaptıkları tüm değerlendirmeler ile müşterilerin zihninde yeşil bir ürünün toplam faydası, özellikleri ve performansı anlamına gelmektedir. Yeşil ürün ve onun yeşil algılanan değeri, yeşil ürünlerin faydalarının ve performansının, onu kullanmanın ötesinde, müşterinin zihnindeki değerini ifade etmektedir (Rizwan vd., 2014: 295).

Çevre bilincinin günümüzde daha yaygın olmasıyla birlikte tüketiciler artan çevre sorunlarına daha fazla dikkat etmekte ve davranışları ile çevrenin korunmasına yönelik tutumlarını yansıtabilmektedirler (Chen ve Chang, 2012: 505). Yeşil Algılanan Değer, tüketicilerin çevre dostu ürünlerden net kar elde etmek için yaptıkları tüm değerlendirmeler olarak ifade edilmektedir (Rizwan vd., 2014: 297). Algılanan değer, tüketicinin ürünün özelliklerinden ve avantajlarından beklentileri ışığında ürünün bütün olarak değerlendirilmesi olarak görülmektedir (Zeithaml, 1988: 11). Grimmer ve Wolley (2014: 240), tüketicilerin satın almaya karar verdiklerinde, elde edilebilecek değeri maksimize edecek, algılanan maliyet ile algılanan değeri karşılaştıracak ve daha yüksek algılanan değer sağlayan ürünleri satın alacaklarını ortaya koymuştur. Algılanan değer giderek daha da önemli hale gelmesiyle, işletmeler daha yüksek katma değer sağlayarak tüketicilerin satın alma niyetlerini artırabilmektedirler (Steenkamp ve Geyskens, 2006: 141). Algılanan değer, sadece uzun vadeli müşteri ilişkilerinin önemli bir bileşeni değil, aynı zamanda tüketicilerin satın alma niyetini ve müşteri güvenini etkileme konusunda hayati bir role sahip olmaktadır (Cheung vd., 2015: 235).

Yeşil Güven

Güven, bir kişinin bir olaya ya da kişiye minimum düzeyde kırılganlığı kabul etme istekliliği, hevesi ve

yeteneği olarak açıklanmaktadır (Hart ve Saunders, 1997: 24). Bu tanıma ek olarak, güven kavramı, başka bir tarafın yeteneğine, güvenilirliğine ve nezaketine güvenmeyi ifade etmektedir (Chen ve Chang 2012: 505). Yeşil güven, başkalarının niyetlerini veya davranışsal beklentilerine yönelik olarak savunmasızlığı kabul etmeye dayalı psikolojik bir durum olarak tanımlanmaktadır. Yeşil bağlamdan yola çıkılarak, ürün, hizmet, marka itibarı, sosyal sorumluluk, yetenek ve çevre koruma etkinliği gibi faktörlere dayalı olarak insanlar tarafından oluşturulan bir inancı ifade eden "yeşil güven" kavramı (Tan ve Huang, 2023: 120), bir ürün veya hizmetin müşterilerin algılarını güvenilir ve inandırıcı bir şekilde yönetme, ihtiyaçlarını tatmin etme ve çevrenin korunmasını garanti etme kapasitesini ifade etmektedir (Chen ve Chang, 2012: 505).

Yeşil güven ilk kez yeşil ürünlere yönelik bir inanç ve beklenti ile enerji tasarrufu sağlama özelliklerine dayalı olarak tüketicilerin bu tür ürünlere güvenme eğiliminin geliştirilmesi olarak tanımlanmıştır. Daha sonra bu tanım, yeşil ürünlerin sadece enerji tasarrufu potansiyelini değil, aynı zamanda ürünün kendisini, sağladığı hizmetleri, markasını, itibarını vb. unsurları da içerecek şekilde genişletilmiştir (Chen ve Chang 2013: 71). Tüketicilerin yeşil davranışları, özellikle kontrol sistemlerinin olmadığı ve bir ürünün çevresel performansının kullanım aşamasıyla bağlantılı olmadığı, tüketici tarafından doğrudan değerlendirilemediği veya deneyimlenemediği durumlarda, güçlü bir şekilde güven kavramına dayanmaktadır. Ancak bu gibi durumlarda güven unsuru, bir markaya veya mağazaya duyulan güven seviyesinden ziyade, ürünlerde yer alan bir eko-etiket ya da ürün ambalajı üzerindeki diğer çevresel bilgilerle ön plana çıkmaktadır (Testa vd., 2015: 14). Güven unsurunun bir sonucu olarak oluşan sürdürülebilirlik algısı, yeşil güveni de güçlendirmektedir (Alamsyah, 2020: 2569).

Yeşil Satın Alma Niyeti

Satın alma sürecinin belki de en önemli aşamalarından biri satın alma niyeti kavramı olmaktadır (Prentice vd., 2019: 341). İnançlar, değerler, ihtiyaçlar, bilgi, motivasyon, demografik özellikler ve tutumlar, bir tüketicinin yeşil satın alma niyetini belirleyen en önemli unsurlardır (Ahmad ve Zhang, 2020: 3). Pazarlama stratejisi geliştirilirken, müşterilerin satın alma niyetinin artırılmasına yönelik çeşitli yollar bulunmaktadır. Bunlardan biri, belki de son zamanlarda en çok kullanılan yaklaşımlardan biri olan yeşil pazarlama stratejisinin uygulanmasıdır (Alamsyah vd., 2020: 2571). Yeşil satın alma niyeti, bir bireyin satın alma kararı verirken, yeşil ürünleri yeşil olmayan diğer ürünlere göre önceliklendirme olasılığı ve arzusu olarak ifade edilmektedir (Newton vd., 2015: 2). Chen ve Chang (2012: 507) yeşil satın alma niyetini, tüketicilerin çevresel ihtiyaçlara paralel olan belirli bir ürünü satın alma olasılığı olarak tanımlamaktadır. Ramayah vd. (2010, s.1423) 'ne göre ise yeşil satın alma niyeti, bireyin çevre üzerinde güvenli özelliklere sahip bir ürün veya hizmet markasına öncelik verme olasılığı ve isteği olmaktadır. Yeşil satın alma niyeti; tüketicilerin çevresel ihtiyaçları doğrultusunda ürünün yeşilliğini dikkate alan ve yeşilin algılanan değerini artıracak bir pazarlama modeli

aracılığıyla yeşil ürünlere yönelik satın alma niyetini ifade etmektedir. Yeşil satın alma niyeti kısaca, toplum ve çevre için daha az zararlı olan veya olmayan bir hizmet veya ürünü satın alma niyeti olarak tanımlanmaktadır. İnsanların daha az zararlı ve çevre dostu bir ürünü satın almaya yönelik içsel bir istek, arzu ve isteklilik olarak da tanımlanabilmektedir (Rizwan vd., 2014: 292). Yeşil satın alma niyetinin tetiklenebilmesi için, işletmelerin, tüketicilerin yeşil satın alma niyetini etkileyen faktörleri de bilmesi oldukça önem arz etmektedir (Keni vd., 2020: 1015). Yeşil satın alma niyeti yüksek olan tüketicilerde yeşil ürünleri takdir etme, olumlu ağızdan ağıza iletişim yaratma ve bu ürünlere yönelik ödeme yapma eğilimi olmaktadır (Tarabieh, 2021: 453).

Hipotezlerin Geliştirilmesi

Tüketicilerin çevreye olan duyarlılığı, insan davranışlarının çevre üzerindeki olumsuz etkilerini ortadan kaldırmaya da azaltma ihtiyacı son on yılda önemli ölçüde artmıştır (Joshi ve Rahman, 2019: 238). Çevre konusundaki kaygılar, tüketicilerin karar verme süreçlerini etkileyen önemli faktörlerden biri olmaktadır (Adnan vd., 2017: 7). Dunlap ve Jones (2002: 485) çevresel kaygıyı, bireylerin çevresel sorunların daha fazla farkında olma ve bu sorunların çözümüne yönelik tüm çabaları destekleme derecesi olarak tanımlamıştır (Hanson-Rasmussen ve Lauver, 2018: 8). Tüketiciler, çevre dostu ve kendilerini ifade eden, kaygılarını yansıtan ürün veya hizmetleri satın almayı tercih etmektedirler (Hwang ve Choi, 2018: 10).

Tüketicilerin çevresel kaygıları, çevreye karşı sorumluluk bilincini ve yeşil bir çevreye yönelik ahlaki yükümlülüklerini arttırmakta bu durum da tüketicilerin değer algılarını etkilemektedir (Upadhyay ve Kamble, 2023: 5). Literatürde çevresel kaygının yeşil algılanan değer üzerindeki etkisini ölçmeye yönelik yapılan çalışmalarda çevresel farkındalık ve çevresel kaygının, yeşil algılanan değer üzerinde önemli bir pozitif etkiye sahip olduğu görüşü hakim olmaktadır (Pandey ve Yadav, 2023: 3; Jesus vd., 2024: 119). Tüketicilerin yeşil değer algıları, çevresel kaygılar ve sosyal sorumluluk konusundaki artan farkındalıklarına bağlı olarak gelişmektedir (Hanson-Rasmussen & Lauver, 2018: 7). Bu doğrultuda araştırmanın ilk hipotezi şu şekilde kurulmuştur:

H1: Çevresel kaygının, yeşil algılanan değer üzerinde olumlu etkisi vardır.

İşletmelerin müşterilerine sundukları değer, sağlanan fayda ve rakiplere göre sahip olunan üstün özelliklere bağlı olmaktadır. Müşteri tarafında ise, sağlanan bu değer ile bu değeri elde etmek için maddi ve manevi katlanılan tüm giderler karşılaştırılarak zihinsel bir değer algısına ulaşılmaktadır. Algılanan değer sadece uzun vadeli müşteri ilişkilerinin sürdürülmesinde önemli bir belirleyici olmamakta, aynı zamanda tüketicilerin satın alma niyetlerini etkilemede de kilit bir rol oynamaktadır (Zeithaml, 1988: 14, 15; Rizwan vd., 2014: 295). Algılanan değer kavramı, işletmelerin ürün değeri aracılığıyla, tüketici satın alma niyetini teşvik edebilmesini sağlaması anlamında pazarlama performansı için oldukça önemli bir kavram olmaktadır (Zhuang vd., 2010: 3, Karatu & Nik-Mat, 2015: 425). Yeşil ürün, yeşil olmayan bir ürünle

karşılaştırıldığında aynı kar ve performansı sağlasa dahi, çevre dostu olması nedeniyle müşterilerin zihninde daha değerli olarak algılanabilmektedir. Literatürde, yeşil algılanan değer, yeşil satın alma niyeti üzerindeki etkisi, ürünün yeşil değerine ilişkin tüketicilerin genel bir değerlendirmesi yoluyla belirlenebilmekte olduğu (Kresno & Wahyono, 2019: 81), bunun da tüketicilerin yeşil algılanan güvenini ve yeşil satın alma niyetlerini etkilediği görülmektedir (Chen, 2010: 4). Örneğin, Han vd. (2009: 526), bir otelin çevre dostu bir imaja sahip olması durumunda kadın müşteriler tarafından daha çok tercih edildiğini ve kadınların otelde kalma olasılıklarının daha yüksek olduğunu ortaya koymuştur. Benzer şekilde, Park & Kwon (2017: 500), yeşil tüketim davranışı bağlamında, kullanıcıların enerji tasarrufu davranışının algılanan değerinin davranışsal niyetlerini olumlu yönde etkilediğini ifade etmiştir. Kim vd (2018: 13) de tüketicilerin elektrikli araçları benimseme niyetlerinin genel değer algıları tarafından olumlu yönde etkilendiğini belirtmişlerdir. Bu doğrultuda ikinci hipotez şu şekilde oluşturulmuştur:

H2: Yeşil algılanan değer, yeşil satın alma niyeti üzerinde olumlu etkisi vardır.

Çevre sorunları konusunda artan kaygılar gerek tüketicilerin gerekse işletmelerin son dönemde çevreyi korumaya yönelik çeşitli önlemler almalarına neden olmuştur. Çevre sorunları konusunda gün geçtikçe bilinçlenen tüketiciler, çevreye yönelik kaygıları arttıkça günlük yaşamlarını da ona göre şekillendirmektedirler. İşletmeler ise bu bilinçten hareketle, sosyal sorumluluk davranışının bir gereği olarak, hem iş süreçlerini uygun hale getirmeye çalışmakta hem de müşterilerine yönelik bilinçlendirme programları oluşturmaktadırlar. Yapılan bilinçlendirme çalışmaları ile tüketiciler yeşil girişimler hakkında daha bilgili hale gelmekte (Gil & Jacob 2018: 302), bu durum da tüketicilerin satın alma niyetlerini etkilemektedir (Asif vd., 2020: 37768). Çevresel kaygıları yüksek olan tüketiciler, yeşil ürünler satın almaya ve yeşil bir yaşam tarzını tercih etmeye daha istekli olmaktadır (Li vd., 2021: 4). Planlı Davranış Teorisi ve Çevre Dostu Davranış Modeli gibi teoriler çevre koruma alanına uygulandığında, çevresel kaygı, genellikle satın alma niyetinin doğrudan bir öncülü olarak kavramsallaştırılmaktadır (Koenig-Lewis vd., 2014: 95). Literatürde özellikle son dönemde çevresel kaygının satın alma niyetine etkisi araştırmacıların oldukça ilgisini çekmektedir. Tüketicilerin çevre kaygısı özellikle yeşil ürünler satın alma kararlarını etkilemektedir (Zhuang vd., 2021: 4; Chairy & Alam, 2019: 141; Lasuin & Ching, 2014: 9; Fabiola & Mayangsari, 2020: 102). Örneğin, Nekmahmud & Fekete-Farkas (2020: 22) genç tüketicilerin yeşil satın alımlarını incelemiş ve çevresel kaygıların satın alma kararları üzerinde önemli bir etkisi olduğunu ortaya koymuştur. Benzer şekilde, Hartmann & Apaolaza-Ibáñez (2012: 1260) çevresel kaygıların doğrudan ve dolaylı etkilerini araştırmış ve yeşil enerji markalarına yönelik tüketici tutumu ve satın alma niyeti üzerinde olumlu bir etki yarattığını vurgulamıştır. Bu bulgulardan hareketle üçüncü hipotez şu şekilde oluşturulmuştur:

H3: Çevresel kaygının, yeşil satın alma niyeti üzerinde olumlu etkisi vardır.

Mevcut çevre sorunlarına karşı sorumluluk hisseden tüketiciler çevre sorunları konusunda daha endişeli

olmakta ve çevre dostu ürün ve hizmetleri satın alma olasılıkları daha yüksek olmaktadır (Young vd., 2009: 25). Parguel vd. (2017: 54), bu durumda olan tüketicilerde yeşil algılanan değer daha yüksek olduğunu ortaya koymuşlardır. Ayrıca çevresel kaygıya sahip olan bireyler, çevre dostu uygulamalar gerçekleştirdiklerinde daha olumlu duygulara sahip olmaktadır (Jiang & Kim, 2015: 320). Hume & Sullivan (2010: 177), duyguların, yeşil algılanan değer önemli belirleyicileri olduğunu öne sürmüştür. Çevresel kaygı ya da farkındalık ile oluşan olumlu ya da olumsuz duygular, yeşil algılanan değer önemli belirleyicileri arasında olmaktadır (Wood & Moreau, 2006: 50). Özellikle çevre konusunda daha kaygılı olan tüketicilerin duygu gelişimi daha çok olmakta (Thøgersen, 2012: 453), bu durum da yeşil algılanan değeri arttırmaktadır (Syarifuddin & Alamsyah, 2017: 252). Yeşil algılanan değer de tüketicilerin yeşil satın alma niyetini arttırmaktadır (Rizwan vd., 2014; Chen, 2010; Han vd., 2009; Park & Kwon, 2017; Kim vd., 2018; Kresno & Wahyono, 2019). Bu doğrultuda araştırma kapsamında dördüncü hipotez şu şekilde oluşturulmuştur:

H4a: Çevresel kaygının yeşil satın alma niyetine etkisinde yeşil algılanan değer aracılık etkisi vardır.

H4b: Çevresel kaygının yeşil satın alma niyetine etkisinde yeşil algılanan değer düzenleyici etkisi (moderatör) bulunmaktadır.

Yeşil tüketiciler ürün seçerken çevre üzerindeki etkisi en az olan ürünlere öncelik vermektedirler. Bu tür bir seçim davranışı, tüketicilerin yeşil ürünlere duyduğu güvenden kaynaklanmaktadır. Çevreye önem veren tüketiciler, yeşil ürünlere daha fazla güven duyduklarında, ürünler hakkında derinlemesine bilgi edinme davranışına girebilmektedirler. Bu nedenle, çevreye önem veren ve yeşil ürünlere güven duyan tüketiciler, çevre dostu ürünleri satın almayı düşünmeye daha istekli olmaktadır (Li vd., 2021: 5). Chen (2010: 4) çevresel kaygılarla ilgili güveni "güvenilirliği, yardımseverliği ve çevresel performans becerisinden kaynaklanan inanç veya beklentiye dayalı olarak bir nesneye bağlı olma isteği" olarak tanımlamaktadır. Bu nedenle, bir ürünün algılanan değeri yüksek olduğunda, tüketicilerin bu ürüne güvenmesi ve ürünün özelliklerine inanması daha kolay olmaktadır (Kwok vd., 2015: 145). Dolayısıyla, daha yüksek tüketici güveni daha yüksek satın alma niyetine yol açmaktadır (Harris & Goode, 2010: 236, 237).

Tüketici davranışları alanında oldukça önemli bir konu olan yeşil güven, günümüzde işletmeler tarafından ürünlerin üzerine yerleştirilen yeşil işaretler ya da açıklamalar ile sağlanmaya çalışılmaktadır (Tan & Huang, 2023: 120). Schlosser vd. (2006: 135), alışveriş işlemlerinin güvene dayalı olması gerektiğini ve güveninin, tüketicilerin satın alma istekliliğini belirlemede belirleyici bir faktör olduğunu ifade etmektedir. Müşteri güveni, uzun vadeli müşteri davranışını destekleyen ve satın alma modelini belirleyebilecek temel bir bileşen olarak gösterilebilmektedir (Lee vd., 2011: 192). Literatürde tüketicilerin yeşil markalara duyduğu güvenin, tüketicilerin yeşil ürünleri satın alma sürecini önemli ölçüde etkileyebileceği ortaya konmuştur (Ashura & Zabadi, 2016: 1430; Chen & Chang, 2012: 507; Chen, 2010: 11; Doszhanov & Ahmad, 2015: 9). Çevresel trendlerin yükselişiyle birlikte tüketicilerin algıladıkları risk

artabilmekte ve daha çok çevresel değerlendirme yaparak kaygı düzeyleri artabilmektedir (Chen & Chang, 2012: 506). Kaygı düzeyi yoğun olduğu durumlarda da satın alma süreci sırasında oluşabilecek bir güvensizlik durumu tüketicilerin satın alma niyetini olumsuz yönde etkileyecektir (Gregg & Walczak, 2008: 662). Bu anlamda yeşil güvenin sağlanması riskin azaltılmasında en önemli faktörlerden biri olarak karşımıza çıkmaktadır (Schoorman vd., 2007: 346). Özellikle elektrikli ve hibrit otomobiller endüstrisinde güven, yüksek çevresel kaygısı olan tüketicileri etkileme konusunda çok önemli bir faktör olmaktadır (Mombeuil & Diunugala, 2023: 9). Testa vd. (2015: 14) tüketicilerin, çevreye duyarlı olan markalarla etkileşimlerinin, yeşil ürünlere olan güveni teşvik ettiğini, bunun da satın alma niyetini artırdığını ortaya koymuştur. Benzer şekilde, Lee (2020: 4, 10), güvenin tüketicilerin algıladığı riski azaltabileceğini ve düşük derecede risk algısının tüketicilerin yeşil ürün satın alma istekliliğini daha da artırabileceğini ifade etmiştir. Bu bulgulardan hareketle araştırmanın beşinci hipotezi şu şekilde oluşturulmuştur:

H5: Çevresel kaygının yeşil satın alma niyetine etkisinde yeşil güvenin düzenleyici etkisi (moderatör) bulunmaktadır.

Araştırmanın Amacı, Kapsamı ve Önemi

Dünya genelinde son dönemde tüm insanlığı tehdit eden en önemli sorunlardan biri olan iklim krizi ve çevre sorunlarına yönelik olarak tüm ülkeler çevre koruma, ekosistem ve temiz ulaşım hareketliliği konularında giderek daha bilinçli hale gelmektedir. Bunun temel nedeni de enerji ve ulaşım sektörlerinin küresel olarak sera gazı emisyonunu en çok yayan sektörler olmasıdır (Avrupa Ekonomik Komisyonu, 2024). Bu tehdide karşılık çok sayıda büyük otomobil markası yenilikçi ve çevre dostu elektrikli araçlarını piyasaya sürmektedir. Elektrikli araçlar, enerji güvenliği, iklim değişikliği ve çevre kirliliği gibi süregelen zorlukların üstesinden gelmek için küresel olarak en umut verici yeniliklerden biri olarak kabul edilmektedir (Huang & Ge, 2019: 362). Bu araçların kritik çevresel ihtiyacı karşılayan sürdürülebilir ulaşım araçları olması nedeniyle, gelişmekte olan ülkeler de geleneksel araçlardan elektrikli araçlara geçiş sürecine aktif olarak katılmaktadır (Shanmugavel & Balakrishnan, 2023: 1). IEA (2021)'e göre 2030'a kadar dünya genelinde toplam binek otomobil satışlarının % 60'ından fazlası elektrikli araçlardan oluşması beklenmekte olup, 2050'ye kadar da dünya genelindeki otomobil filolarının neredeyse tamamen elektrikli olacağı tahmin edilmektedir. Elektrikli araçların yaygınlaştırılması, çevre ve enerji krizlerini hafifletmek için sürdürülebilir bir çözümü temsil etmekte ve Paris Anlaşması ve Yeşil Anlaşma kapsamında karbon nötrlüğüne ulaşma hedeflerinin karşılanmasına yardımcı olmaktadır (Ivanova & Moreira, 2023: 1). ODM verilerine göre, ülkemizde elektrikli otomobil satışları konusunda 2023 yılının Ocak-Mayıs döneminde yıllık bazda %476 oranında artış kaydedilmiştir (KPMG, 2023). Bu doğrultuda bu çalışmanın amacı, SOR modeli çerçevesinde; çevresel kaygı ve yeşil algılanan değerlerin yeşil satın alma niyeti üzerindeki etkilerini ölçmektir. Ayrıca oluşturulan model çerçevesinde (i) yeşil algılanan değerlerin, çevresel kaygının yeşil satın alma niyetine etkisinde aracılık ve düzenleyici rolünü ve (ii) yeşil güvenin, çevresel kaygının yeşil satın

alma niyeti üzerindeki etkisinde düzenleyici rolünü araştırmaktır. Bu kapsamda tüketicilerin elektrikli araç satın alma niyeti üzerindeki çevre yanlısı davranışlarını etkileyen faktörler açıklanmıştır.

Araştırmanın Metodolojisi

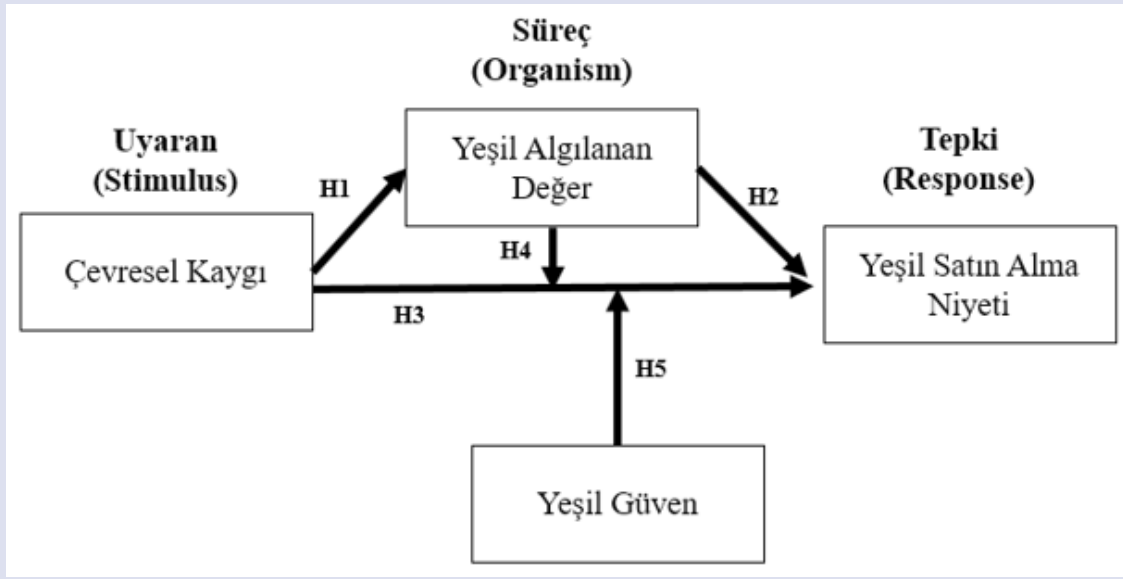
Bu çalışmada betimsel araştırma yaklaşımı kullanılmaktadır. Betimsel araştırma yaklaşımı, durumu mevcut haliyle inceleyen temel bir araştırma yöntemi olmaktadır. Betimsel araştırma, gözlemsel bir temele dayalı olarak belirli bir olgunun niteliklerinin tanımlanmasını veya iki veya daha fazla olgu arasındaki korelasyonun araştırılmasını ifade etmektedir (Williams, 2007). Araştırmada veri toplama tekniği olarak anket kullanılmıştır. Önerilen hipotezleri test etmek için çevrimiçi bir anket (Google Forms) uygulanmıştır. Araştırma kapsamında belirlenen değişkenlerin ölçülmesi amacıyla literatürde geçerliliği ve güvenilirliği test edilmiş çalışmalardan yararlanılmıştır: "Çevresel Kaygı" (Pagiaslis & Krontalis, 2014; Goh & Balaji, 2016), "Yeşil Algılanan Değer" (Bi vd., 2023), "Yeşil Güven" (Chen & Chang, 2012) ve "Yeşil Satın Alma Niyeti" (He vd., 2018). Çevresel kaygının, yeşil algılanan değerlerin ve yeşil güvenin, elektrikli otomobil satın alma niyeti üzerindeki etkisini ölçmeye yönelik ifadeleri ölçmek amacıyla 5'li Likert Tipi ölçek ("1: Kesinlikle Katılmıyorum"; "5: Kesinlikle Katılıyorum") kullanılmıştır. Anket üç bölümden oluşturulmuştur. İlk bölümde, çevresel kaygı, yeşil algılanan değer ve yeşil güven boyutlarına yönelik ifadelerle, ikinci bölümde elektrikli otomobil bağlamında yeşil satın alma niyetiyle ilgili ifadeler yer verilmiştir. Son bölümde ise katılımcılarla ilgili demografik sorular yer almaktadır.

Araştırmanın ana kütlesini, ülkemizin en büyük üç şehri olan İstanbul, Ankara ve İzmir illerinde ikamet eden ve elektrikli araç satın almış veya çoğunlukla satın almayı düşünen tüketiciler oluşturmaktadır. Araştırmada kolayda örnekleme yöntemi kullanılmıştır. Kolayda örnekleme yöntemi, en erişilebilir deneklere hedeflenen gruptan uygun bir şekilde seçmek için kullanılmaktadır. Hedef örneklemin evreni bilinmediğinden, benimsenen örnekleme tekniği erişilebilirlik açısından olasılıklı olmayan örneklem yöntemidir (Mainardes vd., 2020: 811). Evrendeki birey sayısının bilinmediği durumlarda $n=(t^2 pq)/d^2$ formülüne dayalı olarak en az 384 kişilik bir grupta bu çalışmanın yürütülmesi gerekmektedir (Bartlett vd., 2001: 48). Bu doğrultuda 423 kişiye ulaşılmıştır.

Çevresel kaygının elektrikli araçların yeşil satın alma niyetini üzerindeki etkisini belirlemek amacıyla gerçekleştirilen araştırmanın kavramsal modeli, kullanılan ölçekler şu şekildedir:

Araştırmanın Bulguları

Araştırma kapsamında anketi cevaplayan katılımcıların demografik profiliyle ilgili yapılan analize ait bulgular Çizelge 1'de gösterilmektedir. Buna göre katılımcıların % 53,9'u erkek, % 46,1'i de kadınlar oluşturmaktadır. Katılımcılar arasında en yüksek oran %39,9 ile 38-47 yaş aralığında bulunan toplam 168 kişi olup, katılımcıların %75,2'si üniversite mezunudur.



Resim 1. Araştırmanın Kavramsal Modeli
Figure 1. Conceptual Model of the Research

Çizelge 1. Anket Katılımcılarının Demografik Profili

Table 1. Demographic Profile of Survey Respondents

CİNSİYET			YAŞ		
	N	Geçerli Yüzde		N	Geçerli Yüzde
Kadın	195	46,1	18-27	30	7,1
Erkek	228	53,9	28-37	106	25,1
Total	423	100,0	38-47	168	39,7
			48-57	73	17,3
			58-67	28	6,6
			68 ve üstü	18	4,3
			Toplam	423	100,0
MEDENİ DURUM			EĞİTİM DÜZEYİ		
	N	Geçerli Yüzde		N	Geçerli Yüzde
Evli	353	83,5	Lise Mezunu	70	16,5
Bekar	70	16,5	Ön Lisans Mezunu	14	3,3
Toplam	423	100,0	Üniversite Mezunu	318	75,2
			Yüksek Lisans / Doktora Mezunu	21	5,0
			Toplam	423	100,0
KİŞİSEL GELİR DURUMU			MESLEK		
	N	Geçerli Yüzde		N	Geçerli Yüzde
0 - 11.500 TL	13	3,1	Özel sektör çalışanı	75	17,7
11.501- 20.001 TL	21	5,0	Kamu sektöründe memur	78	18,4
20.002- 28.502TL	135	31,9	Uzmanlık gerektiren meslekler	153	36,2
28.503- 37.003 TL	115	27,2	Küçük/orta ölçekli ticaret serbest meslek	23	5,4
37.004 – 45.504 TL	24	5,7	Büyük ölçekli ticaret	24	5,7
45.505 TL – 54.005 TL	83	19,6	Emekli	56	13,2
54.006TL ve üstü	32	7,6	Öğrenci	14	3,3
Toplam	423	100,0	Toplam	423	100,0

Araştırma kapsamında katılımcıların çevresel kaygının yeşil ürün (elektrikli araç) satın alma niyetlerini ölçmek amacıyla “Çevresel Kaygı” (Pagiaslis & Kroutalis, 2014; Goh & Balaji, 2016), “Yeşil Algılanan Değer” (Bi vd., 2023), “Yeşil Güven” (Chen & Chang, 2012) ve “Yeşil Satın Alma Niyeti” (He vd., 2018) değişkenlerine ilişkin oluşturulan ifadelerle ilişkin genel değerlendirmelerini ortaya koymak amacıyla tek örneklem t-testi yapılmıştır (Çizelge 2). Tek örneklemli t testi 5’li Likert’li ifadelerin test değerlerinin “3”, diğer bir ifade ile “kararsızlık” noktasından farklı olup olmadıklarını test etmek amacıyla kullanılmıştır. Söz konusu t testi betimleyici bir analiz olması nedeniyle hipotezi oluşturulmamıştır. Buna göre katılımcıların büyük bir çoğunluğu, çevre konusunda endişeli olup, katılımcıların çoğunluğunun çevre için fedakârlık yapmaya hazır ve sorumluluk sahibi olduğu görülmektedir. Katılımcılar aynı zamanda elektrikli araç satın almanın çevre için oldukça önemli olduğunu, sürdürülebilirliği arttırdığı, çevre kirliliğine yönelik bir önlem olduğunu belirtmişlerdir. Bununla birlikte katılımcılar yeşil

ürünlere genel olarak güvendiklerini ve elektrikli araç satın alma niyetinde olduklarını vurgulamışlardır.

Araştırma kapsamında çevresel kaygının ve yeşil algılanan değerlerin yeşil satın alma niyeti üzerindeki etkisini ölçmek için basit doğrusal regresyon analizleri yapılmıştır (Çizelge 3-4-5). Basit regresyon analizinde değişkenler arasında doğrusal ilişki olup olmadığını test etmek amacıyla korelasyon analizi yapılması gerekmektedir. Doğrusal korelasyon analizi, ilgili bir değişkenin diğerine yakınlığını temsil eden bir araç olmakta ve iki değişkenin arasındaki ilişki ile ilgili bilgi veren bir ölçü olmaktadır (Senthilnathan, 2019: 2). Bu kapsamda yeşil ürün satın alma niyeti bağımlı değişkeninin, çevresel kaygı ($r=0,585$; $p<0,05$) ile arasında orta düzeyde; yeşil algılanan değer ($r=0,715$; $p<0,05$) ile güçlü düzeyde anlamlı bir ilişki olduğu; çevresel kaygı değişkeni ile yeşil algılanan değer ($r=0,701$; $p<0,05$) arasında da yine kuvvetli düzeyde (Gürbüz ve Şahin, 2015:256) anlamlı bir ilişki olduğu görülmektedir.

Çizelge 2. Tek Örneklem T-Testi Değerlendirmeleri

Table 2. One Sample T-Test Results

Değişken	İfade*	Ort.	t	sd.	p	Cronbach's alpha
Çevresel Kaygı	Çevre konusunda endişeliyimdir.	4,09	45,300	422	0,000	0,788
	Çevrenin durumu sağlığımın kalitesini etkiler.	4,04	46,904	422	0,000	
	Çevreyi korumak için fedakârlık yapmaya hazırım.	4,08	40,147	422	0,000	
	Bireylerin çevreyi koruma sorumluluğu olduğunu düşünüyorum.	4,25	41,301	422	0,000	
	Elektrikli araç satın almak ekolojik çevre için iyidir.	4,24	38,683	422	0,000	
Yeşil Algılanan Değer	Elektrikli araç satın almak çevre kirliliğinin azaltılmasına yardımcı olabilir.	4,20	38,457	422	0,000	0,808
	Elektrikli araç satın almak sürdürülebilir kalkınmaya yardımcı olur.	4,23	40,464	422	0,000	
	Elektrikli araç satın almak çevre bilincimi artırabilir.	4,20	42,295	422	0,000	
	Elektrikli araç satın almak sosyal gelişime katkıda bulunur.	4,18	39,119	422	0,000	
	Bu ürünün çevre dostu iddiaları genellikle güvenilirdir.	4,19	38,212	422	0,000	
Yeşil Güven	Bu ürün taahhütlerini yerine getirir ve çevre güvenliği vaat eder.	4,19	37,378	422	0,000	0,813
	Yeşil ürünlerin çevre dostu itibarı genellikle güvenilirdir.	4,19	36,939	422	0,000	
	Bu ürünün çevre dostu kaygısı beklentilerimi karşılıyor.	4,19	36,570	422	0,000	
	Bir daha araba alacağımda elektrikli araba almayı düşünmeyeceğim.	4,14	33,654	422	0,000	
	Yakın gelecekte elektrikli araba kullanmayı düşünüyorum	4,17	36,892	422	0,000	
Yeşil Satın Alma Niyeti	Yakın gelecekte elektrikli araba kullanma niyetim var.	4,14	37,969	422	0,000	0,783

Not: Tek örneklem t testi için test değeri=3 (Kararsız)

*(1= kesinlikle katılmıyorum 5= kesinlikle katılıyorum)

Çizelge 3. : Regresyon Analizi Sonucu

Table 3. Results of Regression Analysis

Model	Standartlaşmamış Katsayılar	Standart Katsayılar	t	p		
1	B	Std. Hata	Beta			
	(Sabit)	0,964	0,162	2,113	0,000	
	Çevresel Kaygı	0,789	0,062	0,648	14,562	0,000
a Bağımlı Değişken: Yeşil Algılanan Değer						

Çizelge 4. : Regresyon Analizi Sonucu

Table 4. Results of Regression Analysis

Model		Standartlaşmamış Katsayılar		Standart Katsayılar	t	p
		B	Std. Hata	Beta		
1	(Sabit)	0,964	0,162		14,644	0,000
	Yeşil Algılanan Değer	0,699	0,190	0,063	1,075	0,000

a Bağımlı Değişken: Yeşil Satın Alma Niyeti

Çizelge 5. : Regresyon Analizi Sonucu

Table 5. Results of Regression Analysis

Model		Standartlaşmamış Katsayılar		Standart Katsayılar	t	p
		B	Std. Hata	Beta		
1	(Sabit)	0,317	0,190		14,947	0,000
	Çevresel Kaygı	0,217	0,062	0,018	0,314	0,000

a Bağımlı Değişken: Yeşil Satın Alma Niyeti

Söz konusu Çizelgeler incelendiğinde, çevresel kaygının yeşil algılanan değer üzerinde pozitif yönlü ve anlamlı ($b=,789$ $p<0,05$) bir etkinin varlığı söylenebilmektedir. Aynı zamanda yeşil algılanan değerlerin yeşil satın alma niyeti üzerinde ($b=,699$ $p<0,05$) de çevresel kaygının da yeşil satın alma niyeti üzerinde ($b=,217$ $p<0,05$) pozitif yönlü ve anlamlı bir etkinin olduğu görülmektedir. Dolayısıyla H1, H2 ve H3 hipotezleri desteklenmektedir. Diğer bir ifadeyle, tüketicilerin çevresel kaygı düzeyi arttıkça yeşil algılanan değer ve yeşil ürünlere yönelik satın alma niyeti artmaktadır. Bu durum literatürde yapılmış bazı çalışmalarla da paralellik göstermektedir. Örneğin çevresel kaygının yeşil algılanan değer üzerindeki etkisi Pandey & Yadav (2023), Li vd. (2013) ve Jesus vd. (2024)'nin çalışmaları ile yeşil algılanan değerlerin yeşil satın alma üzerindeki etkisi Han vd. (2009), Park & Kwon (2017) ve Kim vd. (2018)'nin çalışmaları ile çevresel kaygının da yeşil satın alma niyeti üzerindeki etkisi Zhuang vd. (2021), Chairy & Alam (2019), Lasuin & Ching (2014) ve Fabiola & Mayangsari (2020)'nin çalışmaları ile paralellik göstermektedir.

Araştırma kapsamında çevresel kaygının yeşil satın alma niyetinin üzerindeki etkisinde yeşil algılanan değerlerin aracılık rolünü belirlemek için Hayes (2013) tarafından geliştirilen Process Makro (Model-4) kullanılarak regresyon analizi uygulanmıştır. Process Makro (Model-4) sistemi ile erişilen aracılık etkisinin analizinde bootstrap metodu uygulanarak 5.000 yeniden örnekleme seçeneği kullanılmıştır. Düzeltilmiş güven aralığı %95 olarak ele alınmıştır. Sözü edilen analiz sonuçları Çizelge 6'da gösterilmektedir.

Bir değişkenin aracı etkisinin olup olmadığını bulabilmek için üç temel şartın sağlanması gerekmektedir. Bu temel şartlar; (i) bağımsız değişkenin, bağımlı değişkeni anlamlı olarak etkilemesi (ii) bağımsız değişkenin, aracı değişkeni anlamlı olarak etkilemesi (iii) aracı değişkenin modele dahil edildiğinde, bağımlı değişkenin bağımsız değişken üzerindeki etkileri azalırken, aracı değişkenin de bağımlı değişkeni etkilemesi gerekmektedir. Bu şartlar sağlandığında aracı etki veya kısmi aracılık etkisinden bahsedilebilmektedir (Baron ve Kenny, 1986). Buna göre, çevresel kaygının yeşil satın alma niyeti üzerindeki toplam etkisinin ($b=,7683$, $SE=,0519$, $p<0,001$) pozitif yönde ve anlamlı düzeyde olduğu görülmektedir. Toplam etki,

bağımsız değişkenin bağımlı değişkene olan doğrudan etkisi ile aracı değişken aracılığıyla bağımlı değişken üzerindeki dolaylı etkinin toplamıdır (Hayes, 2018). Çevresel kaygının yeşil satın alma niyeti üzerindeki doğrudan etkisinin ($b=,2169$, $SE=,0619$, $p<0,001$) pozitif yönde ve anlamlı; çevresel kaygının yeşil satın alma niyeti üzerindeki dolaylı etkisinin de benzer şekilde ($b=,5514$, $SE=,0928$, $p<0,001$) pozitif yönde ve anlamlı düzeyde olduğu görülmektedir. Dolaylı etkinin anlamlı olması nedeniyle yeşil algılanan değerlerin çevresel kaygının yeşil satın alma niyeti üzerindeki etkisine aracılık ettiği söylenebilmektedir (Hayes, 2018). Aracılık etkisinin tam standardize etki büyüklüğü, %95 güven aralığında (GA [$,2394$, $,5518$]) $\beta=0,42$ olduğu, bu değerlerin de kısmi aracılık etkisine yakın olduğu belirlenmiştir (Cohen, 1988). Bu bulgulara göre, çevresel kaygı ve yeşil satın alma niyeti arasındaki ilişkide, yeşil algılanan değerlerin aracı bir rol oynadığı görülmektedir. Diğer bir ifadeyle, çevre kaygısı olan tüketicilerin algıladıkları yeşil değer artmakta (Syarifuddin & Alamsyah, 2017) bu da yeşil satın alma niyetini arttırmaktadır (Rizwan vd., 2014; Chen, 2010; Kresno & Wahyono, 2019). Buna göre H4a hipotezi desteklenmiştir.

Araştırma kapsamında çevresel kaygının yeşil satın alma niyeti üzerindeki etkisinde yeşil güvenin ve yeşil algılanan değerlerin düzenleyici etkisini ölçmek amacıyla Hayes (2013) tarafından geliştirilen Process Makro (Model-1) analizi ile regresyon analizi yapılmıştır. Regresyon analizi sonuçları Çizelge 7 ve Çizelge 8'de gösterilmektedir. Düzenleyici etki analizi, etkinin düzenleyici değişken etkisinin varlığını ve büyüklüğünü ortaya koymaktadır. Diğer bir ifadeyle, bu analiz bir bağımsız değişken ile bağımlı değişken arasındaki ilişkinin farklı düzenleyici etki düzeylerinde değişip değişmediğiyle ilgilenmektedir (Clement ve Bradley-Garcia, 2022: 260). Process Makro, SPSS programı ile çalışan, regresyon katsayılarını görselleştirmek ve yorumlamak için tahmini değerlerinin bir Çizelgesunu oluşturmakta ve olası bir etkileşimi araştırmak için çeşitli seçenekler sunmaktadır (Igartua ve Hayes, 2021: 11). Process Makro (Model-1) sistemi ile erişilen Düzenleyici Etki Analizi'nde Bootstrap Metodu uygulanarak 5.000 yeniden örnekleme seçeneği kullanılmıştır. Düzeltilmiş güven aralığı %95 olarak ele alınmıştır.

Çizelge 7. Çevresel Kaygının Yeşil Satın Alma Niyetine Etkisinde Yeşil Güvenin Düzenleyici Etkisini Ölçmeye Yönelik Regresyon Analizi

Table 7. Regression Analysis to Measure the Moderating Effect of Green Trust on the Effect of Environmental Concern on Green Purchase Intention

R	R ²	MSE	F	df1	df2	P
0,7515	0,5648	0,1321	181,2521	3	419	0
Model	b	se	t	p	LLCI	ULCI
Sabit	4,1559	0,0181	229,7408	0	4,1204	4,1915
Çevresel Kaygı	0,277	0,0651	4,2523	0	0,149	0,405
Yeşil Güven	0,5923	0,0448	13,2083	0	0,5041	0,6804
Int_1	-0,0296	0,0297	-0,9979	0,319	-0,088	0,0287

Çizelge 8. Çevresel Kaygının Yeşil Satın Alma Niyetine Etkisinde Yeşil Algılanan Değerin Düzenleyici Etkisini Ölçmeye Yönelik Regresyon Analizi

Table 8. Regression Analysis to Measure the Moderating Effect of Green Perceived Value on the Effect of Environmental Concern on Green Purchase Intention

R	R ²	MSE	F	df1	df2	P
,7251	,5257	,1440	154,8274	3	419	,0000
Model	Katsayı	se	t	p	LLCI	ULCI
Sabit	4,1556	,0190	218,6702	,0000	4,1182	4,1929
Çevresel Kaygı	,1901	,0712	2,6721	,0078	,0503	,3300
Yeşil Algılan Değer	,6774	,0620	10,9278	,0000	,5555	,7992
Int_1	-,0252	,0331	-,7624	,4462	-,0903	,0398

Buna göre, yeşil güvenin, çevresel kaygının yeşil satın alma niyeti ilişkisindeki etkileşim etkisinin (Int_1; p=0,3189) ve yeşil algılanan değer, çevresel kaygının yeşil satın alma niyeti ilişkisindeki etkileşim etkisinin (Int_1; p= 0,4462) anlamlı olmaması nedeniyle çevresel kaygının yeşil satın alma niyeti üzerindeki etkisinde yeşil güvenin ve yeşil algılanan değer düzenleyici bir etkisi bulunmadığı (Hayes, 2018) sonucuna varılmıştır. Dolayısıyla H4b ve H5 hipotezi desteklenmemiştir. Bu bulgu elektrikli araç kategorisinde literatürdeki diğer çalışmalardan farklı olarak (Thøgersen, 2012: 453; Syarifuddin & Alamsyah, 2017: 252; Mombeuil & Diunugala, 2023: 9) yeşil güvenin ve yeşil algılanan değer düzenleyici bir rolünün bulunmadığı saptanmıştır.

Sonuç ve Tartışma

Son dönemde yaşanan ve etkisi git gide yaygınlaşan iklim krizi ile yarattığı çevre sorunlarına yönelik gerek devletler gerekse işletmeler çevre yanlısı davranışları sürdürmenin çeşitli yollarını araştırmaktadır. Bu girişimlerden biri de çevre odaklı sürdürülebilir kalkınmaya yol açabilecek elektrikli araçlar olmaktadır. Tüketicilerin çevreye olan duyarlılığı, insan davranışlarının çevre üzerindeki olumsuz etkilerini ortadan kaldırmaya da azaltma ihtiyacına tepki olarak son on yılda önemli ölçüde artmıştır (Joshi & Rahman, 2019: 242). S-O-R modeli çerçevesinde elektrikli araçlara yönelik davranışsal niyet ile doğrudan ve dolaylı ilişkileri anlamak üzere çevre yanlısı değişkenlerin etkilerini araştırmak amacıyla yapılan bu çalışmada çevresel kaygının, yeşil algılanan değeri pozitif yönde ve anlamlı etkilediği sonucuna

ulaşmıştır. Benzer şekilde Lin & Zhou (2022: 1410) araştırmacıları, çevre dostu ürün ve hizmetlerin tüketilmesinin müşterilere sağladığı çevresel faydaların yeşil algılanan değerle ilişkili olduğunu belirtmiştir. Yine Hanson-Rasmussen & Lauver (2018: 17), tüketicilerin algıladıkları yeşil değerleri çevresel konulara yönelik artan kaygılarının bir sonucu olduğunu ifade etmiştir. Çevre konusundaki kaygılar, tüketicilerin karar verme süreçlerini etkileyen en önemli faktörlerden biri olmaktadır (Adnan vd., 2017: 7). Araştırma kapsamında elde edilen diğer önemli bir bulgu da araştırmaya katılan kişilerin algıladıkları yeşil değerler elektrikli araç satın alma niyetleri üzerinde anlamlı bir etkisinin olduğudur. Önceki çalışmalar (Chen & Chang, 2012, Chi vd., 2021, Luo vd., 2022, Zhuang vd., 2010, Karatu & Nik-Mat, 2015) da algılanan değer pazarlama performansında kritik bir öneme sahip olduğunu ve tüketici satın alma niyetini teşvik ettiğini ortaya koymuşlardır. Yeşil algılanan değer sadece yeşil satın alma niyetini etkilemede önemli bir rol oynamakla kalmaz, aynı zamanda uzun vadeli müşteri ilişkilerini sürdürme açısından önemli bir belirleyici role sahip olmaktadır (Rizwan vd., 2014: 295). Ayrıca araştırma kapsamında çevresel kaygının, yeşil satın alma niyetini pozitif yönde ve anlamlı etkilediği elde edilen diğer önemli bulgudur. Benzer şekilde Hartmann & Apaolaza-Ibáñez (2012), Chairy & Alam (2019), Zhuang vd., (2021) gibi araştırmalarda çevresel kaygıların yeşil enerji markalarına yönelik tüketici tutumu ve satın alma niyeti üzerinde olumlu bir etkisi olduğu ve çevresel kaygıları yüksek olan tüketicilerin yeşil ürünler satın almaya ve yeşil bir yaşam tarzını tercih etmeye daha istekli olduğu ortaya konmuştur (Li vd., 2021: 4).

Araştırma kapsamında çevresel kaygının yeşil satın alma niyeti üzerindeki doğrudan etkisinin yanı sıra yeşil algılanan değer aracılığıyla da yeşil satın alma niyeti üzerinde dolaylı etkisi ortaya konmuştur. Tüketicilerin çevreye ilişkin kişisel inançları ve kaygıları çevreyle ilgili davranışlar üzerinde olumlu bir etkiye sahip olmakta (Chen & Zhang, 2020: 18002) bu durum da içselleştirilmiş algılarının yeşil satın alma niyetini etkilemektedir (Gao vd., 2016: 113). Diğer taraftan, literatürde belirtildiği gibi tüketicilerin yeşil ürünlere verdiği değer ne kadar yüksekse, yeşil ürün satın alma güveni de o kadar yüksek olmakta (Alamsyah vd, 2020: 143) ve çevreye yönelik kaygılarına yönelik olarak çevre dostu ürünlere yönelmektedirler (Karatu & Nik-Mat, 2015: 423). Benzer şekilde bazı araştırmalarda (Li vd., 2021; Harris & Goode, 2010: 236) çevreye önem veren ve çevre kaygısı olan tüketicilerin hem çevre hem de kendi güvenleri doğrultusunda çevre dostu ürünleri satın alma konusunda daha istekli olduğu ve özellikle yüksek tüketici güvenine sahip tüketicilerde bu durumun daha yüksek satın alma niyeti oluşturduğu saptanmıştır. Ancak bu çalışmada çevresel kaygının yeşil satın alma niyeti üzerindeki etkisinde yeşil güvenin ve yeşil algılanan değer düzenleyici bir değişken olmadığı görülmüştür. Bu durum katılımcıların elektrikli araçları çevreye yönelik sorumlulukları gereği güvenilir yeşil algılanan değeri yüksek bulduklarını ifade ettikleri halde bu araçların satın alımı konusunda eyleme geçmemeleri nedeniyle gerçekleşmiş olabilmektedir.

Bu araştırma sınırlı araştırma geçmişi olan ve ülkemizde yeni yeni talep görmeye başlayan bir sektör olan elektrikli araç sektöründe yeşil satın alma niyeti davranışını anlamak ve bu niyeti etkileyen değişkenleri analiz etmiş bir çalışmadır. Ayrıca çalışma, elektrikli araçların satın alma niyeti üzerinde çevre yanlısı davranış etkileyen faktörleri açıklayan bütünsel bir model sunmaktadır. Araştırmada elde edilen sonuçlar, tüketicilerin elektrikli araçlara yönelik davranışsal niyeti olan yeşil satın alma kavramını kullanarak sürdürülebilir bir çevreye yönelik çevresel kaygıyı, yeşil algılanan değeri ve yeşil güveni açıklamada çevre yanlısı yapıların önemini vurgulamakta ve yeni teknolojinin benimsenmesine ilişkin tüketici öngörülerini sağlamaktadır. Bu bağlamda, SOR teorik çerçevesi kapsamında, çevresel kaygının, yeşil algılanan değer ve yeşil güvenin, yeşil satın alma niyeti üzerindeki doğrudan ve dolaylı etkilerini inceleyerek yeşil pazarlama literatürüne katkıda bulunmaktadır. Çevresel konular önümüzdeki dönemde de tüm dünyada tüketicilerin ve işletmelerin odak konusu olmaya devam edeceği beklenmekte olup bu çalışma bulgularının, işletme yöneticilerinin yeşil pazarlama faaliyetleri geliştirmeleri konusunda rehberlik edeceği düşünülmektedir. Bulguların aynı zamanda, yöneticilerin elektrikli araçları daha iyi konumlandırmak ve bu ürünlerin satın alınmasını teşvik etmek için kendilerine yol göstermesi beklenmektedir.

Bu çalışma, elektrikli araçlarla ilgili gelecekte yapılacak araştırmalarla aşılabilecek bazı kısıtlamalara sahiptir. Gelecek çalışmalarda daha geniş bir örneklem

büyükliğüne ulaşarak demografik değişkenler temelinde ya da farklı kültürlerin yeşil satın alma niyeti bağlamındaki farklılıklarını tespit etmek amacıyla çeşitli araştırmalar gerçekleştirilebilir. Bu araştırma Türkiye çapında sadece birkaç grup ve bireysel olarak yürütüldüğünden, yine bütün Türkiye'yi kapsayacak şekilde daha geniş bir örnekleme ulaşarak daha fazla araştırma yaparak anket sayısını artırmak mümkün olmaktadır. Sonraki araştırmalar, dünyanın diğer bölgelerinden geniş bir müşteri grubundan ek veri toplamayı da deneyebilirler. Daha ileri araştırmalar yaş, cinsiyet ve meslek gibi bağımsız faktörlere de bağlı olabilir. Çalışmada kesitsel bir tasarım uygulanmıştır; gelecekteki araştırma tasarımları, çevre yanlısı tutumun davranışsal niyetler üzerindeki nedenini ve etkisini bilmek için deneysel yöntemleri benimseyebilirler. Ayrıca diğer gelişmekte olan ekonomiler de mevcut çalışma sonuçlarının kapsamını artırmak için benzer modelleri inceleyebilirler.

Extended Abstract

In response to growing concerns about global warming and mounting environmental pollution, numerous organizations have stepped up their social responsibility by creating eco-friendly products. Small and medium-sized enterprises are increasingly concerned with the management of the environment. Green consumer behaviours have emerged as a new model for marketing professionals and academicians. The contemporary concept of green marketing has arisen as a competitive strategy to capture and retain customers' attention in the marketplace. Green marketing serves as a vital approach for addressing environmentally conscious customers and enhancing the brand image of eco-friendly products. Given that carbon dioxide (CO₂) is a critical greenhouse gas contributing to global warming, reducing carbon emissions universally remains a significant challenge. This challenge is particularly pronounced in the transportation sector, which is the largest source of CO₂ emissions. As consumers increasingly focus on environmental protection and pollution impact, consumer environmentalism is gaining popularity worldwide. Consequently, consumers are increasingly inclined to buy green products that are environmentally friendly.

There are mainly two key motivations for conducting the current research. Firstly, electric vehicles are a relatively recent development in Türkiye. Furthermore, exploring electric vehicles from an environmental perspective is highly worthwhile. Thus, delving into the factors that directly and indirectly impact consumers' willingness to adopt environmentally sustainable innovations could significantly impact the Turkish government and companies in their efforts to combat CO₂ emissions and environmental degradation. Secondly, although the adoption of environmentally sustainable electric vehicles has been widely researched in developed countries, there are limited studies exploring these factors in the context of Türkiye.

Environmental concern is associated with the public's awareness of environmental problems, as demonstrated through their attitudes, recognition, and responses. Individuals who possess a strong environmental concern demonstrate a greater propensity to purchase green products and engage in environmental protection endeavors. Increasing environmental awareness among consumers is making electric vehicles an attractive choice for transportation. Consumers with high eagerness to purchase electric vehicles possess more sensitivity to emission-related environmental issues. Electric vehicles unquestionably represent a technologically advanced and truly sustainable alternative for mobility. However, their adoption is heavily influenced by the promotion of their environmental benefits and sustainability. In the context of environmental and green consumption behavior, green perceived value refers to a consumer's holistic evaluation of the net benefit derived from a product or service. This evaluation considers what the consumer receives versus what they give, considering their environmental desires, sustainable expectations, and green preferences. A product delivers value to customers by offering benefits and distinguishing itself from competitors through differentiation. Perceived value not only serves as a critical factor in sustaining long-term customer relationships but also plays a pivotal role in shaping purchase intentions. Furthermore, it plays a crucial role in shaping customer trust. Green trust refers to a consumer's willingness to rely on a product, service, or brand based on their belief or expectation regarding its credibility, benevolence regarding environmental performance. This trust is essential in shaping long-term consumer behavior and greatly impacts purchase intentions. Green trust reflects the confidence consumers place in a product's eco-friendliness and overall environmental impact. Engaging in environmentally sustainable behaviors entails a willingness to utilize environmental resources responsibly, a capacity to pay extra for eco-friendly goods, and a commitment to supporting environmentally friendly initiatives. Green purchase intention refers to the likelihood of consumers desiring to purchase environmentally friendly products. Consumers purchase green products with the aim of preserving or minimizing harm to the environment. Three factors can be employed to assess green purchase intentions: the willingness to purchase green products, the inclination to switch to other brands for ecological reasons, and the readiness to opt for green versions of products. Green purchase intention stands as a significant variable for gauging customers' present and future purchasing choices regarding green or environmentally friendly products. It also aids in estimating consumers' demand for green products.

The participants of the study are from Türkiye. Convenience sampling methodology was employed as the survey tool, as it allows for the identification of individuals meeting the study criteria through any available means. This empirical study draws on data collected through an online survey targeting consumers who have either purchased or are considering purchasing an electric vehicle in Türkiye. The research involved 423 participants, and the data was analyzed using the SPSS.

The hypothesis that environmental concern has a positive effect on perceived green value was supported. The hypothesis that green perceived value has a positive effect

on green purchase intention was supported. The hypothesis that environmental concern has a positive effect on green purchase intention was supported. It has been concluded that consumers with higher perceived green value have a greater effect of environmental anxiety on purchase intention than consumers with lower perceived green value. The hypothesis that the effect of environmental concern on the purchase intention of consumers who have more trust in green products is greater than those who attach less importance to green trust is not accepted. With environmentalism on the rise and the enforcement of stricter environmental regulations, companies must revise their business models to capitalize on green opportunities.

Green marketing, a flourishing field within marketing, has emerged to meet the environmentally conscious demands of consumers. It encompasses all marketing endeavors aimed at eliciting and maintaining consumers' environmental attitudes and behaviors. Moreover, companies can embrace the concept of green marketing to execute green differentiation strategies that cater to customers' environmental needs or desires. As societal concerns about the environment continue to escalate, there is a growing segment of environmentally conscious consumers who are increasingly inclined to purchase green products with minimal environmental impact.

This study combines the principles of green marketing and relationship marketing within a research framework focused on green purchase intentions. Companies should recognize that consumers are unlikely to compromise on product functionality. However, it's essential to consider whether consumers perceive the environmental friendliness of their products. Green products must maintain the same functional quality as non-green alternatives to positively impact purchase intentions. In the era of environmental consciousness, companies need to elevate their green perceived value and bolster their green trust to boost their green purchase intentions. Marketers can begin by formulating strategies to enhance consumers' perceptions of green value. Additionally, they should facilitate the development of green trust among potential customers, fostering longer-term relationships in this environmentally conscious era. This study offers a theoretical framework for comprehending and analyzing how green practices adopted by automotive businesses affect green purchasing intentions within the Turkish automotive industry. Furthermore, the study presents a comprehensive model that elucidates the factors influencing pro-environmental behavior and its impact on the purchase intention of electric vehicles. In this context, the SOR theoretical framework developed in this study enriches the green marketing literature by investigating the direct and indirect impacts of environmental concern, green perceived value, and green trust on consumers' green purchase intentions. Based on the findings, this study provides practical recommendations for businesses seeking to encourage green purchase intentions. From a managerial standpoint, this research provides fresh perspectives on the increasing trend of green consumerism. Specifically, this study can furnish managers with insights into how environmental concern influences consumers' perception of the value of green products, thereby indirectly enhancing their intentions to purchase such products.

Katkı Oranları ve Çıkar Çatışması / Contribution Rates and Conflicts of Interest

Etik Beyan	Bu çalışmanın hazırlanma sürecinde bilimsel ve etik ilkelere uyulduğu ve yararlanılan tüm çalışmaların kaynakçada belirtildiği beyan olunur.	Ethical Statement	It is declared that scientific and ethical principles have been followed while carrying out and writing this study and that all the sources used have been properly cited
Yazar Katkıları	Çalışmanın Tasarlanması: DD (%60), KV (%40) Veri Toplanması: DD (%60), KV (%40) Veri Analizi: DD (%60), KV (%40) Makalenin Yazımı: DD (%60), KV (%40) Makale Gönderimi ve Revizyonu: DD (%60), KV (%40)	Author Contributions	Research Design: DD (%60), KV (%40) Data Collection: DD (%60), KV (%40) Data Analysis: DD (%60), KV (%40) Writing the Article: DD (%60), KV (%40) Article Submission and Revision: DD (%60), KV (%40)
Etik Bildirim	iibfdergi@cumhuriyet.edu.tr	Complaints	iibfdergi@cumhuriyet.edu.tr
Çıkar Çatışması	Çıkar çatışması beyan edilmemiştir.	Conflicts of Interest	The author(s) has no conflict of interest to declare.
Finansman	Bu araştırmayı desteklemek için dış fon kullanılmamıştır.	Grant Support	The author(s) acknowledge that they received no external funding in support of this research.
Telif Hakkı & Lisans	Yazarlar dergide yayınlanan çalışmalarının telif hakkına sahiptirler ve çalışmaları CC BY-NC 4.0 lisansı altında yayımlanmaktadır.	Copyright & License	Authors publishing with the journal retain the copyright to their work licensed under the CC BY-NC 4.0
Etik Kurul	Etik kurul iznine ihtiyaç bulunmamaktadır.	Ethics Committee	Ethics committee approval is not required.

Kaynakça

- Adnan, A., Ahmad, A. & Khan, M., N. (2017). Examining the Role of Consumer Life Styles on Ecological Behavior among Young Indian Consumers. *Young Consumers, Australian Catholic University*, 18(4), 1-36. <https://doi.org/10.1108/yc-05-2017-00699>
- Ahmad, W. & Zhang, Q. (2020). Green Purchase Intention: Effects of Electronic Service Quality and Customer Green Psychology. *Journal of Cleaner Production*, 1-17. <https://doi.org/10.1016/j.jclepro.2020.122053>
- Alamsyah, D., P., Udjaja, Y., Othman, N., A. & Ibrahim, N., R., W. (2020). Green Customer Behavior: Mediation Model of Green Purchase. *International Journal of Psychosocial Rehabilitation*, 24(5), 2568-2577. <https://doi.org/10.37200/IJPR/V24I5/PR201956>
- Asif, M., H., Zhongfu, T., Irfan, M. & Işık, C. (2020). Do Environmental Knowledge and Green Trust Matter for Purchase Intention of Eco-Friendly Home Appliances? An Application of Extended Theory of Planned Behavior. *Environmental Science and Pollution Research*, 30, 37762-37774. <https://doi.org/10.1007/s11356-022-24899-1>
- Avrupa Ekonomik Komisyonu. (2024). In-depth Report on Inland Transport and Climate Change, Part 1: Getting towards net zero – Status, Projections and Greenhouse Gas Emissions Trends. Inland Transport Committee Working Party on Customs Questions affecting Transport 165th session Geneva, 6 (p.m.), 7 and 9 (a.m.) February 2024 Item 3 of the provisional agenda.
- Bagozzi, R., P. (1986). Principles of Marketing Management. Science Research Associates, Chicago.
- Baron, R., M. ve Kenny, D., A. (1986). The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic and Statistical Considerations. *Journal of Personality and Psychology*, 51(6), 1173-1182.
- Bartlett, J., E., Kotrlík, J., W. & Higgins, C., C. (2001). Organizational Research: Determining Appropriate Sample Size in Survey Research. *Information Technology, Learning, and Performance Journal*, 19(1), 43-50.
- Bennett, R., Kottasz, R. & Shaw, S. (2016). Factors Potentially Affecting the Successful Promotion of Electric Vehicles. *Journal of Social Marketing*, 6(1), 1-27. <https://doi.org/10.1108/JSOCM-08-2015-0059>
- Chairy & Alam, M., E., N. (2019). The Influence of Environmental Concern, Green Perceived Knowledge, and Green Trust on Green Purchase Intention. *Jurnal Manajemen*, 10(2), 131-145. <https://doi.org/10.32832/jm-uika.v10i2.2431>
- Chen, Y.-S. (2010). The Drivers of Green Brand Equity: Green Brand Image, Green Satisfaction, and Green Trust. *Journal of Business Ethics*, 93, 1-15. <https://doi.org/10.1007/s10551-009-0223-9>
- Chen, Y., S. & Chang, C., H. (2012). Enhance Green Purchase Intentions: The Roles of Green Perceived Value, Green Perceived Risk, and Green Trust. *Management Decision*, 50(3), 502-520. <https://doi.org/10.1108/00251741211216250>
- Chen, Y.-S. & Chang, C. (2013) Towards Green Trust. The Influences of Green Perceived Quality, Green Perceived Risk, and Green Satisfaction. *Management Decision*, 51, 63-82. <https://doi.org/10.1108/00251741311291319>

- Chen, M. & Zhang, W.-H. (2020). Purchase Intention for Hydrogen Automobile Among Chinese Citizens: The Influence of Environmental Concern and Perceived Social Value. *International Journal of Hydrogen Energy*, 46, 18000-181000. <https://doi.org/10.1016/j.ijhydene.2020.11.099>
- Chen, L., Qie, K., Memon, H. & Yesuf, H., M. (2021). The Empirical Analysis of Green Innovation for Fashion Brands, Perceived Value and Green Purchase Intention—Mediating and Moderating Effects. *Sustainability*, 13, 4238, 1-17. <https://doi.org/10.3390/su13084238>
- Cheng, Y., H., Chang, K., C., Cheng, Y., S. & Hsiao, C., J. (2022). How Green Marketing Influences Customers' Green Behavioral Intentions in the Context of Hot-Spring Hotels. *Journal of Tourism and Services*, 24(13), 190-208. <https://doi.org/10.29036/jots.v13i24.352>
- Chen, J., Huang, Y., Wu, E., Q., Ip, R. & Wang, K. (2023). How Does Rural Tourism Experience Affect Green Consumption in Terms of Memorable Rural-Based Tourism Experiences, Connectedness to Nature and Environmental Awareness? *Journal of Hospitality and Tourism Management*, 54, 166–177. <https://doi.org/10.1016/j.jhtm.2022.12.006>
- Cheung, R., Lam, A., Y., C. & Lau, M., M. (2015). Drivers of Green Product Adoption: The Role of Green Perceived Value, Green Trust and Perceived Quality. *Journal of Global Scholars of Marketing Science*, 25(39), 232-245. <https://doi.org/10.1080/21639159.2015.1041781>
- Chi, T.; Ganak, J.; Summers, L.; Adesanya, O.; McCoy, L.; Liu, H. & Tai, Y. (2021). Understanding Perceived Value and Purchase Intention toward Eco-Friendly Athleisure Apparel: Insights from U.S. Millennials. *Sustainability*, 1-17. <https://doi.org/10.3390/su13147946>
- Çircir, O., Demirhan, C. Y., Aydemir, M., Balcı, H., Can, H. R., & Gökce, Z. (2023). Ortaokul Öğrencilerinde Problemlii İnternet Kullanımı İle Öz-yeterlik Arasındaki İlişkide Yaşam Doyumunun Aracı Rolünün İncelenmesi. *Pamukkale Üniversitesi Eğitim Fakültesi Dergisi*, (59), 25-37. <https://doi.org/10.9779/pauefd.1108453>
- Clement, L., M. ve Bradley-Garcia, M. (2022). A Step-By-Step Tutorial for Performing a Moderated Mediation Analysis using PROCESS. *The Quantitative Methods for Psychology* 258, 18(3). 258-271.
- Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*. New York, NY: Routledge Academic.
- Dabija, D., Bejan, B., M. & Grant, D., B. (2018). The Impact of Consumer Green Behaviour on Green Loyalty Among Retail Formats: A Romanian Case Study. *Moravian Geographical Reports*, 26(3), 173-185. <https://doi.org/10.2478/mgr-2018-0014>
- Dehghani Soltani, M., Shoul, A. & Ramezani, S. (2019). Investigating Environmental Value and Green Image Supposed Effects on the Word of Mouth Advertising Tendency by Explaining Green Trust and Willingness to Pay Roles through the SOR Model Framework. *Journal of Business Management*, 11(4), 804-824. <https://doi.org/10.22059/jibm.2019.281017.3496>
- Dhewi, T., S., Putra, W., J., A., Soeharto & Wahyudi, H., D. (2018). The Influence of Green Perceived Value and Green Perceived Risk Perceptions on the Green Product Purchase Intention. *The First International Research Conference on Economics and Business*, 411-425. <https://doi.org/10.18502/kss.v3i3.1899>
- Doszhanov, A. & Ahmad, Z., A. (2015). Customers' Intention to Use Green Products: The impact of Green Brand Dimensions and Green Perceived Value. *In SHS Web of Conferences*, 18, 1-16. <https://doi.org/10.1051/shsconf/20151801008>
- Dunlap R., E. & Jones, R., E. (2002) Environmental Concern: Conceptual and Measurement Issues. *Journal of Environmental Sciences*, 3, 482–524.
- Dutta, B. & Hwang, H.-G. (2021). Consumers Purchase Intentions of Green Electric Vehicles: The Influence of Consumers Technological and Environmental Considerations. *Sustainability*, 13, 1-23. <https://doi.org/10.3390/su132112025>
- Fabiola, K. & Mayangsari, L. (2020). The Influence of Green Skepticism, Environmental Knowledge and Environmental Concern on Generation Z's Green Purchase Intentions in Indonesia. *Malaysian Journal of Social Sciences and Humanities (MJSSH)*, 5(8), 96-105. <https://doi.org/10.47405/mjssh.v5i8.470>
- Franzò, S. & Nasca, A. (2021). The Environmental Impact of Electric Vehicles: A Novel Life Cycle-Based Evaluation Framework and Its Applications to Multi-Country Scenarios. *Journal of Cleaner Production*, 1-16. <https://doi.org/10.1016/j.jclepro.2021.128005>
- Gao, Y., Mattila, A. & Lee, S. (2016). A Meta-Analysis of Behavioral Intentions for Environment-Friendly Initiatives in Hospitality Research. *International Journal of Hospitality Management*, 54, 107-115. <https://doi.org/10.1016/j.ijhm.2016.01.010>
- Gil, M., T. & Jacob, J. (2018). The Relationship Between Green Perceived Quality and Green Purchase Intention: A Three-Path Mediation Approach Using Green Satisfaction and Green Trust. *International Journal of Business Innovation and Research*, 15(3), 301-319. <https://doi.org/10.1504/IJBIR.2018.089750>
- Gregg, D., G. & Walczak, S. (2008). Dressing Your Online Auction Business for Success: an Experiment Comparing Two e-Bay Businesses. *MIS Quarterly*, 32(3), 653-668. <https://doi.org/10.2307/25148860>
- Grimmer, M. & Woolley, M. (2014). Green Marketing Messages and Consumers' Purchase Intentions: Promoting Personal versus Environmental Benefits. *Journal of Marketing Communications*, 20(4), 231-250. <https://doi.org/10.1080/13527266.2012.684065>
- Hameed, I., Hussain, H. & Khan, K. (2022). The Role of Green Practices toward the Green Word-of-Mouth Using Stimulus-Organism-Response Model. *Journal of Hospitality and Tourism Insights*, 5(5), 1046-1061. <https://doi.org/10.1108/JHTI-04-2021-0096>
- Han, H.; Hsu, L., T., J. & Lee, J., S. (2009). Empirical Investigation of the Roles of Attitudes toward Green Behaviors, Overall Image, Gender, and Age in Hotel Customers' Eco-Friendly Decision-Making Process. *International Journal of Hospitality Management*, 28, 519–528. <https://doi.org/10.1016/j.ijhm.2009.02.004>
- Hanson-Rasmussen, N., J. & Lauver, K., J. (2018). Environmental responsibility: millennial values and cultural dimensions. *Journal of Global Responsibility* 9(1), 1-20. <https://doi.org/10.1108/JGR-06-2017-0039>
- Harris, L., C. & Goode, M., M., H. (2010). Online Servicescapes, Trust and Purchase Intentions. *Journal of Services Marketing*, 24(3), 230-243. <https://doi.org/10.1108/08876041011040631>
- Hashish, M., E.-S., Abdou, A., H., Mohamed, S., A., K., Elenain, A., S., A. & Salama, W. (2022). The Nexus between Green Perceived Quality, Green Satisfaction, Green Trust, and Customers' Green Behavioral Intentions in Eco-Friendly Hotels: A Structural Equation Modeling Approach. *International Journal of Environmental Research and Public Health*, 19, 1-21. <https://doi.org/10.3390/ijerph192316195>
- Hart, P. & Saunders, C. (1997). Power and Trust: Critical Factors in the Adoption and Use of Electronic Data Interchange. *Organization Science*, 8(1), 23-42. <https://doi.org/10.1287/orsc.8.1.23>

- Hartmann, P. & Apaolaza-Ibáñez, V. (2012). Consumer Attitude and Purchase Intention Toward Green Energy Brands: The Roles of Psychological Benefits and Environmental Concern. *Journal of Business Research*, 65, 1254–1263. <https://doi.org/10.1016/j.jbusres.2011.11.001>
- Hayes, A., F. (2018). *Introduction To Mediation, Moderation, And Conditional Process Analysis: A Regression-Based Approach* (Second Edition). New York: The Guilford Press.
- Huang, X. & Ge, J. (2019). Electric Vehicle Development in Beijing: An Analysis of Consumer Purchase Intention. *Journal of Cleaner Production*, 216, 361–372. <https://doi.org/10.1016/j.jclepro.2019.01.231>
- Hume, M. & Sullivan, G., M. (2010). The Consequence of Appraisal Emotion, Service Quality, Perceived Value and Customer Satisfaction on Repurchase Intent in the Performing Arts. *Journal of Services Marketing*, 24(2): 170–182. doi:<https://doi.org/10.1108/08876041011031136>.
- Hwang, J. & Choi, J., K. (2018). An Investigation of Passengers' Psychological Benefits from Green Brands in an Environmentally Friendly Airline Context: The Moderating Role of Gender. *Sustainability* 10(1), 1-17. <https://doi.org/10.3390/su10010080>
- IEA, International Energy Agency. (2021). Net Zero by 2050, IEA, Paris <https://www.iea.org/reports/net-zero-by-2050>, Licence: CC BY 4.0
- IEA, International Energy Agency. (2023). Greenhouse Gas Emissions from Energy Data Explorer, IEA, Paris. <https://www.iea.org/data-and-statistics/tools/greenhouse-gas-emissionsfrom-energy-data-explorer>.
- Igartua, J.-J. ve Hayes, A., F. (2021). Mediation, Moderation, and Conditional Process Analysis: Concepts, Computations, and Some Common Confusions. *The Spanish Journal of Psychology*, 24(49), 1–23.
- Ivanova, G. & Moreira, A., C. (2023). Antecedents of Electric Vehicle Purchase Intention from the Consumer's Perspective: A Systematic Literature Review. *Sustainability*, 15, 1-27. <https://doi.org/10.3390/su15042878>
- Jiang, Y. & Kim, Y. (2015). Developing multi-dimensional green value. *International Journal of Contemporary Hospitality Management* 27(2):308-334. <https://doi.org/10.1108/IJCHM-08-2013-0383>
- Joshi, Y. & Rahman, Z. (2019). Consumers' Sustainable Purchase Behaviour: Modeling the Impact of Psychological Factors. *Ecological Economics*, 159, 235-243. <https://doi.org/10.1016/j.ecolecon.2019.01.025>
- Karatu, V., M., H. & Nik-Mat, N., K. (2015). Determinants of Green Purchase Intention in Nigeria: The Mediating Role of Green Perceived Value. *International Conference on Accounting Studies (ICAS)*, 422-430.
- Karatu, V., M., H. & Mat, N., K., N. (2015). The Mediating Effects of Green Trust and Perceived Behavioral Control on the Direct Determinants of Intention to Purchase Green Products in Nigeria. *Mediterranean Journal of Social Sciences*, 6(4), 256-265. <https://doi.org/10.5901/mjss.2015.v6n4p256>
- Keni, K., Asali, A., Teoh, A., P. & Muthuveloo, R. (2020). Factors Influencing Green Purchase Intention. *Advances in Social Science, Education and Humanities Research*, 478, 1015-1022. <https://doi.org/10.2991/assehr.k.201209.161>
- Kim, M., Jeeseun, O., Park, J. & Joo, C. (2018). Perceived Value and Adoption Intention for Electric Vehicles in Korea: Moderating Effects of Environmental Traits and Government Supports. *Energy*, 159, 1–22. <https://doi.org/10.1016/j.energy.2018.06.064>
- Kirmani, M., D. & Khan, M., N. (2016). Environmental Concern to Attitude towards Green Products: Evidences from India. *Serbian Journal of Management*, 11(2), 159–179. <https://doi.org/10.5937/sjm11-9241>
- KPMG. (2023). Otomotiv Sektörel Bakış. <https://assets.kpmg.com/content/dam/kpmg/tr/pdf/2023/08/otomotiv-sektorel-bakis-2023.pdf> (Erişim Tarihi: 03 Kasım 2023).
- Koenig-Lewis, N., Palmer, A., Dermody, J. & Urbye, A. (2014). Consumers' Evaluations of Ecological Packaging Rational and Emotional Approaches. *Journal of Environmental Psychology*, 37, 94–105. <https://doi.org/10.1016/j.jenvp.2013.11.009>
- Kresno, Z. & Wahyono (2019). The Influence of Green Perceived Value, Risk and Quality Toward Green Purchase Intention Through Green Trust. *Management Analysis Journal*, 8, 79-89. <https://doi.org/10.15294/MAJ.V8I1.30218>
- Kwok, M.-L., J., Wong, M.-C., M. & Lau, M., M. (2015). Examining How Environmental Concern Affects Purchase Intention: Mediating Role of Perceived Trust and Moderating Role of Perceived Risk. *Contemporary Management Research*, 11(2), 143-152. <https://doi.org/10.7903/cmr.13845>
- Lam, A., Y., C., Lau, M., M. & Cheung, R. (2016). Modelling the Relationship among Green Perceived Value, Green Trust, Satisfaction, and Repurchase Intention of Green Products. *Contemporary Management Research*, 12(1), 47-60. <https://doi.org/10.7903/cmr.13842>
- Laroche, M., Begeron, J. & Barbaro-Forleo, G. (2001). Targeting Consumers Who Are Willing to Pay More for Environmentally Friendly Products. *Journal of Consumer Marketing*, 18, 503–520. <https://doi.org/10.1108/EUM0000000006155>
- Lasuin, C., A. & Ching, N., Y. (2014). Factors Influencing Green Purchase Intention among University Students. *Malaysian Journal of Business and Economics*, 1(2), 1-14. <https://doi.org/10.51200/mjbe.v1i2.116>
- Le, A., Tan, K.-L., Yong, S.-S., Soonsap, P., Lipa, C., J. & Ting, H. (2022). Perceptions towards Green Image of Trendy Coffee Cafés and Intention to Re-Patronage: The Mediating Role of Customer Citizenship Behavior. *Young Consumers*, 23(2), 165-178. <https://doi.org/10.1108/YC-03-2021-1291>
- Lee, K. (2008). Opportunities For Green Marketing: Young Consumers. *Marketing Intelligence & Planning*, 26(6), 573-586. <https://doi.org/10.1108/02634500810902839>
- Lee, J., Park, D., H. & Han, I. (2011). The Different Effects of Online Consumer Reviews on Consumers' Purchase Intentions Depending on Trust in Online Shopping Malls: an Advertising Perspective. *Internet Research*, 21(2), 187-206. <https://doi.org/10.1108/1066224111123766>
- Lee Y.-K. (2020). The Relationship Between Green Country Image, Green Trust and Purchase Intention of Korean Products: Focusing on Vietnamese Gen Z Consumers. *Sustainability*, 12, 342-354. <https://doi.org/10.3390/su12125098>
- Li, G., Yang, L., Zhang, B., Li, X. & Chen, F. (2021). How do Environmental Values Impact Green Product Purchase Intention? The Moderating Role of Green Trust. *Environmental Science and Pollution Research*, 28, 1-15. <https://doi.org/10.1007/s11356-021-13946-y>
- Li, S., Wang, S., Shi, J, Tian, X. & Wu, J. (2022). Economic, Energy and Environmental Performance Assessment on Wheat Production under Water-Saving Cultivation Strategies. *Energy*, 261, 1-12. <https://doi.org/10.1016/j.energy.2022.125330>
- Lin, J. & Zhou, Z. (2022). The Positioning of Green Brands in Enhancing Their Image: The Mediating Roles of Green Brand

- Innovativeness and Green Perceived Value. *International Journal of Emerging Markets*, 17, 1404–1424. <https://doi.org/10.1108/IJOEM-06-2020-0657>
- Lin, J., Huang, Y. & Li, M. (2024). Consumer Perceived Green Brand Innovativeness and Green Word-of-Mouth Intention: The Moderating Role of Green Knowledge. *Total Quality Management*, 1-21. <https://doi.org/10.1080/14783363.2024.2345895>
- Luo, B., Li, L. & Sun, Y. (2022). Understanding the Influence of Consumers' Perceived Value on Energy-Saving Products Purchase Intention. *Frontiers in Psychology*, 12, 1-13.
- Mainardes, E., W., C., A. & Nossa, S., N. (2020). Omnichannel Strategy and Customer Loyalty in Banking. *International Journal of Bank Marketing*, 38(4), 799-822. <https://doi.org/10.1108/IJBM-07-2019-0272>
- Mansoor, M., Awan, T., M. & Paracha, O., S. (2021). Predicting Pro-Environmental Behaviors of Green Electronic Appliances' Users. *International Journal of Business and Economic Affairs (IJBEA)*, 6(3), 175-186. <https://doi.org/10.1080/10.24088/IJBEA-2021-64002>
- Mehrabian, A. & Russell, J., A. (1974). *An Approach To Environmental Psychology*. The MIT Press, Cambridge, MA, USA.
- Mombeuil, C. & Diunugala, H., P. (2023). Green Brand Awareness, Green Brand Association, Green Perceived Quality and Intention to Purchase Electric Vehicles: The Mediating Effect of Green Trust. *Research Square*, 1-15. <https://doi.org/10.1080/10.21203/rs.3.rs-2540718/v1>
- Nekmahmud, M. ve Fekete-Farkas, M. (2020). Why Not Green Marketing? Determinates of Consumers' Intention to Green Purchase Decision in a New Developing Nation. *Sustainability*, 12, 7880, 1-32. <https://doi.org/10.3390/su12197880>
- Newton, J., D., Tsarenko, Y., Ferraro, C. & Sands, S. (2015). Environmental Concern and Environmental Purchase Intentions: the Mediating Role of Learning Strategy. *Journal of Business Research*, 68, 1-8. <https://doi.org/10.1016/j.jbusres.2015.01.007>
- Paul, J., Modi, A. & Patel, J. (2016). Predicting Green Product Consumption Using Theory of Planned Behavior and Reasoned Action. *Journal of Retailing and Consumer Services*, 29, 123–134. <https://doi.org/10.1016/j.jretconser.2015.11.006>
- Park, E. & Kwon, S., J. (2017). What Motivations Drive Sustainable Energy-Saving Behavior? An Examination in South Korea. *Renewable and Sustainable Energy Reviews*, 79, 494–502. <https://doi.org/10.1016/j.rser.2017.05.150>
- Parguel, B., Lunardo, R. & Benoit-Moreau, F. (2017). Sustainability of the Sharing Economy in Question: When Second-Hand Peer-to-Peer Platforms Stimulate Indulgent Consumption. *Technological Forecasting and Social Change*, 125, 48-57. <https://doi.org/10.1016/j.techfore.2017.03.029>
- Prentice, C., Han, X., Y., Hua, L.-L. & Hu, L. (2019). The Influence of Identity-Driven Customer Engagement on Purchase Intention. *Journal of Retailing and Consumer Services*, 47, 339-347. <https://doi.org/10.1016/j.jretconser.2018.12.014>
- Ramayah, T., Lee, J., W., & Mohammad, O. (2010). Green Product Purchase Intention: Some Insights from a Developing Country. *Resources, Conservation and Recycling*. 54(12), 1419-1427. <https://doi.org/10.1016/j.resconrec.2010.06.007>
- Reshmi, R. & Johnson, B. (2014): A Study on the Buying Behaviour of Green Products. *International Journal of Research in Commerce & Management*, 5(12), 39–45.
- Rivas, A., M., Liao, Y.-K., Vu, M.-Q. & Hung, C.-S. (2022). Toward a Comprehensive Model of Green Marketing and Innovative Green Adoption: Application of a Stimulus-Organism-Response Model. *Sustainability*, 14, 1-17. <https://doi.org/10.3390/su14063288>
- Rizwan, M., Mahmood, U., Siddiqui, H. & Tahir, A. (2014). An Empirical Study about Green Purchase Intentions. *Journal of Sociological Research*, 5(1), 290-305. <https://doi.org/10.5296/jsr.v5i1.6567>
- Schlosser, A., E., White, T., B. & Lloyd, S., M. (2006). Converting Web Site Visitors into Buyers: How Web Site Investment Increases Consumer Trusting Beliefs and Online Purchase Intentions. *Journal of Marketing*, 70(2), 133-148. <https://doi.org/10.1509/jmkg.70.2.133>
- Schoorman, F., D., Mayer, R. C. & Davis, J., H. (2007). An Integrative Model of Organizational Trust: Past, Present and Future. *Academy of Management Review*, 32(2), 344-354. <https://doi.org/10.5465/AMR.2007.24348410>
- Senthilnathan, S. (2019). Usefulness of Correlation Analysis. *International Training Institute*, 1-9.
- Shanmugavel, N. & Balakrishnan, J. (2023). Influence of Pro-Environmental Behaviour towards Behavioural Intention of Electric Vehicles. *Technological Forecasting & Social Change*, 187, 1-13. <https://doi.org/10.1016/j.techfore.2022.122206>
- Stafford, M., R., Stafford, T., F. & Collier, J., E. (2006). The Dimensionality of Environmental Concern: Validation of Component Measures. *Interdisciplinary Environmental Review*, 8(1), 43-61. <https://doi.org/10.1504/IER.2006.053946>
- Steenkamp, J., E. & Geyskens, I. (2006). How Country Characteristics Affect the Perceived Value of Web Sites. *Journal of Marketing*, 70, 136–150. <https://doi.org/10.1509/jmkg.70.3.136>
- Su, L. & Swanson, S., R. (2017). The effect of destination social responsibility on tourist environmentally responsible behavior: Compared analysis of first-time and repeat tourists. *Tourism Management*, 60, 308-321. <https://doi.org/10.1016/j.tourman.2016.12.011>
- Sultana, N., Amin, S. & Islam, A. (2022). Influence of Perceived Environmental Knowledge and Environmental Concern on Customers' Green Hotel Visit Intention: Mediating Role of Green Trust. *Asia-Pacific Journal of Business Administration*, 1-21. <https://doi.org/10.1108/APJBA-08-2021-0421>
- Syarifuddin, D., & Alamsyah, D. P. (2017). Green Perceived Value for Environmentally Friendly Products: Green Awareness Improvement. *Jurnal Ekonomi Pembangunan: Kajian Masalah Ekonomi dan Pembangunan*, 18(2), 245-260. Universitas Muhammadiyah Surakarta. <https://doi.org/10.23917/jep.v18i2.5145>
- Tan, K. & Huang, C. (2023). The Influence of Government Support on Green Purchase Intention. *The EURASEANs: Journal on Global Socio-Economic Dynamics*, 5(42), 117-127. [https://doi.org/10.35678/2539-5645.5\(42\).2023.117-127](https://doi.org/10.35678/2539-5645.5(42).2023.117-127)
- Tarabieh, S., M., Z., A. (2021). The Impact of Greenwash Practices over Green Purchase Intention: The Mediating Effects of Green Confusion, Green Perceived Risk, and Green Trust. *Management Science Letters*, 11, 451–464. <https://doi.org/10.5267/j.msl.2020.9.022>
- Testa, F., Iraldo F., Vaccari A. & Ferrari, E. (2015). Why Eco-Labels can be Effective Marketing Tools: Evidence from a Study on Italian Consumers. *Business Strategy and the Environment*, 24, 252–265. <https://doi.org/10.1002/bse.1821>
- Thøgersen, J. (2012). The Motivational Roots of Norms for Environmentally Responsible Behaviour. *Basic and Applied Social Psychology*, 34(5), 449–462. <https://doi.org/10.1080/01973530903317144>
- Upadhyay, N. & Kamble, A. (2023). Examining Indian Consumer Pro-Environment Purchase Intention of Electric Vehicles: Perspective of Stimulus-Organism-Response. *Technological Forecasting & Social Change*, 189, 1-15. <https://doi.org/10.1016/j.techfore.2023.122344>
- Wahyoedi, S., Wardhana, A. & Tannady, H. (2023). The Role of Green Trust as an Intervening Variable in the Relationship Between Green Brand Image and Green Perceived Value Towards Purchase Intention in Indonesian Local Fashion Products. *Journal of Accounting Management and Business*, 1(1), 17-21. <https://doi.org/10.57235/jambuair.v1i1.7>
- Wasaya, A., Saleem, M., A., Ahmad, J., Nazam, M., Khan, M., M., A. & Ishfaq, M. (2020). Impact of Green Trust and Green Perceived Quality on Green Purchase Intentions: a Moderation Study. *Environment, Development and Sustainability*, 1-18.

- Wong, L., J., Ling, P., S. & Ling, T., H., Y. (2023). A Conceptual Framework for Higher Education Student Loyalty from the Green Marketing Perspective. *Higher Education, Skills and Work-Based Learning*, 13(2), 387-402. <https://doi.org/10.1108/HESWBL-08-2022-0165>
- Wood, S., L. & Moreau, C., P. (2006). From fear to loathing? how emotion influences the evaluation and early use of innovations. *Journal of Marketing* 70, 44–57. <https://doi.org/10.1509/jmkg.70.3.44>
- Wu, M. & Long, R. (2024). How Do Perceptions of Information Usefulness and Green Trust Influence Intentions toward Eco-Friendly Purchases in a Social Media Context? *Frontiers in Psychology*, 15, 01-14, <https://doi.org/10.3389/fpsyg.2024.1429454>
- Xu, X. & Lin, C., A. (2018). Effects of Cognitive, Affective, and Behavioral Factors on College Students' Bottled Water Purchase Intentions. *Communication Research Reports*, 35(3), 245–255. <https://doi.org/10.1080/08824096.2018.1442824>
- Young, W., Hwang, K., McDonald, S. & Oates, C., J. (2009). Sustainable Consumption: Green Consumer Behaviour when Purchasing Products. *Sustainable Development*, 18(1), 20–31. <https://doi.org/10.1002/sd.394>
- Zafar, A., U., Shahzad, M., Ashfaq, M. & Shahzad, K. (2023). Forecasting Impulsive Consumers Driven by Macro-Influencers Posts: Intervention of Followers' Flow State and Perceived Informativeness. *Technological Forecasting and Social Change*, 190, 247-262. <https://doi.org/10.1016/j.techfore.2023.122408>
- Zeithaml, V., A. (1988). Consumer Perceptions of Price, Quality, and Value: a Means-End Model and Synthesis of Evidence. *Journal of Marketing*, 52(3), 2-22. <https://doi.org/10.1177/002224298805200302>
- Zengin, B., & Aksoy, G. (2021). Sürdürülebilir Kalkınma Anlayışının Yeşil Pazarlama ve Yeşil Finans Açısından Değerlendirilmesi. *İşletme Ekonomi ve Yönetim Araştırmaları Dergisi*, 4(2), 362-379. <https://doi.org/10.33416/baybem.845904>
- Zhao, Z. & Chen, L. (2021). Exploring Residents' Purchase Intention of Green Housings in China: An Extended Perspective of Perceived Value. *International Journal of Environmental Research and Public Health*, 18, 4074, 1-19. <https://doi.org/10.3390/ijerph18084074>
- Zhuang, W., Cumiskey, K., J., Xiao, Q. ve Alford, B., L. (2010). The Impact of Perceived Value on Behaviour Intention: An Empirical Study. *Journal of Global Business Management*, 6(2), 1-7.
- Zhuang, W., Luo, X. & Riaz, M., U. (2021). On the Factors Influencing Green Purchase Intention: A Meta-Analysis Approach. *Frontiers in Psychology*, 12, 1-15. <https://doi.org/10.3389/fpsyg.2021.644020>



A Study on the Cointegration Relationship between Selected Global Stock Markets and Gold and Silver Futures

Ozan Kaymak^{1,a,*}

¹Finance Banking and Insurance, Cermik Vocational School, Dicle University, Diyarbakır, Türkiye

*Corresponding author

Research Article

History

Received: 14/07/2024

Accepted: 28/10/2024

JEL Codes: G11, G12, G15, C32

ABSTRACT

Globalization has enabled greater volume and frequency of economic and commercial practices to be implemented worldwide. As a result, with the expansion of the scope of capital expansion, the interdependence of financial markets increases. However, negative developments such as economic crises, epidemics, wars, and uncontrolled migrations cause the relations between markets to weaken and a significant number of investors to turn to commodity investments. This study aims to evaluate the validity of the Capital Asset Pricing Model (CAPM) theorem, which posits that the expected returns of financial assets are influenced by systematic and unsystematic risks within the context of the selected market data for the specified period. Specifically, the study seeks to analyze the potential cointegration and the effects of gold and silver futures returns on the returns of selected global stock markets using time-series analysis. The potential relationships between the monthly returns of selected global stock indices and the monthly returns of gold and silver futures were analyzed for the period from January 2014 to May 2024 using the Autoregressive Distributed Lag (ARDL) Bound Test method. By calculating the error correction coefficients, it has been determined how long it takes to restore the balance in case the balance between the stock markets and commodity markets is disrupted. As a result of the research, it was determined that there is a long-term cointegration relationship between gold and silver futures index returns and selected global stock index returns. In the case of a short-term imbalance in the relationship between the yields of selected global indices and the index returns of gold and silver-term transactions, the balance was recovered within 0.9042 months for the index return of gold-term operations and 0.6549 months for the index return of silver-term operations.

Keywords: Global Stock Markets, Gold and Silver Futures, ARDL Bond Test

Seçili Küresel Hisse Senedi Piyasaları ile Altın ve Gümüş Vadeli İşlemleri Arasındaki Bağımlılık Üzerine Bir Araştırma

Süreç

Geliş: 14/07/2024

Kabul: 28/10/2024

Jel Kodları: G11, G12, G15, C32

Öz

Küreselleşme, ekonomik ve ticari pratiklerin dünya genelinde daha yüksek hacim ve frekansta uygulanabilmesine olanak tanımıştır. Bunun sonucunda sermaye yayılımlarının etki alanlarının genişlemesiyle, finansal piyasaların karşılıklı bağımlılıklarının arttığı söylenebilir. Ancak ekonomik krizler, salgın hastalıklar, savaşlar ve kontrolsüz göçler gibi olumsuz gelişmeler, piyasalar arasındaki ilişkilerin zayıflamasına ve anlamlı sayıda yatırımcının emtia yatırımlarına yönelmesine yol açmaktadır. Bu çalışmada; Sermaye Varlıkları Fiyatlandırma Modeli (CAPM), sistematik ve sistematik olmayan riskler karşısında seçilen finansal varlıkların beklenen getirilerinin değişeceği teoreminin seçilen piyasa verilerinin ilgili dönemde geçerli olup olmadığı araştırılmıştır. Çalışmanın amacı, altın ve gümüş vadeli işlem getirileri arasındaki olası eşbütünlüşmeyi ve bunların seçilmiş küresel hisse senedi piyasaları getirileri üzerindeki etkisini zaman serisi analizleri ile incelemektir. Bu çalışmanın amacı; seçili küresel hisse senedi piyasaları ile altın ve gümüş vadeli işlemleri arasındaki muhtemel eşbütünlüşme ilişkisinin zaman serisi analizleri ile incelenmesidir. 2014 Ocak ile 2024 Mayıs döneminde, seçili küresel hisse senedi endekslerinin aylık getirileri ile altın ve gümüş vadeli işlemleri aylık endeks getirileri arasındaki muhtemel ilişkiler Gecikmesi Dağıtılmış Otoregresif Sınır Testi (ARDL) Yöntemine göre incelenmiştir. Hata düzeltme katsayılarının hesaplanmasıyla, hisse senedi piyasaları ile emtia piyasaları arasındaki dengenin bozulması durumunda, dengenin ne kadarlık bir sürede yeniden sağlanabildiği tespit edilmiştir. Araştırmanın sonucunda altın ve gümüş vadeli işlemleri endeks getirileri ile seçili küresel hisse senedi endeks getirileri arasında uzun dönemli eşbütünlüşme ilişkisinin var olduğu tespit edilmiştir. Seçili küresel endekslere ait getiriler ile altın ve gümüş vadeli işlemleri endeks getirileri arasındaki ilişkide kısa dönemde dengenin bozulması durumunda, altın vadeli işlemleri endeks getirileri için 0.9042 ay, gümüş vadeli işlemleri endeks getirileri için ise 0.6549 içinde dengenin yeniden sağlandığı tespit edilmiştir.

Anahtar Kelimeler: Küresel Hisse Senedi Piyasaları, Altın ve Gümüş Vadeli İşlemleri, ARDL Sınır Testi

Copyright



This work is licensed under
Creative Commons
AttributionNonCommercial 4.0
International License International
License



kaymak.ozan@gmail.com



[0000-0001-5492-2877](https://doi.org/10.37880/cumuiibf.1516047)

How to Cite: Kaymak O (2025) A Study on the Cointegration Relationship between Selected Global Stock Markets and Gold and Silver Futures, Journal of Economics and Administrative Sciences, 26(1): 50-64, DOI: 10.37880/cumuiibf.1516047

Introduction

The spread of trading and investment practices worldwide and economic integration have strengthened the interdependence between stocks and other financial assets traded on global markets. This situation has strengthened the correlation between global financial assets and caused a decrease in the gains of stock investors through diversification (Badshaha et al., 2018; 16-18). The interactions of financial markets with the real sector are related to national macroeconomic indicators and countries' production and employment levels becoming more unstable (Blanchard, 1981). In addition, capital markets can be more affected by macro-economic developments and the price volatility of commodity assets than others (Waheed et al., 2020; 5). During periods of global financial crises in the last two decades, high volatility movements have been observed in stock exchanges and commodity assets around the world. Price movements in global stock markets and shocks in commodity prices influenced each other (Moshirian, 2011; 503-504). This situation may have led to changes in macroeconomic indicators around the world. (Choudhry et al., 2016; 90). Research on this subject suggests that shocks in commodity prices increase the volatility of global stock markets, and as a result, the production level in developing economies decreases and inflation rates increase (Fernández et al., 2018; 99).

Emerging markets and economies have a more sensitive and fragile response to global economic fluctuations. This fragility stems from the fact that these economies and markets are partially dependent on commodity exports. Business processes and capital flows in these economies are significantly affected by fluctuations in commodity prices (Reinhart & Trebesch, 2016; 577). The process that causes simultaneous movements in capital flows, commodity prices, and economic crises on a global scale is called the Global Financial Cycle (GFC). Current academic research claims that GFC is significantly related to fluctuations in commodity prices (Davis et al., 2021). However, it is not yet clear how global shocks, together with fluctuations in commodity prices, affect the economies of developing countries (Agrippino & Rey, 2022; 4). Global stock markets are developed financial markets according to the number of investors, the number of transactions, and transaction volume. The relationships between the price movements in these markets and the movements of commodity prices such as gold, silver, and oil are a subject that researchers focus on. (Cong et al., 2008; 3546; Sheikh et al., 2023; 5). Gold, which is often associated with price movements in global markets, is considered a stable investment option by investors due to some of its features (Jaffe, 1989; 56). Gold is seen as an asset that can protect savings against risks and provide stable returns in periods of high inflation and exchange rate instability (Shaik et al., 2023; 8). Some academic studies suggest that gold and silver have similar price movements. Silver prices may be affected by macroeconomic developments and the volatilities of

other precious metals. In addition, silver is the most used precious metal after gold as a store of value (Paul et al., 2023; 8-10).

In this study, possible cointegration relationships between global stock markets and global gold and silver futures index returns are examined. Capital Asset Pricing Model (CAPM) was considered to develop a model based on the theorem that the expected returns of financial assets will change in the face of systematic and unsystematic risks. In the study, it was examined whether undesirable situations arising from market risk had a combined effect on selected assets. Thus, it was investigated whether selected assets were affected in the same direction or level by the developments in the relevant time period. According to the results, the relationships between entities were evaluated according to the assumptions of the CAPM theorem. The aim of the study is to examine the possible cointegration between and the impact of the gold and silver futures returns on selected global stock markets returns with time-series analyses. Unit root test results show that the series of selected global stock indices are non-stationary at level but become stationary at first-order differences. It has been determined that global gold and silver futures index returns are stationary series at level. According to these results, the possible cointegration between commodities index returns and global stock indices was studied by the Autoregressive Distributed Lag Bound Test (ARDL) method. Two different Vector Autoregression (ARDL) models are estimated, where the series of gold and silver futures index returns are the dependent variable and selected global stock indices are the independent variable. Specification tests for both models, which are the normality test, autocorrelation test, heteroscedasticity test, regression model specification error test (Ramsey-RESET), CUSUM Test, and CUSUM of Square tests, were applied. The ARDL bound test results show that there is a cointegration relationship between global stock indices and gold and silver futures index returns in both models. Additionally, error correction coefficients were estimated for both models.

Literature Review Chen and Qi (2024) examined the relationship between Chinese energy stocks, renewable energy stocks, and commodity markets by using dependency and causality processes. As a result of the study, they suggested that volatility in commodity prices could be used to predict the future price of stocks. Zapata, Betanco, Bampasidou and Deliberto (2023) examined the relationship between commodity markets and stock markets according to changes in the indices of these assets. They also evaluated the effects of the 2008 global economic crisis and the COVID-19 outbreak on capital markets. The results show that there was a cyclical relationship between stock markets and commodity markets for a period of 31 years. Sheth, Sushra, Kshirsagar and Shah (2022) examined the relationship between global economic developments, global stock prices, and commodity price changes. The results show that investment volumes decreased due to price shocks in

stock markets during periods of global economic development and that prices of commodities other than gold showed an upward trend. Tiwari, Abakah, Karikari and Hammoudeh (2022) examined the degrees of time dependence between international commodity prices, Australian sectoral stock prices, crude oil, and natural gas prices. They found that the dependence between commodity prices and stock returns varies depending on time, according to the results of the study. They also suggested that commodity investments can protect investors against risks while portfolio diversification is made in financial investments. Enilov, Fazio and Ghoshray, (2021) examined the relationship between global commodity price shocks and national financial stock indices. The results of the study show that there is a causal relationship between global commodity prices and national stock indices, according to the Granger causality method. In addition, they argued that there is a causality relationship between the development levels of countries and global commodity price shocks, according to the results. Ali, Bouri, Czudaj and Shahzad (2020) examined the returns provided by diversification of commodities traded on the global stock exchange in 49 countries with different development degrees. The results show that commodities, especially gold and silver, could protect investors against loss of wealth against the risks arising from fluctuations in global financial markets. Kang, Ratti and Vespignani (2020) investigated the time-varying dynamics of volatility in global stock markets, commodity prices, domestic production, and consumer prices. According to the results, the volatility in global stock prices and commodity price shocks affect each other and the global economy in a gradual and internal adaptation process. They also found that this effect gained a stronger structure during periods of global economic crisis. Raharja and Darmansyah (2019) examined the effects of global stock index returns and global commodity index returns on the returns of stocks traded on the Indonesian Stock Exchange using the multiple linear regression technique. According to the results, the returns of global stocks and the returns of the global commodity index had a significant effect on the shares traded on the Indonesian Stock Exchange. Barunik et al. (2016) examined the cointegration between gold, silver and oil futures returns

and stock returns asset pairs between 1987 and 2012 with time frequency analysis. As a result of the study, they found that the level of cointegration between these assets increased in periods when economic risks increased. Arauri et al. (2015) investigated global gold returns and return and volatility spreads in Chinese stock markets between 2004 and 2011 using the GARCH method. As a result of the study, they determined that it is an important parameter in determining global gold returns and conditional returns in the Chinese stock market. Bahardaj and Dunsby (2013) examined the relationship between price movements of stocks traded on global stock exchanges and changes in commodity prices. According to the results of the study, they found that the correlation between price movements of global stocks and changes in commodity prices is close to zero. However, they stated that this situation changed significantly as time progressed. They argued that stocks and commodities act in a cointegrated manner during economic crisis periods.

Materials and Methods

In this study, among the global stock markets located in different economic regions, indices belonging to the stock markets that are ahead of other markets as per the number of investors, market width, and transaction volume were selected. Standard & Poors 500 (SPX) from the United States, Standard & Poors Toronto Stock Exchange (GSPTSX) from Canada, Deutscher Aktienindex (GDAXI) from Germany, Financial Times Stock Exchange Group 100 (FTSE) from the United Kingdom, and Euro Stoxx 50 from the European Union region. (STOXX50E) indices were selected to be investigated. By providing logarithmic transformations of the monthly data of these indices for the date range of January 2014 to May 2024, a data set of 125 observations for each series was created. Among the indices of commodity futures, the gold (GCM4) and silver (SIN4) global indices were selected. Index returns were calculated based on the monthly values of these indices for the same date range. The series of gold and silver futures index returns consisting of 125 observations was created. Table 1. includes the names and symbols of the series of selected global stock indices and selected commodity futures index returns.

Table 1. Series of Gold and Silver Futures Index Returns and Selected Global Index Returns

Index	Symbol	Type	Region	Series
Standart&Poors 500	SPX	Stock	USA	LSPX
Standart&Poors Toronto Stock Exchange	GSPTSX	Stock	Canada	LGSPTSX
Deutscher Aktienindex	GDAXI	Stock	Germany	LGDAXI
Financial Times Stock Exchange Group 100	FTSE	Stock	United Kingdom	LFTSE
Euro Stoxx 50	STOXX50E	Stock	European Union	LSTOXX
Gold Futures - Jun 24	GCM4	Commodity	Global	RGCM4
Silver Futures - Jul 24	SIN4	Commodity	Global	RSIN4

After the series of variables is created, it will be studied whether there is a long-term cointegration relationship between the monthly values of selected global stock indices and the monthly returns of commodity futures indices between January 2014 and May 2024. For significant results in time series analysis, unit root tests must be performed to determine the appropriate method. To specify the level of stationarity of the series, Augmented Dickey-Fuller (ADF), Phillips-Perron (PP) and Kwiatkowski-Phillips-Schmidt-Shin (KPSS) unit root tests were carried out. According to the results, the series of global stock indices (LSPX, LGSPTSX, LGDAXI, LFTSE, and LSTOXX) were not stationary at the level, but the global stock index series became stationary at first differences. This means that the degree of integration of these series is one. It has been determined that the series of returns of gold and silver futures indices (RGCM4, RSIN4) are stationary at level. According to these results, the ARDL-Bound process is thought to be a suitable method to obtain statistically significant results in long-term cointegration analyses. Additionally, the error correction coefficient can be calculated after Bound Tests. Thus, if the balance between the series is disrupted, it can be calculated how long it will take to achieve balance.

The gold futures index returns series (RGCM4) is appointed as the dependent variable, and the selected global stock index series (LSPX, LGSPTSX, LGDAXI, LFTSE, and LSTOXX) are the independent variables. The model of the series was estimated according to the ARDL method. The model was used to examine the relationships between selected series because it is a convenient method for investigating the developments and correlations between multiple time series. ARDL model is a method that allows examining the differences in the selected variable depending on the selected variable's own lag and the different lags of other variables (Sims, 1980). The estimated model was named Model 1. In the other model, the silver futures index returns series (RSIN4) is appointed as the dependent variable, and LSPX, LGSPTSX, LGDAXI, LFTSE, and LSTOXX series are independent variables. The estimated model was named Model 2. In addition, error correction coefficients for

Model 1 and Model 2 were determined. Specification tests were applied for the estimated Model 1 and Model 2.

Results and Discussion

ADF, PP and KPSS unit root tests have been applied to the monthly data for the date range of January 2014 to May 2024 of selected global stock indices and selected commodity futures index returns series. The results from unit root tests showed that it was determined that the integration degrees of the series of global stock indices were 1 ($I = 1$) and the commodity futures index returns series were stationary at level ($I = 0$). It was decided to examine the cointegration relationships and determine the error correction coefficients with the ARDL process. ARDL is a method where it is not necessary for the stationarity degrees of the series to be at the same level. In the next stage, two different ARDL models were estimated. In Model 1, the gold futures index return series is the dependent variable, and selected global stock index return series are appointed as the independent variable. In Model 2, the silver futures index return series is the dependent variable, and the selected global stock index return series are the independent variable. Specification tests were conducted for two estimated models. Normality test, autocorrelation test, heteroscedasticity test, regression model specification error test (Ramsey-RESET), cumulative total control table (CUSUM) test, and (CUSUMQ) of Squares test were applied. Specification tests have shown that there are no specification problems for both models. Thus, long-term cointegration relationships between the series were studied with the bounds test for both models. In the last stage, error correction coefficients were calculated for both models.

ADF and PP Unit Root Tests of Series

ADF and PP tests were applied to specify the level of stationarity of the series. In both processes, the series was studied at level and first difference with constant and trend, with only constant and without constant and trend models. The ADF test results are given in Table 2.

Table 2. ADF Unit Root Test Results of Series at Level and 1st Difference

At Level		LFTSE	LGDAXI	LGSPTSX	LSPX	LSTOXX	RGCM4	RSIN4
With Constant	t-Statistic	-2,094	-1,323	-1,026	-0,562	-1,455	-12,123	-10,975
	Prob,	0,248	0,618	0,743	0,874	0,553	0,000	0,000
	Result	n0	n0	n0	n0	n0	***	***
With Constant & Trend	t-Statistic	-2,542	-3,406	-2,971	-3,279	-2,766	-12,129	-10,970
	Prob,	0,308	0,055	0,145	0,075	0,213	0,000	0,000
	Result	n0	*	n0	*	n0	***	***
Without Constant & Trend	t-Statistic	0,602	1,188	1,168	2,181	0,914	-12,010	-10,994
	Prob,	0,845	0,939	0,937	0,993	0,903	0,000	0,000
	Result	n0	n0	n0	n0	n0	***	***
At First Difference		d(LFTSE)	d(LGDAXI)	d(LGSPTSX)	d(LSPX)	d(LSTOXX)	d(RGCM4)	d(RSIN4)
	With Constant	t-Statistic	-11,914	-11,478	-12,337	-12,873	-11,834	I=0
With Constant & Trend	Prob,	0,000	0,000	0,000	0,000	0,000	I=0	I=0
	Result	***	***	***	***	***		
	Without Constant & Trend	t-Statistic	-11,935	-11,399	-12,252	-12,395	-11,806	I=0
Without Constant & Trend	Prob,	0,000	0,000	0,000	0,000	0,000		
	Result	***	***	***	***	***		

The ADF unit root test's H_0 hypothesis represents that the series has a unit root if the prob. coefficient of the t-statistic is greater than 0.05. In the alternative hypothesis, it is concluded that the series does not contain a unit root, that is, the series is stationary (Dickey & Fuller, 1979; 429-430). The results in Table 2 for the LSPX, LGSPTSX, LGDAXI, LFTSE, and LSTOXX series of the probability values of ADF t-statistics are greater than 5% according to all three models. Thus, H_0 is accepted. In other words, the series has no unit root at level. In the RGCM4 and RSIN4 series, ADF t-statistic probability values are less than 5%, according to all three models at level. According to this result, H_0 is rejected. In other words, gold and silver futures index return series are stationary at the level. This result means that the degree of integration of the RGCM4 and RSIN4 series is 0. At first differences of the global stock index series in the ADF unit root test show that all probability values of the t-statistics are less than 5%, according to all three models. In this case, the ADF test H_0 hypothesis is rejected. The results show that the level of integration of the LSPX, LGSPTSX, LGDAXI, LFTSE, and LSTOXX series is 1 ($I = 1$). To support the results of the

ADF unit root test, the Phillips-Perron (PP) unit root test was applied, and the results are shown in Table 3. In PP tests, if the probability values of t-statistics obtained from unit root calculations of the series are greater than 5% ($p > 0.05$), the H_0 hypothesis is accepted. This represents that the series contains a unit root. (Phillips & Perron, 1988; 343-345). According to Table 3, the PP t-statistic probability values of the LSPX, LGSPTSX, LGDAXI, LFTSE, and LSTOXX series are greater than 5% for all three models. According to this result, the H_0 hypothesis cannot be rejected. This means that global stock index return series have unit root at the level in the PP unit root test. The series of gold and silver futures index returns are stationary series at level according to the PP unit root test. Thus, it can be said that the level of integration of the series is 0 ($I = 0$) It has been shown that the PP t-statistic probability values for the first-differences for three models of all global stock index series are less than 5%. In this case, the H_0 hypothesis is rejected. In other words, the series becomes stationary at the first difference. Thus, it was stated that the level of integration of the series was 1 ($I = 1$).

Table 3. PP Unit Root Test Results of Series at Level and 1st Difference

At Level		LFTSE	LGDAXI	LGSPTSX	LSPX	LSTOXX	RGCM4	RSIN4
With	t-Statistic	-2,015	-1,212	-0,811	-0,327	-1,455	-12,222	-11,470
Constant	Prob,	0,280	0,668	0,812	0,917	0,553	0,000	0,000
	Result	n0	n0	n0	n0	n0	***	***
With	t-Statistic	-2,518	-3,476	-2,920	-3,124	-2,805	-12,411	-11,577
Constant & Trend	Prob,	0,319	0,057	0,160	0,105	0,198	0,000	0,000
	Result	n0	*	n0	n0	n0	***	***
Without	t-Statistic	0,683	1,451	1,456	2,821	1,028	-12,010	-11,431
Constant & Trend	Prob,	0,862	0,963	0,964	0,999	0,920	0,000	0,000
	Result	n0	n0	n0	n0	n0	***	***
At First Difference		d(LFTSE)	d(LGDAXI)	d(LGSPTSX)	d(LSPX)	d(LSTOXX)	d(RGCM4)	d(RSIN4)
With	t-Statistic	-11,971	-11,606	-12,601	-13,357	-11,880	I=0	I=0
Constant	Prob,	0,000	0,000	0,000	0,000	0,000		
	Result	***	***	***	***	***		
With	t-Statistic	-11,966	-11,573	-12,620	-13,327	-11,913	I=0	I=0
Constant & Trend	Prob,	0,000	0,000	0,000	0,000	0,000		
	Result	***	***	***	***	***		
Without	t-Statistic	-11,987	-11,449	-12,384	-12,404	-11,843	I=0	I=0
Constant & Trend	Prob,	0,000	0,000	0,000	0,000	0,000		
	Result	***	***	***	***	***		

Table 4. KPSS Unit Root Test Results of Series at Level and 1st Difference

At Level		LFTSE	LGDAXI	LGSPTSX	LSPX	LSTOXX	RGCM4	RSIN4
With	t-Statistic	0,87618	1,19462	1,18700	1,32804	0,94829	0,04818	0,14548
Constant	1% level	0,73900	0,73900	0,73900	0,73900	0,73900	0,73900	0,73900
	5% level	0,46300	0,46300	0,46300	0,46300	0,46300	0,46300	0,46300
	10% level	0,34700	0,34700	0,34700	0,34700	0,34700	0,34700	0,34700
At First Difference		d(LFTSE)	d(LGDAXI)	d(LGSPTSX)	d(LSPX)	d(LSTOXX)	d(RGCM4)	d(RSIN4)
With	t-Statistic	0,07293	0,04989	0,06361	0,04706	0,07987	0,25240	0,34815
Constant	1% level	0,73900	0,73900	0,73900	0,73900	0,73900	0,73900	0,73900
	5% level	0,46300	0,46300	0,46300	0,46300	0,46300	0,46300	0,46300
	10% level	0,34700	0,34700	0,34700	0,34700	0,34700	0,34700	0,34700

KPSS unit root test is used to investigate whether the time series examined is stationary according to its trend. The basic hypothesis of the KPSS test represents that the series examined is stationary (Kwiatkowski et al., 1992; 1-3). According to the results in Table 4, the t-statistic values of the LFTSE GDAXI LGS PTSX LSPX STOXX series are calculated to be greater than the critical values of 1%, 5%, and 10%. According to this result, the H_0 hypothesis is rejected. In other words, the series are not stationary at level. The t-statistic values of the RGCM4 and RSIN4 series were calculated to be lower than the critical values. In this case, the H_0 hypothesis is accepted. In other words, the RGCM4 and RSIN4 series are stationary at level. It is calculated that the t-statistic value is smaller than the critical values for the first-degree differences of the LFTSE GDAXI LGS PTSX LSPX STOXX series. In this case, the stationarity degree of the series is 1 ($I = 1$).

Autoregressive Distributed Lag Bound Test (ARDL)

ARDL Boundary Test is a method developed by Pasaran and Shin in 2001. While in other cointegration tests, the stationarity degrees of the series of variables must be the same, in the ARDL Boundary Test, cointegration relationships can be examined between more than two series with different degrees of integration (Pesaran & Shin, 2001; 293). In addition, the ARDL test is a method that investigates long- and short-term causality relationships between series (Sam, McNown and Goh, 2019; 133-136).

$$\Delta Y_t = c_0 + c_1 t + \pi_{yy} y_{t-1} + \pi_{yx.x} x_{t-1} + \sum_{i=1}^{p-1} \phi \Delta Z_{t-i} + \omega' \Delta x_t + \theta w_t + u_t \tag{1}$$

In Equation 1; c_0 is autonomous parameter, t is trend variable, $\pi_{yy} / \pi_{yx.x}$ is long term multipliers, $Z_t = (y_t, x_t)'$ is variables, ω_t is Shadow variable, u_t is error term without autocorrelation. In the ARDL bounds test, the H_0

hypothesis means no cointegration between the series of variables ($H_0 = \pi_{yy} = \pi_{yx.x} = 0$). In case of the t-statistic value from the estimated model in the ARDL bound test is superior than the upper critical value, the basic hypothesis is rejected. If the t-statistic coefficient is between the lower and upper critical values, series needs to be studied on unit roots with other process. (Narayan, 2005; 1983-1988).

ADF, PP and KPSS tests results indicate that the stationarity levels of the RGCM4 and RSIN4 series (depended variable) and LSPX, LGSPTSX, LGDAXI, LFTSE and LSTOXX series (independent variables) are different from each other. The degrees of integration of the dependent variables were calculated as 0 ($I = 0$), and the degrees of integration of the independent variables were calculated as 1 ($I = 1$). This result supports that the ARDL test to be applied is an appropriate cointegration method for this study (Pesaran & Shin, 2001; 293). In this study, the global stock indices series (LSPX, LGSPTSX, LGDAXI, LFTSE and LSTOXX) with integration degrees of 1 between January 2014 and May 2024 are the independent variables, and the gold and silver futures index returns series (RGCM4, RSIN4) are the dependent variables. Two different models will be estimated with the ARDL approach (Model 1 and Model 2).

Estimating the ARDL Models of Gold and Silver Futures Indices Returns Series and Global Stock Index Series Model 1 and Model 2

Model 1; In the date range from January 2014 to May 2024, the global gold futures index returns series (RGCM4) is the dependent variable. Series created by logarithmic transformations of the monthly values of selected global stock indices in the same period (LSPX, LGSPTSX, LGDAXI, LFTSE and LSTOXX) are independent variables. For the ARDL bounds test, a model consisting of defined series is estimated. ARDL model values for Model 1 are in Table 5.

Table 5. Estimating the ARDL Model (Model 1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
RGCM4(-1)	-0,0649	0,0890	-0,7291	0,4676
RGCM4(-2)	0,0773	0,0876	0,8834	0,3790
RGCM4(-3)	-0,1184	0,0793	-1,4929	0,1385
LFTSE	0,0247	0,0232	1,0615	0,2909
LFTSE(-1)	0,0097	0,0287	0,3388	0,7354
LFTSE(-2)	-0,0717	0,0274	-2,6173	0,0102
LFTSE(-3)	0,0540	0,0220	2,4569	0,0157
LGDAXI	-0,0055	0,0380	-0,1460	0,8842
LGDAXI(-1)	-0,0370	0,0408	-0,9066	0,3667
LGDAXI(-2)	0,0534	0,0191	2,7919	0,0062
LGDAXI(-3)	-0,0440	0,0149	-2,9483	0,0039
LGSPTSX	0,0347	0,0258	1,3437	0,1819
LGSPTSX(-1)	-0,0717	0,0222	-3,2273	0,0017
LSPX	0,0252	0,0101	2,4894	0,0144
LSTOXX	-0,0501	0,0395	-1,2691	0,2072
LSTOXX(-1)	0,0721	0,0393	1,8321	0,0698
C	0,1434	0,0873	1,6425	0,1035

The ARDL model (Model 1), with a date range of January 2014 to May 2024, in which the dependent variable is the gold futures return series (RGCM4) and the series of global stock indices (LSPX, LGSPTSX, LGDAXI, LFTSE and LSTOXX) is the independent variable, is estimated with maximum lag length is 4. Akaike information criterion (AIC) was used as the model selection method. The significant model to be selected in the model estimation made with Eview's is ARDL (3, 3, 3, 1, 0, 1). This model is named Model 1.

ARDL (3, 3, 3, 1, 0, 1) Model 1 specification tests

Before conducting long- and short-term cointegration analyses according to the estimated Model 1, specification tests of the model were carried out. Model 1. A normality test was performed to determine whether the residuals of the series in Model 1 had a normal distribution. The results are in Table 6.

If the probability value of the normality test statistic is higher than 5% ($prob > 0.05$), the basic hypothesis, which represents that the series are normally distributed, is accepted. (Jarque & Bera, 1987; 166). According to the results in Table 6, the probability value of the Jarque-Bera test statistic is 0.633371. Since this value is greater than 0.05, the basic hypothesis cannot be rejected. In other words; it was determined that the residues of the series in ARDL (3, 3, 3, 1, 0, 1) Model 1 were normally distributed. The Breusch-Godfrey Serial Correlation LM Test was used to specify whether there is an autocorrelation problem in Model 1. The results of the serial correlation LM test are in Table 7.

Breusch-Godfrey autocorrelation LM test The H_0 hypothesis means no autocorrelation between the series at the specified lag length. In case of the probability coefficient of the F-stat. is higher than 0.05 ($prob > 0.05$), H_0 is accepted (Breusch, 1978; 336; Godfrey, 1978;

1296). In (3, 3, 3, 1, 0, 1) Model 1, the probability value of the F-statistic is 0.3966. According to this result, the Breusch-Godfrey autocorrelation LM test H_0 hypothesis is accepted in Model 1 and it has been observed that there is no autocorrelation between the series. (3, 3, 3, 1, 0, 1) Model 1.

Breusch-Pagan-Godfrey Heteroscedasticity test was applied to search on any heteroscedasticity between the series in ARDL (3, 3, 3, 1, 0, 1) Model 1. The results are in Table 8.

In the Breusch-Pagan-Godfrey Heteroscedasticity Test, H_0 hypothesis means that the series has constant variance. In cases where the prob. coefficient of the F-stat. is higher than 0.05 ($prob > 0.05$), the H_0 hypothesis expressing constant variance cannot be rejected (Breusch & Pagan, 1979; 1289-1291). The probability value of Model 1's heteroscedasticity test F-statistic (Prob.F) is 0.2530. According to these results, H_0 is accepted. In other words, the series in Model 1 had a constant variance.

Regression Model Specification Error Test (Ramsey-RESET) was used to observe whether there was a specification error in ARDL (3, 3, 3, 1, 0, 1) Model 1. Results are in Table 9.

By using this test, it can be determined whether there is a specification error in a linear regression model. In the Ramsey-RESET test, it is investigated whether non-linear combinations of independent variables are sufficient to explain the dependent variable. In this test, if the prob. coefficient of the F-stat. is superior than 0.05 ($prob > 0.05$), this means the model specification is significant (Ramsey, 1969; 352-359). The probability value of the Ramsey-RESET test F-statistic for Model 1 is 0.8476. According to this result, the specification for ARDL (3, 3, 3, 1, 0, 1) Model 1. is significant.

Table 6. ARDL (3, 3, 3, 1, 0, 1) Model 1 Normality Test

Skewness	Kurtosis	Jarque-Bera	Prob.
0,157647	2,717045	0,912323	0,633371

Table 7. ARDL (3, 3, 3, 1, 0, 1) Model 1 Autocorrelation LM Test

Statistics	Results	Statistics	Results
F-statistic	0,93307	Prob. F(2,102)	0,39660
Obs*R-squared	2,17105	Prob. Chi-Square(2)	0,33770

Table 8. ARDL (3, 3, 3, 1, 0, 1) Model 1 Heteroscedasticity Test

F-statistic	1.2371	Prob. F(17,104)	0.2530
Obs*R-squared	19,3502	Prob. Chi-Square(17)	0,2509
Scaled explained SS	12,3054	Prob. Chi-Square(17)	0,7227

Table 9. ARDL (3, 3, 3, 1, 0, 1) Model 1 Ramsey-RESET Test

	Value	df	Probability
t-statistic	0,1926	104	0,8476
F-statistic	0,0371	(1, 104)	0,8476
Likelihood ratio	0,0435	1	0,8348

Cumulative Total Control Table (CUSUM) test was applied in ARDL (3, 3, 3, 1, 0, 1) Model 1. This test is used to determine whether the parameter estimates in the estimated model meet the stability condition. Test results show whether the parameter estimates are within 95% confidence limits (Page, 1954; 100-115). ARDL (3, 3, 3, 1, 0, 1) Model 1 CUSUM test results are given in Figure 1.

In Figure 1. it is observed that the parameter estimates in Model 1 were for confidence limits. Thus, it can be said that the parameter estimates in Model 1 are stable. Cumulative Total Control Table of Squares Test (CUSUMSQ) test was applied to support the fact that the parameter estimates of ARDL (3, 3, 3, 1, 0, 1) Model 1 meet the stability conditions. Using the CUSUMQ test, it can be checked whether the squares of the parameter estimates in the model are within the confidence intervals (Lu et al., 2008; 236). The CUSUMSQ test results of the parameter estimates for Model 1 are shown in Figure 2.

According to the CUMUMQ test results, the squares of the parameter estimates in Model 1 are within the confidence limits.

ARDL (3, 3, 3, 1, 0, 1) Model 1 Bounds Test Results and Long-Term Forecast

The equation for long-term relationship prediction in the ARDL Bounds test is as follows.

$$Y_t = \alpha_0 + \sum_{i=1}^m a_{1i} Y_{t-1} + \sum_{i=0}^m a_{2i} M_{t-i} + \sum_{i=0}^m a_{3i} E_{t-i} + u_t \quad (2)$$

Y: The dependent variable, E and M: Independent variables

The F-statistic table is created using appropriate delays according to Equation 2. If the F-stat. coefficient is superior to the upper limit of the F table value, the H₀ null hypothesis is rejected. This means there is a long-term cointegration relationship between the series (Pesaran & Shin, 2001; 293). In addition, if the F-stat. coefficient is higher than the upper critical values of 10%, 5%, and 1%, there is a cointegration relationship between the series.

Long Run from and Bond Test (F-Boundary Test) is applied for ARDL (3, 3, 3, 1, 0, 1) Model 1. The results are in Table 10.

According to the results in Table 10. the bounds test F-statistic for ARDL (3, 3, 3, 1, 0, 1) Model 1 is 9.825351. This coefficient is superior to the upper critical values: 3.50 for 10%, 4.015 for 5%, and 5.163 for 1%. According to this result, the H₀ hypothesis is rejected. This means there is a long-term cointegration relationship between the gold futures index return series (RGCM4) and global stock indices (LSPX, LGSPTSX, LGDAXI, LFTSE, LSTOXX) at levels of 1%, 5%, and 10%.

ARDL (3, 3, 3, 1, 0, 1) Model 1 Error Correction Model

For ARDL (3, 3, 3, 1, 0, 1) Model 1, the error correction coefficient was investigated by applying the ARDL Error Correction Regression test. The results of the test with constant and no trend for Model 1 are in Table 11.

In Table 11, the error correction coefficient of Model 1 is shown as CointEq(-1)*. It is important for the evaluation that this coefficient be negative and statistically significant (Prob. < 0.05). However, in order to determine the reliability of the probability values of t-statistics, a separate bounds test should be performed for t-statistic values. The results of the t-statistic bounds test of the error correction coefficient for Model 1 are given in Table 12.

Error correction coefficient: CointEq(-1) The absolute value of the t-stat. coefficient for the limit test must be higher than the upper critical value. Table 12. shows that the t-statistic of the error correction coefficient of Model 1 is -7.858712. This result is higher in absolute value than -3.86 for 10%, -4.19 for 5%, and -4.79 for 1%. Accordingly, the error correction coefficient CointEq(-1) of Model 1 is statistically significant. CointEq(-1) value of ARDL (3, 3, 3, 1, 0, 1) Model 1 is -1.1059. This coefficient (1/-1.1059 = 0.9042) means that if the balance is disrupted in the short term, the balance will be restored after 0.9042 months.

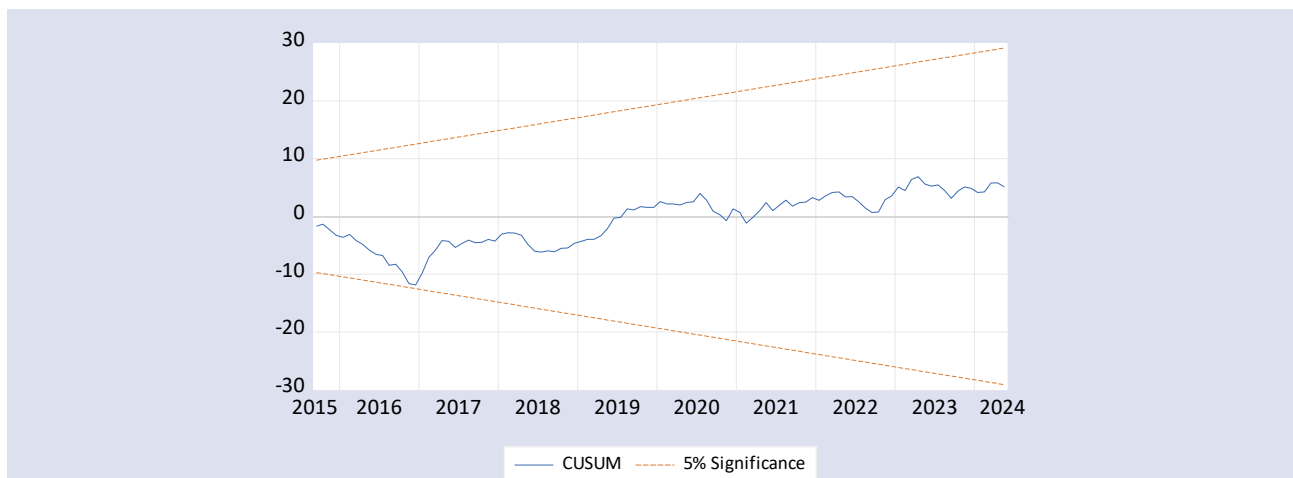


Figure 1. ARDL (3, 3, 3, 1, 0, 1) Model 1 CUSUM Test

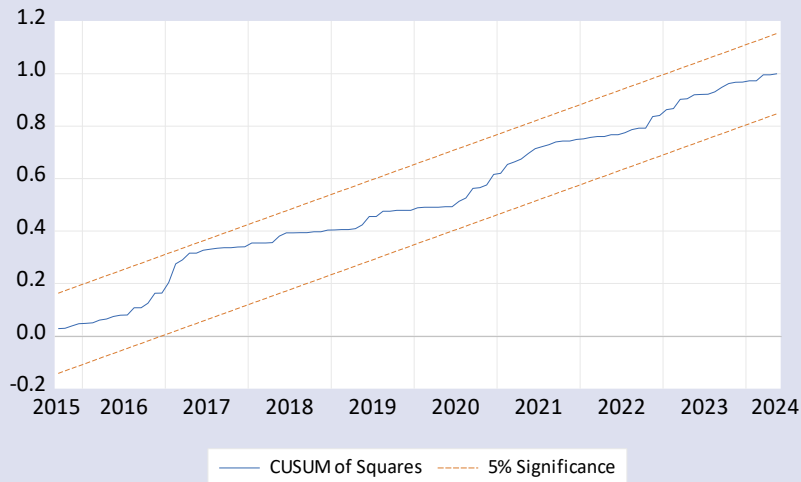


Figure 1. ARDL (3, 3, 3, 1, 0, 1) Model 1 CUSUMSQ Test

Table 10. ARDL (3, 3, 3, 1, 0, 1) Model 1 F-Bound Test Results

Test Statistic	Value	Signif.	I(0)	I(1)
Asymptotic: n=1000				
F-statistic	9,825351	10%	2,260	3,350
k	5	5%	2,620	3,790
		1%	3,410	4,680
		Finite Sample: n=80		
Actual Sample Size	122	10%	2,355	3,500
		5%	2,787	4,015
		1%	3,725	5,163

Table 11. ARDL (3, 3, 3, 1, 0, 1) Model 1 Error Correction Regression Testing

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0,1434	0,0183	7,8527	0,0000
D(RGCM4(-1))	0,0411	0,1100	0,3734	0,7096
D(RGCM4(-2))	0,1184	0,0753	1,5719	0,1190
D(LFTSE)	0,0247	0,0215	1,1448	0,2549
D(LFTSE(-1))	0,0176	0,0197	0,8926	0,3741
D(LFTSE(-2))	-0,0540	0,0204	-2,6460	0,0094
D(LGDAXI)	-0,0055	0,0352	-0,1577	0,8750
D(LGDAXI(-1))	-0,0094	0,0139	-0,6753	0,5010
D(LGDAXI(-2))	0,0440	0,0138	3,1793	0,0019
D(LGSPTSX)	0,0347	0,0213	1,6330	0,1055
D(LSTOXX)	-0,0501	0,0372	-1,3452	0,1815
CointEq(-1)*	-1,1059	0,1407	-7,8587	0,0000

Table 12. ARDL (3, 3, 3, 1, 0, 1) Model 1 Error Correction Coefficient t-statistic Boundary

Test Statistic	Value	Signif.	I(0)	I(1)
t-statistic	-7,858712	10%	-2,570	-3,860
		5%	-2,860	-4,190
		2,50%	-3,130	-4,460
		1%	-3,430	-4,790

ARDL Model Estimate for Silver Futures Index Return Series and Global Stock Indices Series (Model 2)

Global silver futures index return series (RSIN4) is appointed as the dependent variable for the date range of January 2014 to May 2024. Selected global stock index series (LSPX, LGSPTSX, LGDAXI, LFTSE and LSTOXX) in the same period range were determined as independent variables. The ARDL test will be applied to investigate possible cointegration relationships between the series. For this purpose, the model, consisting of series of variables, is estimated. The estimated model is named Model 2. Specification tests for Model 2 were carried out, and then long-term relationships between the variables were researched. Finally, the error correction model was estimated, and the error correction coefficient was calculated. The values of the ARDL model estimation, where the silver futures index return series (RSIN4) is the dependent and the global stock index series (LSPX, LGSPTSX, LGDAXI, LFTSE and LSTOXX) are the independent variables, are in Table 13.

The ARDL model (Model 2), where the dependent variable is the silver futures return series (RGCM4) and the series of global stock indices (LSPX, LGSPTSX, LGDAXI, LFTSE and LSTOXX) is the independent variable, is estimated with lag length of 4. The model is estimated with the values of the series for the period between January 2014 and May 2024. The Akaike information criterion (AIC) was used as the model selection method. The significant model to be selected in Model 2 estimation is ARDL (4, 0, 3, 3, 0, 1) Model 2.

ARDL (4, 0, 3, 3, 0, 1) Model 2 Specification Tests

According to the estimated ARDL (4, 0, 3, 0, 1), Model 2 specification tests for Model 2 were carried out before examining the cointegration relationships in the long run between the series and estimating the error correction model.

In cases where the Skewness coefficient is between -2 and +2 and the Kurtosis is between +7 and -7, the residuals

of the series are normally distributed (Byrne, 2010). In ARDL (4,0,3,3,0,1) Model 2 Jarque - Bera. normality test, skewness is 0.72804 and kurtosis is 4.34171. It is observed that the residuals of Model 1 had a normal distribution.

To search for an autocorrelation problem between the series in ARDL (4,0,3,3,0,1) Model 2, the Breusch-Godfrey Autocorrelation LM Test was applied, and the results are in Table 15.

The probability value of the ARDL (4,0,3,3,0,1) Model 2 F-statistic is 0.3347. According to this result, the Breusch-Godfrey Autocorrelation LM Test H0 hypothesis is accepted for Model 1. In this case, there is no autocorrelation problem between the RGCM4 and LSPX, LGSPTSX, LGDAXI, LFTSE, and LSTOXX series (Breusch, 1978; 336; Godfrey, 1978; 1978; 1296).

In ARDL (4,0,3,3,0,1) Model 2, the Breusch-Pagan-Godfrey Heteroscedasticity Test was used to observe whether the series were heteroskedastic, and Table 15. includes the coefficients.

The probability value of the ARDL (4,0,3,3,0,1) Model 2 heteroscedasticity test F-statistic (Prob.F) is 0.4393. According to this result, H₀ cannot be rejected. This means that the series in Model 2 had constant variance (Breusch & Pagan, 1979; 1289-1291).

Ramsey-RESET Test is applied to be performed to study a specification error in ARDL (4,0,3,3,0,1) Model 2. Table 17. includes the results.

The probability value of the Ramsey-RESET test F-statistic of ARDL (4,0,3,3,0,1) Model 2 is 0.6617. According to this result, ARDL (4,0,3,3,0,1) Model 2 has no specification error. (Ramsey, 1969; 352-359).

In ARDL (4,0,3,3,0,1) Model 2, the Cumulative Total Control Table (CUSUM) test was used to determine whether the parameter estimates met the stability condition. The results are in Figure 3.

Table 13. Estimating the ARDL Model (Model 2)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
RSIN4(-1)	-0,17907	0,09345	-1,91612	0,05810
RSIN4(-2)	-0,09272	0,09205	-1,00729	0,31610
RSIN4(-3)	-0,09486	0,08534	-1,11156	0,26890
RSIN4(-4)	-0,16026	0,08252	-1,94204	0,05480
LFTSE	0,04176	0,04603	0,90721	0,36640
LGDAXI	0,19020	0,17074	1,11395	0,26790
LGDAXI(-1)	-0,32087	0,19111	-1,67899	0,09620
LGDAXI(-2)	0,24437	0,09418	2,59486	0,01080
LGDAXI(-3)	-0,22061	0,06926	-3,18529	0,00190
LGSPTSX	0,26167	0,10861	2,40935	0,01770
LGSPTSX(-1)	-0,22618	0,12296	-1,83955	0,06870
LGSPTSX(-2)	-0,39942	0,12395	-3,22248	0,00170
LGSPTSX(-3)	0,20491	0,09701	2,11225	0,03710
LSPX	0,11413	0,04578	2,49316	0,01420
LSTOXX	-0,37257	0,17557	-2,12204	0,03620
LSTOXX(-1)	0,39920	0,17521	2,27844	0,02470
C	1,05424	0,37938	2,77888	0,00650

Table 14. Normality Test of Residuals of ARDL (4, 0, 3, 3, 0, 1) Model 2

Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis
-2,31E-16	-0,00200	0,08193	-0,05479	0,02114	0,72804	4,34171

Table 15. ARDL (4, 0, 3, 3, 0, 1) Model 2 Autocorrelation LM Test

Obs*R-squared	F-statistic	Prob. F(2,102)	Prob. Chi-Square(2)
2,568921	1,106255	0,3347	0,2768

Table 16. ARDL (4, 0, 3, 3, 0, 1) Model 2 Heteroscedasticity Test

F-stat.	Obs*R2	Scaled explained	Prob. F	Prob. Chi-Sq(16)	Prob. Chi-Sq(16)
1.022899	16,45253	20,30799	0,4393	0,4218	0,2067

Table 17. ARDL(4, 0, 3, 3, 0, 1) Model 2 Ramsey-REST Test

	Value	df	Probability
t-statistic	0,4388	103	0,6617
F-statistic	0,1925	(1, 103)	0,6617
Likelihood ratio	0,2260	1	0,6345

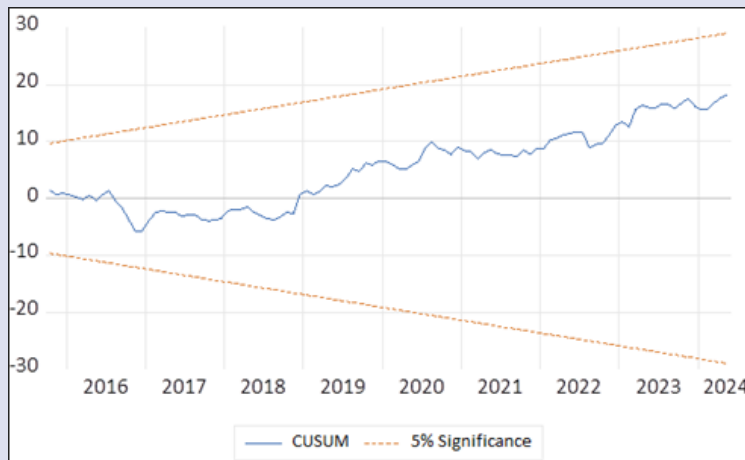


Figure 3. ARDL (4, 0, 3, 3, 0, 1) Model 2 CUSUM Test

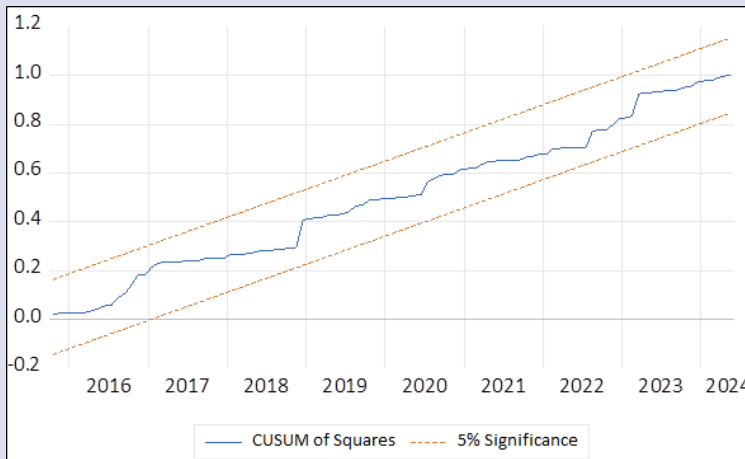


Figure 4. ARDL(4, 0, 3, 3, 0, 1) Model 2 CUSUMSQ Test

According to Figure 2., it was observed that the parameter estimates in Model 2 were for confidence limits. This means the parameter estimates in Model 2 are stable. The CUSUMQ test was applied to search on the squares of the parameter estimates of ARDL(4,0,3,3,0,1) Model 2 was within the confidence intervals, and the results are in Figure 4.

According to Figure 4., it is seen that the squares of the parameter estimates of Model 2 are within the confidence intervals.

ARDL (4, 0, 3, 3, 0, 1) Model 2 Bounds Test and long term forecast

For ARDL (4,0,3,3,0,1) Model 2, Long Run from and Bond Test was applied (F-Boundary Test) and the results are Table 18.

Table 18. ARDL(4, 0, 3, 3, 0, 1) Model 2 F-Bound Test Results

Test Statistic	Value	Signif.	I(0)	I(1)
Asymptotic: n=1000				
F-statistic	10,7604	10%	2,26	3,35
k	5,0	5%	2,62	3,79
		2,50%	2,96	4,18
		1%	3,41	4,68
		Finite Sample: n=80		
Actual Sample Size	121	10%	2,355	3,500
		5%	2,787	4,015
		1%	3,725	5,163

Table 19. ARDL(4, 0, 3, 3, 0, 1) Model 2 Error Correction Regression Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1,0542	0,1282	8,2255	0,0000
D(RSIN4(-1))	0,3478	0,1480	2,3507	0,0206
D(RSIN4(-2))	0,2551	0,1113	2,2926	0,0239
D(RSIN4(-3))	0,1603	0,0783	2,0462	0,0433
D(LGDAXI)	0,1902	0,1577	1,2057	0,2307
D(LGDAXI(-1))	-0,0238	0,0659	-0,3605	0,7192
D(LGDAXI(-2))	0,2206	0,0644	3,4260	0,0009
D(LGSPTSX)	0,2617	0,0905	2,8903	0,0047
D(LGSPTSX(-1))	0,1945	0,0959	2,0280	0,0451
D(LGSPTSX(-2))	-0,2049	0,0926	-2,2140	0,0290
D(LSTOXX)	-0,3726	0,1642	-2,2685	0,0254
CointEq(-1)*	-1,5269	0,1856	-8,2260	0,0000

Table 20. ARDL(4, 0, 3, 3, 0, 1) Model 2 Error Correction Coefficient T-Statistic Boundary

Test Statistic	Value	Signif.	I(0)	I(1)
t-statistic	-8.225957	10%	-2,570	-3,860
		5%	-2,860	-4,190
		1%	-3,430	-4,790

According to the results in Table 18; ARDL (4,0,3,3,0,1) Model 2 bounds test F-statistic is 10.7604. This value is the upper critical value; it is greater than 3.50 for 10%, 4.015 for 5%, and 5.163 for 1%. According to this result, the H_0 null hypothesis is rejected. This means there is a long-term cointegration relationship between the silver futures index return series (RSIN4) and global stock indices (LSPX, LGSPTSX, LGDAXI, LFTSE, LSTOXX) at levels of 1%, 5%, and 10%.

ARDL (4, 0, 3, 3, 0, 1) Model 2 Error Correction Model

The error correction coefficient was investigated by applying the ARDL Error Correction Regression test for ARDL (4,0,3,3,0,1) Model 2. The results of the error correction regression test for Model 2 with a constant and no trend are given in Table 18.

In Table 19, the error correction coefficient of Model 2 is shown as CointEq(-1)*. It is important that this value is minus and statistically significant ($Prob. < 0.05$). However, in order to determine the reliability of the probability values of t-statistics, a separate bounds test should be performed for t-statistic values. The results of the t-statistic bounds test of the error correction coefficient for Model 2 are shown in Table 20.

The error correction coefficient CointEq(-1) t-statistic value must be greater than 10%, 5%, or 1% of the of the upper critical value in absolute value for the limit test. In Table 20, the t-statistic of the ARDL (4,0,3,3,0,1) Model 2 error correction coefficient is -8.225957. This is superior in absolute value to -3.86 for 10%, -4.19 for 5%, and -4.79 for 1% upper critical values. It is observed that the coefficient CointEq(-1) of (4,0,3,3,0,1) Model 2 is statistically significant. ARDL (4,0,3,3,0,1) Model 2 CointEq(-1) value is -1.5269. This coefficient means that if the balance is disrupted in the short term, the balance will be restored after 0.6549 months ($1/-1.5269 = 0.6549$).

According to the results obtained from the findings of the study, it has been concluded that there is a long-term cointegration relationship between Gold and Silver Futures returns and selected global stock market indices. Zapata et al. (2023) that there is a long-term cointegration relationship between commodity markets and stock markets. Enilov et al. (2021) are similar to their results that there is a Granger causality relationship between global commodity returns and national stock prices. Additionally, according to Barunik et al.

(2016), the determination of the cointegration relationship between gold, silver, and oil futures returns and stock return asset pairs is parallel to the results of the study. However, Bahardaj & Dunsby (2013) found that the relationship between price movements of global stocks and changes in commodity prices was close to zero, which differs from the results obtained from this study.

Conclusions

Globalization has accelerated with technological developments in recent years. This causes the integration and interdependence of economic and financial business processes to increase over time. Negative developments such as economic crises, epidemics, uncontrolled migrations, and wars cause deepening uncertainty and a rise in the level of systematic risk around the world. In the face of these, macro-economic indicators such as production levels, investment tendencies, inflation, unemployment, interest rates, and exchange rate instabilities are negatively affected, especially in developing economies.

There is a widespread perception that commodity assets are less affected by negative developments than other financial assets. In periods of increased global financial uncertainty, personal and institutional investors turn to regional financial markets and prefer commodity assets in their investment portfolios to avoid risk. In addition, the significant increase in cryptocurrency investments in recent years has caused a significant amount of savings to shift from financial markets to crypto assets. The volumetric weakening of global financial markets is among the reasons why they have become more sensitive and fragile to negative developments. For these reasons, commodity investments, which are seen as reliable investment areas in periods when uncertainty increases and the depth of risk increases, may be increasing in volume. If this result is associated with the CAPM model, it can

be said that the markets in which the selected assets are traded are at a similar efficiency level. This may indicate that information in these markets affects asset prices at levels close to them. In addition, it can be considered that arbitrage opportunities are limited in the markets where selected assets are traded. In this case, the systematic risk levels of portfolios consisting of selected assets can be reduced by diversification.

This study focuses on analyzing the cointegration relationship between global gold and silver futures, selecting developed stock markets from the United States, Canada, the United Kingdom, Germany, and the European Union region. It has been detected that the index returns of selected market indices and gold and silver futures are significantly cointegrated in the long term. In addition, in the event of a breakdown in the balance between selected stock indices and commodity futures index returns, they can be balanced in less than a month. This shows that the balancing mechanism between global stock markets and gold and silver futures still exists. However, financial markets becoming more frequent, economic and financial crises occurring more frequently than in previous years, and their effects deepening may cause this cointegration relationship to change in the near future. In addition, technological developments and the proliferation of innovative assets such as cryptocurrencies and digital tokens may cause global financial markets to become more sensitive to negative developments. In recent years, especially during economic and financial crises periods, the level of trust in regulatory and supervisory elements has decreased significantly around the world. During these periods, savers started to look for new investment areas. It is still unclear whether it is a coincidence that cryptocurrencies emerged during the same period. In this context, examining the possible relationship between crypto asset investments and commodity investments during periods of global social and financial crisis will make a significant contribution to the literature.

Katkı Oranları ve Çıkar Çatışması / Contribution Rates and Conflicts of Interest

Etik Beyan	Bu çalışmanın hazırlanma sürecinde bilimsel ve etik ilkelere uyulduğu ve yararlanılan tüm çalışmaların kaynakçada belirtildiği beyan olunur.	Ethical Statement	It is declared that scientific and ethical principles have been followed while carrying out and writing this study and that all the sources used have been properly cited
Yazar Katkıları	Çalışmanın Tasarlanması: OK (%100) Veri Toplanması: OK (%100) Veri Analizi: OK (%100) Makalenin Yazımı: OK (%100) Makale Gönderimi ve Revizyonu: OK (%100)	Author Contributions	Research Design: OK (%100) Data Collection: OK (%100) Data Analysis: OK (%100) Writing the Article: OK (%100) Article Submission and Revision: OK (%100)
Etik Bildirim	iibfdergi@cumhuriyet.edu.tr	Complaints	iibfdergi@cumhuriyet.edu.tr
Çıkar Çatışması	Çıkar çatışması beyan edilmemiştir.	Conflicts of Interest	The author(s) has no conflict of interest to declare.
Finansman	Bu araştırmayı desteklemek için dış fon kullanılmamıştır.	Grant Support	The author(s) acknowledge that they received no external funding in support of this research.
Telif Hakkı & Lisans	Yazarlar dergide yayınlanan çalışmalarının telif hakkına sahiptirler ve çalışmaları CC BY-NC 4.0 lisansı altında yayımlanmaktadır.	Copyright & License	Authors publishing with the journal retain the copyright to their work licensed under the CC BY-NC 4.0
Etik Kurul	Etik kurul iznine ihtiyaç bulunmamaktadır	Ethics Committee	Ethics committee approval is not required.

References

- Andrés Fernández, A. G. (2018). Sharing a Ride on the Commodities Roller Coaster: Common Factors in Business Cycles of Emerging Economies. *Journal of International Economics*, 111(1), 99-121. <https://doi.org/https://doi.org/10.1016/j.jinteco.2017.11.008>
- Arhan Sheth, T. S. (2022). Global Economic Impact in Stock and Commodity Markets during Covid-19 Pandemic. *Annals of Data Science*, 9(5), 889-907. <https://doi.org/10.1007/s40745-022-00403-x>
- Aviral Kumar Tiwari, E. J. (2022). Time-Varying Dependence Dynamics between International Commodity Prices and Australian Industry Stock Returns: a Perspective for Portfolio Diversification. *Energy Economics*, 108(1), 105891. <https://doi.org/https://doi.org/10.1016/j.eneco.2022.105891>
- Blanchard, O. J. (1981). Output, The Stock Market, and Interest Rates. *The American Economic Review*, 71(1), 132-143. Retrieved from <https://www.jstor.org/stable/1805045>
- Breusch, T. (1978). Testing for Autocorrelation in Dynamic Linear Models. *Australian Economic Papers*, 17(31), 334-355. <https://doi.org/https://doi.org/10.1111/j.1467-8454.1978.tb00635.x>
- Byrne, B. M. (2010). *Structural Equation Modeling With AMOS*. New York: Routledge.
- Carlos M. Jarque, A. K. (1987). A Test for Normality of Observations and Regression Residuals. *International Statistical Review*, 55(2), 163-172. <https://doi.org/https://doi.org/10.2307/1403192>
- Carmen M. Reinhart, V. R. (2016). Global Cycles: Capital Flows, Commodities, and Sovereign Defaults, 1815-2015. *American Economic Review*, 106(5), 574-580. <https://doi.org/10.1257/aer.p20161014>
- Chung Yan Sam, R. M. (2019). An Augmented Autoregressive Distributed Lag Bounds Test for Cointegration. *Economic Modelling*, 80(1), 130-141. <https://doi.org/https://doi.org/10.1016/j.econmod.2018.11.001>
- D. Kwiatkowski, & P. C. B. Phillips, P. S. (1992). Testing the Null Hypothesis of Stationarity against the Alternative of a Unit Root. *Journal of Econometrics*, 54(1), 1-3. [https://doi.org/doi:10.1016/0304-4076\(92\)90104-Y](https://doi.org/doi:10.1016/0304-4076(92)90104-Y)
- Darmansyah, R. T. (2019). The Effect of the Returns of Global Stock Indexes and Global Commodities Toward IHSG Returns Period 2009-2018. *International Journal of Business and Economy*, 1(2), 31-41. Retrieved from <https://myjms.mohe.gov.my/index.php/ijbec/article/view/7023>
- David A. Dickey, W. A. (1979). Distribution of the Estimators for Autoregressive Time Series With a Unit Root. *Journal of the American Statistical Association*, 74(1), 427-431. <https://doi.org/10.2307/2286348>
- Geetesh Bhardwaj, A. D. (2013). The Business Cycle and the Correlation between Stocks and Commodities. *Journal of Investment Consulting*, 14(2), 14-25. Retrieved from <https://ssrn.com/abstract=2371355>
- Godfrey, L. (1978). Testing against General Autoregressive and Moving Average Error Models When the Regressors Include Lagged Dependent Variables. *Econometrica*, 46(6), 1293-1301. <https://doi.org/https://doi.org/10.2307/1913829>
- Hector O. Zapata, J. E. (2023). A Cyclical Phenomenon among Stock & Commodity Markets. *Journal of Risk and Financial Management*, 16(7), 320-336. <https://doi.org/https://doi.org/10.3390/jrfm16070320>
- Ihsan Badshah, S. B. (2018). Asymmetric Linkages Among the Fear Index and Emerging Market Volatility Indices. *Emerging Markets Review*, 37(1), 17-31. <https://doi.org/https://doi.org/10.1016/j.ememar.2018.03.002>
- J. Scott Davis, G. V. (2021). Global Drivers of Gross and Net Capital Flows. *Journal of International Economics*, 128(1), 103397. <https://doi.org/https://doi.org/10.1016/j.jinteco.2020.103397>
- Jaffe, J. F. (1989). Gold and Gold Stocks as Investments for Institutional Portfolios. *Financial Analysts Journal*, 45(2), 53-59. <https://doi.org/https://doi.org/10.2469/faj.v45.n2.53>
- Jozef Barunik, E. K. (2016). Gold, oil, and stocks: Dynamic correlations. *International Review of Economics & Finance*, 42(1), 186-201. <https://doi.org/https://doi.org/10.1016/j.jiref.2015.08.006>
- M. Hashem Pesaran, Y. S. (2001). Bounds Testing Approaches to the Analysis of Level Relationships. *Journal of Applied Econometrics*, 16(1), 289-326. <https://doi.org/https://doi.org/10.1002/jae.616>
- Manas Paul, N. B. (2023). On the Similarities between Precious Metals, Precious Metal Stocks and Equities – International Evidence for Gold and Silver. *Resources Policy*, 83(1), 103629. <https://doi.org/https://doi.org/10.1016/j.resourpol.2023.103629>
- Martin Enilov, G. F. (2021). Global connectivity between commodity prices and national stock markets: A time-varying MIDAS analysis. *International Journal of Finance & Economics*, 28(3), 2607-2619. <https://doi.org/https://doi.org/10.1002/ijfe.2552>
- Mohamed El Hedi Arouri, A. L. (2015). World Gold Prices and Stock Returns in China: Insights for Hedging and Diversification Strategies. *Economic Modelling*, 44(1), 173-282. <https://doi.org/https://doi.org/10.1016/j.econmod.2014.10.030>
- Moshirian, F. (2011). The Global Financial Crisis and the Evolution of Markets, Institutions and Regulation. *Journal of Banking & Finance*, 35(3), 502-511. <https://doi.org/https://doi.org/10.1016/j.jbankfin.2010.08.01>
- Muneer Shaik, S. A. (2023). Impact of Geo-Political Risk on Stocks, Oil, and Gold Returns during GFC, COVID-19, and Russian – Ukraine War. *Cogent Economics & Finance*, 11(1), 2190213. <https://doi.org/https://doi.org/10.1080/23322039.2023.2190213>
- Narayan, P. K. (2005). The Saving and Investment Nexus for China: Evidence from Cointegration Tests. *Applied Economics*, 37(17), 1979-1990. <https://doi.org/10.1080/00036840500278103>
- Page, E. S. (1954). Continuous Inspection Schemes. *Biometrika*, 41(1), 100-115. <https://doi.org/10.1093/biomet/41.1-2.100>
- Peter C. B. Phillips, P. P. (1988). Testing for a Unit Root in Time Series Regression. *Biometrika*, 75(2), 335-346. <https://doi.org/https://doi.org/10.1093/biomet/75.2.335>
- Ramsey, J. B. (1969). Tests for Specification Errors in Classical Linear Least-Squares Regression Analysis. *Journal of the Royal Statistical Society. Series B (Methodological)*, 31(2), 350-371. Retrieved from <https://www.jstor.org/stable/2984219>
- Rida Waheed, S. S. (2020). The Impact of COVID-19 on Karachi Stock Exchange: Quantile-on-Quantile Approach Using Secondary and Predicted Data. *Journal of Public Affairs*, 20(2), 1-6. <https://doi.org/https://doi.org/10.1002/pa.2290>
- Rong-Gang Cong, Y.-M. W.-L. (2008). Relationships between Oil Price Shocks and Stock Market: An Empirical Analysis from China. *Energy Policy*, 36(9), 3544-3553. <https://doi.org/https://doi.org/10.1016/j.enpol.2008.06.006>
- Safika Praveen Sheikh, S. A. (2023). Do Implied Volatilities of Stock and Commodity Markets Affect Conventional & Shariah Indices Differently? An Evidence by OVX, GVZ and VIX. *Heliyon*, 9(11), 21094. <https://doi.org/https://doi.org/10.1016/j.heliyon.2023.e21094>

- Sajid Ali, E. B. (2020). Revisiting the Valuable Roles of Commodities for International Stock Markets. *Resources Policy*, 101603. <https://doi.org/https://doi.org/10.1016/j.resourpol.2020.101603>
- Silvia Miranda-Agrippino, H. R. (2022). Chapter 1 - The Global Financial Cycle. In E. H. Gita Gopinath, *Handbook of International Economics* (pp. 1-43). Elsevier. <https://doi.org/https://doi.org/10.1016/bs.hesint.2022.02.008>
- Sims, C. (1980). Macroeconomics and Reality. *Econometrica*, 48(1), 1-48. <https://doi.org/https://doi.org/10.2307/1912017>
- Taufiq Choudhry, F. I. (2016). Stock Market Volatility and Business Cycle: Evidence from Linear and Nonlinear Causality Tests. *Journal of Banking & Finance*, 66(1), 89-101. <https://doi.org/https://doi.org/10.1016/j.jbankfin.2016.02.005>
- Trevor Breusch, A. R. (1979). A Simple Test for Heteroskedasticity and Random Coefficient Variation. *Econometrica*, 47(5), 1287-1294. <https://doi.org/10.2307/1911963>
- Wensheng Kang, R. A. (2020). Global Commodity Prices and Global Stock Market Volatility Shocks: Effects Across Countries. *Journal of Asian Economics*, 71(1), 101249. <https://doi.org/https://doi.org/10.1016/j.asieco.2020.101249>
- Wensheng Kang, R. A. (2020). Global Commodity Prices and Global Stock Market Volatility Shocks: Effects Across Countries. *Journal of Asian Economics*, 71(1), 101249. <https://doi.org/https://doi.org/10.1016/j.asieco.2020.101249>
- Xinhong Lu, K. M. (2008). 2008. *Economics Letters*, 100(2), 234-237. <https://doi.org/https://doi.org/10.1016/j.econlet.2008.01.018>
- Yanan Chen, H. Q. (2024). Dynamic Interplay between Chinese Energy, Renewable Energy Stocks, and Commodity Markets: Time-Frequency Causality Study. *Renewable Energy*, 228(1), 120578. <https://doi.org/https://doi.org/10.1016/j.renene.2024.120578>



The Unwritten Endings: A Deep Dive into the Story Completion Method in Management Research

Berivan Tatar^{1,a,*}

¹Department of Business Administration, Faculty of Business Administration, Gebze Technical University, Kocaeli, Türkiye

*Corresponding author

Research Article

History

Received: 11/09/2024

Accepted: 05/11/2024

JEL Codes: M1, M12, M19

ABSTRACT

Story completion is a novel and intriguing methodological approach that generates a wealth of insightful and broader knowledge about individuals' perceptions and understanding for researchers across disciplines. However, this method remains underexplored within the management research. To address this gap, this article focuses on the conceptual and methodological origins of the story completion method and provides a synthesis of story completion research in management literature. Our review of findings from seven studies shows that story completion-based research has focused on understanding the perception of menopausal women at work, teachers' teaching approach, and family life during the COVID-19 pandemic within the context of healthcare professionals, social workers, and teachers. Besides, these studies also concentrated on sensitive work-related research topics (discriminatory abuse, gender stereotypes etc.). The sample size and number of stories ranged from 21 to 62 participants. Considering story design, 86% of studies used third-person perspectives. Also, these studies used a comparative design based on gender (male and female manager), personal characteristics (race, mental health etc.), socioeconomic status (low and middle), and different aspects of family life (household tasks, childcare, working from home, etc.). As an analysis method, 43% of studies used reflexive thematic analysis as a data analysis method. Finally, story completion was used as the sole method in the story completion research in management literature.

Keywords: Story completion, Qualitative research, Study design, Management research

Yazılmamış Sonlar: Yönetim Araştırmalarında Hikaye Tamamlama Yöntemine Derinlemesine Bir Bakış

Süreç

Geliş: 11/09/2024

Kabul: 05/11/2024

Jel Kodları: M1, M12, M19

Öz

Hikaye tamamlama, bireylerin algıları ve anlayışları hakkında zengin ve daha geniş bilgi üretmesi dolayısıyla farklı disiplinlerden araştırmacılar için yeni ve ilgi çekici bir metodolojik yaklaşımdır. Ancak bu yöntem, yönetim araştırmalarında yeterince kullanılmamıştır. Literatürdeki bu boşluğu doldurmak için bu makale, hikaye tamamlama yönteminin kavramsal ve metodolojik temellerine odaklanmakta ve yönetim literatüründeki hikaye tamamlama araştırmalarının bir sentezini sunmaktadır. Yedi çalışmadan elde edilen bulgulara ilişkin incelememiz, hikaye tamamlama temelli araştırmaların sağlık çalışanları, sosyal hizmet uzmanları ve öğretmenler bağlamında menoz dönemindeki kadınlara dair iş yerindeki algı, öğretmenlerinin öğretim yaklaşımı ve COVID-19 salgını sırasında aile yaşamını anlamaya odaklandığını göstermiştir. Ayrıca, bu çalışmalar işle ilgili hassas araştırma konularına da (ayrımcı istismar, toplumsal cinsiyet kalıp yargıları vb.) odaklanmıştır. Örneklem büyüklüğü ve elde edilen hikaye sayısı 21 ile 62 arasında değişmektedir. Hikaye tasarımı açısından değerlendirildiğinde, çalışmaların %86'sında üçüncü şahıs perspektifi kullanılmıştır. Ayrıca, bu çalışmalarda cinsiyet (kadın ve erkek yönetici), kişisel özellikler (ırk, mental sağlık vb.), sosyo-ekonomik durum (düşük ve orta), aile yaşamının farklı yönlerine (ev işleri, çocuk bakımı, evden çalışma vb.) dayalı karşılaştırmalı tasarım kullanılmıştır. Analiz yöntemi olarak, çalışmaların %43'ünde veri analiz yöntemi olarak refleksif tematik analiz kullanılmıştır. Son olarak öykü tamamlama, yönetim literatüründeki öykü tamamlama araştırmalarında tek yöntem olarak kullanılmıştır.

Anahtar Kelimeler: Hikaye tamamlama, Nitel araştırma, Çalışma tasarımı, Yönetim araştırması

Copyright

This work is licensed under Creative Commons Attribution-NonCommercial 4.0 International License International License



btatar@gtu.edu.tr



0000-0002-0934-3734

How to Cite: Tatar B (2025) The Unwritten Endings: A Deep Dive into the Story Completion Method in Management Research, Journal of Economics and Administrative Sciences, 26(1): 65-76, DOI: 10.37880/cumuiibf.1548341

Introduction

Story completion is a novel, intriguing, and fruitful methodology to generate comprehensive, rich, and in-depth insights in qualitative research. The story completion method offers a variety of opportunities for scholars by enabling access to sensitive, ethically and morally complex research topics, offering resource and time-saving, enhancing participants' creativity, and allowing for comparative design in the generating and analyzing data (Clarke et al., 2017; Braun et al., 2018; Clarke et al., 2019).

However, story completion has been neglected and underutilized in the literature. In recent years, the story completion method has been widely used primarily in different fields including education (Gravett, 2019), nursing (Diniz et al., 2020), counselling psychology (Moller & Tischner, 2019), sport and exercise (Williams et al., 2022), and health (Tischner, 2019), and research areas, including weight-loss motivation (Tischner, 2019), socially stigmatization of therapists in the context of counselling (Moller & Tischner, 2019).

The story completion method has also attracted less attention from scholars from management literature. Specifically, existing studies investigated practitioners' thoughts on discriminatory abuse (Mason, 2024), perception of others for menopausal women at work (Daly et al., 2024), healthcare professionals' responses to experiencing chest pain in a period of stress (Vries & Flurey, 2024), higher education teachers' teaching approach (Káplár-Kodácsy & Dorner, 2024), navigation of Australian caregivers' family life during the COVID-19 pandemic (Hunter et al., 2023), gender stereotypes of physical education teachers and their impact on perceived roles and practices (Preece & Bullingham, 2022), class-based dehumanization inferences on female chronic pain patients within the context of work lives (Diniz et al., 2020).

These studies using the story completion method have concentrated indirectly on working life and generally examined certain professional groups from social, health, family life, and stereotypes-related perspectives. Therefore, there are no examples of studies conducted in the context of specific concepts and work-related topics in the fields of management, organization, and organizational psychology.

In this context, the aim of this study was two-fold. First, this study aims to broadly investigate the story completion method in terms of study design (sample size, preparing stories, introducing the research process by instruction for the completion of stories) and analyzing the data of story completion method for providing a comprehensive and holistic review for rigorously designing, conducting, analyzing and reporting story completion method in management research. Second, this study aims to synthesize the existing story completion research in management literature. Hence, this study examined (i) the conceptual development of the story completion method, (ii) the methodological perspective

of the story completion method, and (iii) the review of story completion research in management literature. Therefore, this study contributes to management literature by theoretically expanding the comprehension of work-related topics in general and sensitive, ethically, and morally complex research topics in particular through discovering hidden meanings, feelings, and motivations in story completion research. In this study, we also broaden our understanding of variations of social groups based on social categories such as gender, race/ethnicity, or sexuality within the context of work life by comprehensively investigating the story completion approach.

Literature Review

Story Completion Method

Story completion is "a method of data collection, where participants are given the start of a story and asked to complete (or continue) it" (Braun & Clarke, 2013, p. 337). The story completion method is mainly based on creating the story stem or cue through opening sentences and, hence, asking participants to complete the story based on their beliefs, attitudes, and experiences (Braun, et al., 2018).

The story completion method originated from developmental psychology and psychotherapy is used as a form of projective assessment technique for assessing individuals' personality and psychopathology (Clarke et al., 2017). For example, the Thematic Apperception Test (TAT) developed by Henry Murray is based on showing individuals certain pictures and asking them to complete the stories. Projective tests enable the psychological mechanisms in the inner world of people to be revealed and manifested for clinical assessment (Moller et al., 2021). This method is used to investigate the inner world and personality traits of individuals (Clarke et al., 2019). From this perspective, story completion facilitates the understanding of personality, needs, and life experiences for discovering hidden meanings, feelings, and motivations (Gravett, 2019). In a related vein, rather than investigating experiences, story completion is mainly suited to research subjects concentrating on people's perceptions and comprehension based on social constructions around research topics (Braun et al., 2018). Hence, broad and open-ended research topics explore what and how perspectives of specific concepts can be investigated by the story completion method (Clarke et al., 2017).

More recently, story completion has been used as a qualitative research tool and reconceptualized as a tool for discovering social discourses in addition to psychological meanings (Kitzinger & Powell, 1995). The study conducted by Kitzinger and Powell (1995) showed that the story completion method can be used not only to assess individuals' imagination or creative thinking abilities but also to conduct in-depth psychological and social analyses. Hence, story completion has been used as an important qualitative research method in social

sciences (Clarke et al., 2019). Contrary to traditional qualitative research investigating participant's experiences, story completion has a different approach to writing stories about hypothetical scenarios (Clarke et al., 2019). This method allows researchers to understand an individual's mindset, emotional state, problem-solving ability, and creative thinking skills (Braun et al., 2019).

Story completion offers a variety of benefits to researchers. First, it allows researchers to access a variety of responses and experiences (Braun et al., 2019). Specifically, self-report research has social desirability problems in terms of masking exact experiences, opinions, and behaviors (Clarke et al., 2017). The story completion method is based on providing a hypothetical situation. Hence, participants tend to share their own experiences through the given story due to providing a comfort zone and relaxing their guard relative to directly sharing their opinions and experiences (Braun et al., 2019). Parallel to this view, story completion provides an opportunity to explore sensitive, ethically and morally complex research topics (Clarke et al., 2019). Also, researchers can use a comparative study design (Braun et al., 2019). Story completion is useful for investigating the difference between participants and different versions of the specific story (Clarke et al., 2017). Hence, it enables researchers to investigate the variations of social groups based on social categories such as gender, race/ethnicity, or sexuality.

Besides, story completion is based on the participant-driven process through the control of them in the research. Participants trying to develop different perspectives to complete the given story use their creative and critical skills (Clarke et al., 2017). This method helps individuals to think of different solutions to a situation they face and to choose the most appropriate one among these solutions. In addition, the results produced by combining the parts of the story to understand cases logically help individuals for developing their problem-solving skills (Braun et al., 2019). Story completion also allows individuals to explore people's emotional and social situations by trying to understand the feelings and motivations of the characters. In a similar vein, story completion allows individuals to reflect on their feelings, thoughts, and beliefs. Hence, this supports the processes of self-awareness and self-understanding.

Finally, story completion is a time and resource-saving method for the research. Particularly, it enables gathering data from a large group of participants in a relatively short time (Clarke et al., 2017). Concordantly, the advantage of the method is enabling the inclusion of a larger sample relative to other qualitative research methods (Braun et al., 2019).

On the other hand, story completion methods have some pitfalls. First, participants' motivation, attention, and interest in completing the story may vary and affect the consistency and validity of the results (Braun & Clarke, 2013). Also, data are based on the assumption of participants rather than their exact experience or ideas. Hence, the story completion method may have limitations when focusing directly on understanding participant experiences (Braun et al., 2019).

Study Design for Story Completion Method

In the story completion method, there are four essential stages in the research design, including (i) determining sample size, (ii) preparing stories, (iii) introducing the research process by instruction for the completion of stories, and (iv) selecting the method for analyzing the data of story completion method.

Sample size of story completion study

Sample size is determined based on (i) the complexity of study design (more participants have been used in the presence of more stories), (ii) the richness of stories (fewer participants share richer stories, and (iii) the purposes of research. In this regard, Clarke et al. (2017) highlighted that 20–40 participants are sufficient for small student projects based on one-stem and non-comparison-based design. For comparison-based study design, researchers need to recruit at least ten participants for each story stem (Braun & Clarke, 2013).

Preparing stories

Preparing stories is another important tenet of the study design of the story completion method. In line with the aim of the research, a hypothetical scenario is developed by using brief story stems, which are written in the first or third-person perspectives (Gravett, 2019). Besides, researchers need to provide brief and sufficient details about stories, be neutral in terms of gender or culture, be non-leading to specific perspectives, and provide a set of completion instructions for participants (Meadows & Reaney, 2024). Hence, pseudonyms were used to eliminate the tendency for gender norms to affect participants' gendering of characters (Urry et al., 2023). To eliminate this bias, researchers allow participants to create their own character names to minimize the effect of perception of names and recall the names in multiple characters-based story design (Urry et al., 2023).

Story completion is a flexible and experimental method in terms of the development of the story stems. For instance, (Gravett & Winstone, 2021) used two story stems focusing on undergraduate students' experiences of transitions into and through higher education through fictional characters, as follows:

"Alice is a new undergraduate student in her first year of university. She has been struggling to get to grips with university life. Lots of aspects of studying are not as she expected they would be and are different to what she had previously been used to at college. Her personal tutor asks her how she is getting on and she tries to explain how she is feeling."

"Adam is a new undergraduate student coming toward the end of his first year of university. He looks back on his last year. What do you think he might have done or might have happened to him? How do you think he feels about learning and studying at university? One of Adam's friends asks him how his first year has been. Please complete the story explaining what happens next."

In terms of designing a story stem, researchers need to consider six points, including length of the story stem, authentic and engaging scenarios and characters, amount of detail, use of deliberate ambiguity, first or third person, and comparative design (Braun & Clarke, 2013).

First, in terms of length, a story stem is the start of a story consisting of a sentence or paragraph. The length of the story depends on the concept of the research. Specifically, participants may need more information about concepts that they are not familiar with, and hence, researchers need to provide more information and increase the length of the study (Braun et al., 2018).

Authenticity and engagement with scenarios and characters are also important issues for the story completion method (Braun & Clarke, 2013). Using authentic character names and scenarios increases the richness and complexity of the story and thus elevates participants' imagination ability (Braun et al., 2019).

The amount of detail is important to study design aspects of the story completion study. Providing excessive details and obvious or clear ending limit the variation and richness of the data (Braun & Clarke, 2013). Limited details prevent the exact by making it difficult for participants to understand the story and create bias in terms of the relevance of data within the context of the research (Clarke et al., 2017). In this vein, researchers need to provide adequate directions and enough details about the characters within the context of the story and research (Braun et al., 2018).

The use of deliberate ambiguity leads to the exploration of rich, underlying assumptions about research topics (Braun et al., 2018). This can often be achieved by leaving ambiguous points outside the main focus of the story and providing the opportunity to fill the gap and ambiguity by the assumptions and ideas of the participants about the elements of the story (i.e., gender, race, or age) (Braun et al., 2019).

First- or third-person perspectives in developing a story are crucial in terms of the standpoint of participants. Specifically, using specific characters with first-person perspectives enables gathering information through empathizing with one particular character (Clarke et al., 2017). However, this approach tends to heighten the probability of the more socially desirable responses (Braun et al., 2019). On the other hand, using third-person perspectives provides broader and richer information, including socially undesirable responses (Braun et al., 2018).

Story stem 1. First-person

Lots of people are nervous of going hypo while out alone. Their reasons may be different. Imagine that you were going out alone today. Explain how this makes you feel and why.

Story stem 2. Third-person

A friend of yours has diabetes and feels nervous of going hypo when out alone. Lots of people with diabetes are nervous of going hypo while out alone. Imagine that your friend's diabetes nurse asked them about how they feel going out alone. Please complete the story explaining what happens next.

Using comparative design is the final consideration of the design of the story completion study. Comparison of certain groups (i.e., genders, generations, or educational

backgrounds) or scenarios facilitate the comparison of generated ideas and experiences (Braun et al., 2019). Nevertheless, comparative design increases the complexity (Clarke et al., 2017). In this regard, determining a sufficient number of stories, which is defined as two to six stories, and a sufficient number of participants for each comparison group is essential for effectively managing the story completion research (Braun et al., 2018).

Introducing the research process

Following the preparation of the stories, researchers need to develop instructions for the completion of stories. Here, researchers explain the aim of stories and expectations from participants and provide guidelines to collect useful data (Gravett, 2019). For instance, Clarke (2014) developed instruction as follows:

You are invited to complete a story – this means that you read the opening sentences of a story and then write what happens next. There is no right or wrong way to complete the story, and you can be as creative as you like in completing the story! I am interested in the range of different stories that people tell. Don't spend too long thinking about what might happen next – just write about whatever first comes to mind. Because collecting detailed stories is important for my research, you are asked to WRITE A STORY THAT IS AT LEAST 10 LINES/200 WORDS LONG. Some details of the opening sentence of the story are deliberately vague; it's up to you to be creative and 'fill in the blanks'!

Participants mainly read and complete the story or write about 'what happens next'. Also, researchers provide instruction for the length of the story and a specific period (i.e., 15 minutes) for completing the story (Braun et al., 2018).

After designing a story completion study and developing instruction, piloting the story stems and instruction is crucial for gathering rich and accurate data. Here, Braun et al. (2018) recommended that a greater diversity of participants requires a greater pilot sample, and the pilot sample should consist of 10–20% of the final sample of the study (Clarke et al., 2017).

Analyzing the data of the story completion method

Story completion data is analyzed by exploring two different things as follows: (i) horizontal patterning across particular aspects of stories and particular responses to research questions and (ii) vertical patterning based on examining how stories are formed from start to final points of story completion (Clarke et al., 2019). In this regard, Researchers analyze story completion data to investigate the patterns in stories.

In terms of analysis of data, existing research has mainly used narrative analysis, thematic analysis, and story maps. First, narrative analysis can be used for analyzing the data of story completion research. In this regard, narrative analysis provides the opportunity to determine narrative types, forms, and metaphors in the stories (Braun et al., 2018). Besides, thematic analysis has been used for identifying the patterns in the story completion studies. Finally, story maps are the method for identifying horizontal patterning in story completion study. In this method, researchers analyze the

data in terms of the beginning, middle, and end of stories (Clarke et al., 2017). For instance, Braun & Clarke (2013) shared an example for the story map related to a student project focusing on a young woman sharing her nonheterosexuality with her parents. Hence, researchers identified patterns in terms of the beginning (initial reaction of her family), middle (development of the stories), and end of the story (Clarke et al., 2017). Following the initial reaction of shocks, Sarah's family showed either positive or negative reactions in the completed stories. Negative reactions resulted in positive, negative, or ambiguous, whereas positive reactions ended positively (Clarke et al., 2017).

On the other hand, researchers should avoid using some methodological analysis approach in analyzing data of story completion method. Therefore, interpretative phenomenological analysis is not suitable for story completion research due to the focus on the participants' lived experiences (Clarke et al., 2017). Also, grounded theory is used for generation theory and investigating the process of specific phenomena (Braun et al., 2018), which is not suitable for the analysis of story completion data.

Methodology

The current study aims to investigate the use of the story completion method in management research. In this context, we searched the Web of Science database using the keyword "story completion" to determine high-quality research based on the story completion method until August 2024. As a result, 301 records were identified through a search of the Web of Science. Studies were excluded based on criteria, including non-article (book chapters, conference proceedings, and editorial) and languages other than English. Therefore, 68 records were extracted from the study. In the screening stage, 233 records were assessed for eligibility, and 226 records were excluded as a result of the review of the title and abstract in terms of determining irrelevant context and non-management research. Finally, seven studies were included in the current study.

Story completion studies in management literature were investigated in terms of (1) research objectives, (2) number of samples, (3) number of stories, (4) number of story stems, (5) comparison based on story stems, (6) example of story stems, (7) 1st or 3rd person perspectives, (8) analysis method, and (9) key findings (themes).

Findings

In terms of research context, the majority of research based on the story completion method has focused on social workers, healthcare professionals, and teachers. These studies concentrated on understanding discriminatory abuse, perception of others for menopausal women at work, responses to experiencing chest pain in a period of stress, higher education teachers' teaching approach, navigation of family life during the COVID-19 pandemic, gender stereotypes and their impact on perceived roles and practices, class-based dehumanization inferences on female chronic pain patients within the context of work lives.

The sample size ranged from 21 to 62 participants, which is in line with the Clarke et al. (2017) suggestion for using 20–40 participants for story completion research. Considering the number of stories obtained, it was observed that one story was obtained from each participant, consistent with the sample size, and the number of stories ranged from 21 to 62.

Braun et al. (2018) stated that researchers need to use two to six stories for comparison of groups to manage the story completion research effectively. Of these studies, 43% of studies used three-story stems, 43% of studies used two-story stems, and 14% used one-story stems. Specifically, story completion research in management literature used comparative design in study design mainly based on gender (i.e., male manager and female manager), personal characteristics (transgender identity, race, and mental ill-health), socio-economic status (low and middle), different aspects of family life (household tasks, childcare, and working from home).

First- or third-person perspectives in developing a story are another consideration in the assessment of story completion studies in management literature. Hence, 86% of studies used third-person perspectives. On the other hand, 86% of studies shared the example of story stems. In terms of story stems based on third-person perspectives, Preece and Bullingham (2022) used story stems to assess gender stereotypes of in-service physical education teachers, as follows:

It was a chilly Wednesday morning as Alex cautiously approached the P.E. teacher during break time. The teacher quickly realized that Alex was upset and asks what is wrong. 'I don't want to play football anymore, I really wish I could dance instead' says Alex...

Concerning first-person perspectives, Vries and Flurey (2024) used story stems to assess the responses of healthcare professionals experiencing chest pain during a period of stress, as follows:

You have recently accepted a promotion in your field and as a result have been under a great deal of stress at work, working much longer hours. Recently you have begun to experience intense chest pain, which is gradually becoming more and more painful. What do you think you would do next in this story?

Considering the analysis method, 43% of studies used reflexive thematic analysis, 14% used narrative analysis, 14% used content analysis, 14% used thematic analysis, and 14% used mixed method (thematic analysis and discourse analysis) as a data analysis method. Finally, these studies produced 2 to 4 themes as a result of analysis.

Discussion

This study has investigated the story completion method within the context of study design and analysis of the data in the literature. Specifically, the story completion method provides the opportunity to understand sensitive, socially undesirable research topics, provides control and enhances participants' creativity, offers resource and time-saving, and implements comparative study design for the research (Clarke et al., 2017; Braun et al., 2018; Clarke et al., 2019). In this vein, story completion is an innovative research method, allowing broader interpretations, rich understanding, and deeper insights into the research from a variety of disciplines.

This study has also synthesized the story completion method in management literature. Specifically, past studies investigated the use of the story completion method in health research (Meadows & Reaney, 2024; Pong et al., 2024; Urry et al., 2023) and counselling psychology research (Moller et al., 2021). Here, the current study contributes to the literature by synthesizing the story completion story in management literature. Specifically, as the knowledge, experience, and attitudes of the participants are indirectly asked through stories, it provides comfort to the participants especially when sharing sensitive issues. From the perspective of management literature, the story completion method is also a method that can make significant contributions to obtaining in-depth and rich information and insights on sensitive, ethically and morally complex research topics (Clarke et al., 2019), including gender inequality, psychological harassment, abusive leadership in management literature.

Therefore, the current study investigated seven studies based on story completion, which are related to working life and specific work groups (i.e., nurses, health care professionals, and teachers) in management literature. Story completion mainly concentrated on understanding how practitioners thought a social worker might engage with discriminatory abuse (Mason, 2024), perception of others for menopausal women at work (Daly et al., 2024), healthcare professionals' responses to experiencing chest pain in a period of stress (Vries & Flurey, 2024), higher education teachers' teaching approach (Káplár-Kodácsy & Dörner, 2024), navigation of Australian caregivers' family life during the COVID-19 pandemic (Hunter et al., 2023), gender stereotypes of physical education teachers and their impact on perceived roles and practices (Preece & Bullingham, 2022), class-based dehumanization inferences on female chronic pain patients within the context of work lives (Diniz et al., 2020).

Additionally, the size of the sample varied from 21 to 62 participants, which is in line with the Clarke et al. (2017) suggestion for using 20–40 participants for story completion research. Considering the number of stories obtained, it was observed that one story was obtained from each participant. Also, 43% of studies used three-story stems, 43% of studies used two-story stems, and 14% used one-story stems. The results of this study comport with the suggestion of Braun et al. (2018), demonstrating the need to use two to six stories for comparison of groups for effectively managing the story completion research.

About comparative design, past studies used story stems based on gender (i.e., male manager and female manager) (Daly et al., 2024; Preece & Bullingham, 2022), personal characteristics (transgender identity, race, and mental ill-health) (Mason, 2024), socio-economic status (low and middle) (Diniz et al., 2020), aspects of teaching perspective (Student motivation, plagiarism and fraud, and student work assessment) (Káplár-Kodácsy & Dörner, 2024), and different aspects of family life (household tasks, childcare, and working from home) (Hunter et al., 2023) in management literature. Also, Braun and Clarke (2013) suggested recruiting at least ten participants for each story stem (Braun & Clarke, 2013). From these perspectives, all research met this requirement for studies using multiple stories.

Story completion studies mainly used third-person perspectives in developing a story in management literature. Third-person perspectives lead to gathering information about socially undesirable responses and broader and richer information (Braun et al., 2018). This information enables more comprehensive and richer inferences about employee experience and working life.

Regarding the method of analysis, past studies used reflexive thematic analysis (Daly et al., 2024; Preece & Bullingham, 2022; Vries & Flurey, 2024), narrative analysis (Mason, 2024), content analysis (Hunter et al., 2023), thematic analysis (Diniz et al., 2020), and mixed methodology (Káplár-Kodácsy & Dörner, 2024). This finding aligns with the recommendation to utilize narrative analysis and thematic analysis for examining data collected through the story completion method (Clarke et al., 2017; Braun et al., 2018). On the other hand, the story maps method for identifying patterns in story completion data (Clarke et al., 2017) was not used in any of the analyzed studies.

Finally, the current study provides avenues for future research. First, based on the review of story completion research, past studies solely used the story completion method in management literature. Specifically, story completion is mainly concentrated on investigating individuals' assumptions, perceptions, and comprehension through the story stems (Braun et al., 2018). Hence, through hypothetical scenarios, using the story completion method will contribute to understanding real experiences, opinions, and behaviors without masking these issues in the context of the workplace (Clarke et al., 2017).

The story completion method also allows researchers to investigate individuals' imagination, mindset, emotional state, problem-solving ability, and creative thinking skills (Braun et al., 2019). Hence, management scholars may benefit from story completion as a novel and intriguing method for assessing employee creativity, innovative thinking, problem-solving ability, and proactive work behaviors.

Additionally, management scholars may assess sensitive, ethically, and morally complex research topics, including abusive behaviors, mobbing behaviors, glass ceiling, counterproductive work behaviors, time theft, and idea theft by using the story completion method. Concordantly, researchers may investigate differences between social groups and categories such as gender, race/ethnicity, age, religion, or sexuality in terms of workplace diversity, stereotyping, and inequality in management literature.

Also, existing studies using the story completion method are based on nurses, healthcare professionals, and teachers in the education and health sectors. Future research may investigate service, manufacturing, tourism, or information and technology sectors. It was observed that the story map method was not used in the analysis of the data obtained with the story completion method. Since it is a method developed by Braun and Clarke (2013), who have made significant contributions to the conceptual and methodological development of the story completion method, the use of the story map method as an analysis method in future research will allow more comprehensive, rich, and in-depth inferences about the story completion data in management literature.

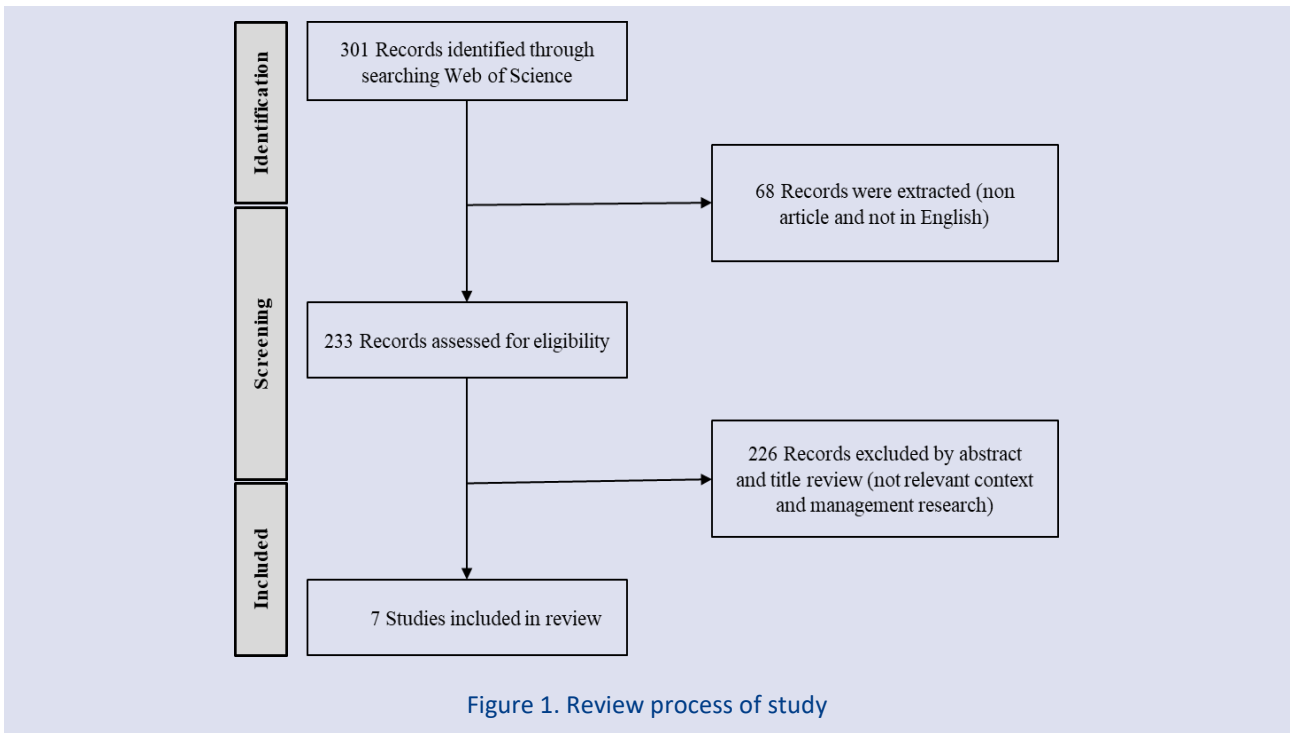


Figure 1. Review process of study

Table 1. Story Completion Research in Management Literature

Author(s) & Year	Research Objective	# Of sample	# Of stories	# Of stems	Comparison	Example of story stems	Person perspectives	Analysis method	Key Findings (Themes)
Mason (2024)	Understanding how practitioners thought a social worker might engage with discriminatory abuse	56 social workers	56	3	(1) Transgender identity, (2) race, (3) mental ill-health	Pat is undertaking a social work assessment with Nicky who <insert protected characteristi c> and has care and support needs. Nicky tells Pat they have experienced name-calling and rough treatment in the community but moves on to talk about their care needs. It is not clear if this relates to Nicky's <insert protected characteristi	Third-person hypothetical scenario	Narrative analysis	(1) Anxious allies, (2) affirmative advocates, (3) administrative assessors

Káplár-Kodácsy & Dorner (2024)	Understanding higher education teachers' teaching approach	62 higher education teachers	62	3	(1) Student motivation, (2) plagiarism and fraud, and (3) student work assessment	c>. Pat thinks it is important to return to this comment.... Ildikó/István (teacher) steps out of the university gate, turns right, then starts off on the street slowly while contemplating. (S)he arrived in the classroom at 10:05 for today's lecture. According to the timetable, the lecture starts at 10:00 every Thursday, however, just like last week, 6 out of 35 students showed up today. Now, she is looking for reasons.	Third-person hypothetical scenario	Thematic analysis and discourse analysis	(1) Normative and individualized approaches to teaching, (2) Classroom instruction and disciplinary approaches
Vries & Flurey (2024)	Healthcare professionals' anticipated responses to experiencing chest pain in a period of stress	44 healthcare professionals	44	1	N.A.	You have recently accepted a promotion in your field and as a result have been under a great deal of stress at work, working much longer hours. Recently you have begun to experience intense chest	First-person hypothetical scenario	Reflexive thematic analysis	(1) 'Do I cry or just carry on': a culture of suffering in silence, (2) 'Me? have a panic attack?': psychosomatic shame; and 'we definitely don't take care of ourselves', (3) prioritizing pressures of multiple responsibilities over self-care

Daly et al. (2024)	Exploring how menopausal women are perceived at work	44 employees	44	2	(1) Male manager and (2) female manager	<p>pain, which is gradually becoming more and more painful. What do you think you would do next in this story?</p> <p>N.A.</p>	Third-person hypothetical scenario	Reflexive thematic analysis	(1) The burden of menopause, (2) managing menopause at work, (3) menopause as not belonging in the workplace, (4) menopause as unlocking new life potential?
Káplár-Kodácsy & Dorner (2024)	Understanding higher education teachers' teaching approach	62 higher education teachers	62	3	(1) Student motivation, (2) plagiarism and fraud, and (3) student work assessment	<p>Ildikó/István (teacher) steps out of the university gate, turns right, then starts off on the street slowly while contemplating. (S)he arrived in the classroom at 10:05 for today's lecture. According to the timetable, the lecture starts at 10:00 every Thursday, however, just like last week, 6 out of 35 students showed up today. Now, she is looking for reasons.</p>	Third-person hypothetical scenario	Thematic analysis and discourse analysis	(1) Normative and individualized approaches to teaching, (2) Classroom instruction and disciplinary approaches

Hunter et al. (2023)	Comprehension of how Australian caregivers navigated family life during the COVID-19	24 caregivers	24	3	Aspects: (1) household tasks, (2) childcare, (3) working from home	Sam experienced many changes due to COVID-19 restrictions (lockdown). Sam and the rest of their family spent a lot more time at home than what they usually would.	Third-person hypothetical scenario	Content analysis	(1) Time, (2) household practices, (3) family relationships
Preece & Bullingham (2022)	Exploring gender stereotypes and their impact upon perceived roles and practice of in-service physical education teachers	21 in-service physical education teachers	21	2	(1) Male and (2) female characters	It was a chilly Wednesday morning as Alex cautiously approached the P.E. teacher during break time. The teacher quickly realized that Alex was upset and asks what is wrong. 'I don't want to play football anymore, I really wish I could dance instead' says Alex...	Third-person hypothetical scenario	Reflexive thematic analysis	(1) Perceptive conformity to gender stereotypes, (2) negative external pressures, (3) positive teacher encouragement
Diniz et al. (2020)	Understanding dehumanization inferences of nurses on female chronic pain patients	50 female nurses	50	2	White women of low and middle socio-economic status	Writing down a brief story to describe 'the woman's pain and how it affects her life', recommending also a treatment based on visual stories in videos	Third-person hypothetical scenario	Thematic analysis	(1) Pain and the future, (2) dealing with pain, (3) treatment recommendations

Contribution Rates and Conflicts of Interest

Etik Beyan	Bu çalışmanın hazırlanma sürecinde bilimsel ve etik ilkelere uyulduğu ve yararlanılan tüm çalışmaların kaynakçada belirtildiği beyan olunur.	Ethical Statement	It is declared that scientific and ethical principles have been followed while carrying out and writing this study and that all the sources used have been properly cited.
Yazar Katkıları	Çalışmanın Tasarlanması: BT (%100) Veri Toplanması: BT (%100) Veri Analizi: BT (%100) Makalenin Yazımı: BT (%100) Makale Gönderimi ve Revizyonu: BT (%100)	Author Contributions	Research Design: BT (%100) Data Collection: BT (%100) Data Analysis: BT (%100) Writing the Article: BT (%100) Article Submission and Revision: BT (%100)
Etik Bildirim Çıkar Çatışması	iibfdergi@cumhuriyet.edu.tr Çıkar çatışması beyan edilmemiştir.	Complaints Conflicts of Interest	iibfdergi@cumhuriyet.edu.tr The author(s) has no conflict of interest to declare.
Finansman	Bu araştırmayı desteklemek için dış fon kullanılmamıştır.	Grant Support	The author(s) acknowledge that they received no external funding in support of this research.
Telif Hakkı & Lisans	Yazarlar dergide yayınlanan çalışmalarının telif hakkına sahiptirler ve çalışmaları CC BY-NC 4.0 lisansı altında yayımlanmaktadır.	Copyright & License	Authors publishing with the journal retain the copyright to their work licensed under the CC BY-NC 4.0
Etik Kurul	Etik kurul iznine ihtiyaç bulunmamaktadır.	Ethics Committee	Ethics committee approval is not required.

References

- Braun, V., Clarke, V., Hayfield, N., Frith, H., Malson, H., Moller, N., & Shah-Beckley, I. (2019). Qualitative story completion: Possibilities and potential pitfalls. *Qualitative Research in Psychology*, 16(1), 136–155. <https://doi.org/10.1080/14780887.2018.1536395>
- Braun, V., Clarke, V., Hayfield, N., Moller, N., & Tischner, I. (2018). Qualitative story completion: A method with exciting promise. *Handbook of Research Methods in Health Social Sciences*, 1479–1496. https://doi.org/10.1007/978-981-10-5251-4_14
- Clarke, V. (2014). Telling tales of the unexpected: Using story completion to explore constructions of non-normative body hair practices. Paper presented at Appearance Matters 6, 1–2 July, Bristol, UK.
- Clarke, V., Braun, V., Frith, H., & Moller, N. (2019). Editorial Introduction to the Special Issue: Using Story Completion Methods in Qualitative Research. *Qualitative Research in Psychology*, 16(1), 1–20. <https://doi.org/10.1080/14780887.2018.1536378>
- Clarke, V., Hayfield, N., Moller, N., Irmgard, T., & the Story Completion Research Group. (2017). Once upon a time ... In V. Braun, V. Clarke, & D. Gray (Eds.), *Collecting qualitative data: A practical guide to textual, media and virtual techniques* (pp. 45–70). Cambridge University Press.
- Daly, K. L., Pike, G., Clarke, V., & Beck, V. (2024). "Difficulty mentioning the M word": Perceptions of a woman disclosing negative menopause symptoms in the workplace. *Qualitative Research in Organizations and Management: An International Journal, ahead-of-p*(ahead-of-print). <https://doi.org/10.1108/QROM-07-2023-2562>
- Diniz, E., Castro, P., Bousfield, A., & Figueira Bernardes, S. (2020). Classism and dehumanization in chronic pain: A qualitative study of nurses' inferences about women of different socio-economic status. *British Journal of Health Psychology*, 25(1), 152–170. <https://doi.org/https://doi.org/10.1111/bjhp.12399>
- Gravett, K. (2019). Story Completion: Storying as a Method of Meaning-Making and Discursive Discovery. *International Journal of Qualitative Methods*, 18, 1–8. <https://doi.org/10.1177/1609406919893155>
- Gravett, K., & Winstone, N. E. (2021). Storying students' becomings into and through higher education. *Studies in Higher Education*, 46(8), 1578–1589. <https://doi.org/10.1080/03075079.2019.1695112>
- Hunter, S. C., Mauch, C. E., Ridley, K., Shipman, J., Riggs, D. W., Coveney, J., ... Golley, R. K. (2023). Family Life During and Beyond COVID-19: The Impact of Relationship Quality on Caregivers' Management of Paid Work, Caregiving, and Self-Care. *Journal of Family Issues*, 45(3), 647–673. <https://doi.org/10.1177/0192513X231155668>
- Káplár-Kodácsy, K., & Dorner, H. (2024). Creating reflective space for teachers in higher education: the use of story completion. *International Journal for Academic Development*, 1–15. <https://doi.org/10.1080/1360144X.2024.2303035>
- Kitzinger, C., & Powell, D. (1995). Engendering Infidelity: Essentialist and Social Constructionist Readings of a Story Completion Task. *Feminism & Psychology*, 5(3), 345–372. <https://doi.org/10.1177/0959353595053004>
- Mason, K. (2024). A method worth telling: Using story completion to understand social work responses to discriminatory abuse. *Qualitative Social Work*, 0(0), 1–17. <https://doi.org/10.1177/14733250241262062>
- Meadows, K. A., & Reaney, M. (2024). Story completion (SC)—an epistemological approach to the interpretation of patient-reported outcomes? *Expert Review of Pharmacoeconomics and Outcomes Research*, 24(1), 49–56. <https://doi.org/10.1080/14737167.2023.2268833>
- Moller, N. P., Clarke, V., Braun, V., Tischner, I., & Vossler, A. (2021). Qualitative story completion for counseling psychology research: A creative method to interrogate dominant discourses. *Journal of Counseling Psychology*, 68(3), 286–298. <https://doi.org/10.1037/cou0000538>

- Moller, N., & Tischner, I. (2019). Young people's perceptions of fat counsellors: "How can THAT help me?" *Qualitative Research in Psychology*, 16(1), 34–53. <https://doi.org/10.1080/14780887.2018.1536384>
- Pong, C. Y., Roberts, N. J., & Lum, E. (2024). The "what, why, and how?" of story completion in health services research: a scoping review. *BMC Medical Research Methodology*, 24(1), 1–11. <https://doi.org/10.1186/s12874-024-02274-7>
- Preece, S., & Bullingham, R. (2022). Gender stereotypes: the impact upon perceived roles and practice of in-service teachers in physical education. *Sport, Education and Society*, 27(3), 259–271. <https://doi.org/10.1080/13573322.2020.1848813>
- Tischner, I. (2019). Tomorrow is the start of the rest of their life — so who cares about health? Exploring constructions of weight-loss motivations and health using story completion. *Qualitative Research in Psychology*, 16(1), 54–73. <https://doi.org/10.1080/14780887.2018.1536385>
- Urry, K., Hunter, S., Feo, R., & Scholz, B. (2023). Qualitative Story Completion: Opportunities and Considerations for Health Research. *Qualitative Health Research*, 33(4), 345–355. <https://doi.org/10.1177/10497323221150130>
- Vries, C., & Flurey, C. A. (2024). 'Do I cry or just carry on': A story completion study of healthcare professionals' anticipated responses to experiencing chest pain. *Journal of Health Psychology*, 13591053231221400. <https://doi.org/10.1177/13591053231221400>
- Williams, T. L., Lozano-Sufrategui, L., & Tomasone, J. R. (2022). Stories of physical activity and disability: exploring sport and exercise students' narrative imagination through story completion. *Qualitative Research in Sport, Exercise and Health*, 14(5), 687–705. <https://doi.org/10.1080/2159676X.2021.2001031>



Mediator and Regulatory Effects of Word of Mouth on The Effect of Electronic Servicescape on Brand Equity

Mahmut Koçan^{1,a,*}, Emel Yıldız^{2,b}

¹Recep Tayyip Erdogan University, Rize, Türkiye

²Department of Human Resources Management, Faculty of Economics and Administrative Sciences, Gümüşhane University, Gümüşhane, Türkiye

*Corresponding author

Research Article

History

Received: 14/09/2024

Accepted: 11/12/2024

JEL Codes: M30, M31, M39

Acknowledgment: This study is derived from the doctoral thesis titled "Mediator and Regulatory Effects of Word of Mouth on the Effect of Electronic Servicescape on Brand Equity" prepared by Mahmut KOÇAN under the supervision of Assoc. Prof. Dr. Emel YILDIZ at the Department of Business Administration of the Institute of Social Sciences of Gümüşhane University.

ABSTRACT

The main purpose of this study is to determine the mediator and regulatory role of electronic word-of-mouth communication (e-WOM) in the effect of service environments of online marketplace and business-to-consumer websites on brand equity. In addition, the study examines the effect of electronic servicescape (e-servicescape) on e-WOM and brand equity and the effect of e-WOM on brand equity. In the research, 402 usable questionnaires were obtained from consumers who purchased products from the Internet in the last six months. SPSS and AMOS programs were used to test the reliability, validity and research hypotheses of the e-servicescape, brand equity and e-WOM scales. As a result, it has been determined that e-servicescape affects brand equity and e-WOM, and e-WOM has a partial mediation role in the positive effect of e-servicescape on brand equity. It has been determined that e-WOM has a moderator role in the effect of e-servicescape (entertainment value, usability, relevance of information, customization, and interaction) on brand equity. The research's most significant contribution to the literature lies in highlighting the mediating and regulatory role of e-WOM in the impact of the websites' e-servicescape on brand equity. This study holds significance as it explores the servicescapes and brand equity of websites exclusively operating in online marketplaces and B2C e-commerce.

Keywords: Branding, Brand equity, Electronic commerce, Electronic servicescape, Electronic word of mouth communication (e-WOM)

Elektronik Hizmet Ortamının Marka Değerine Etkisinde Ağızdan Ağıza İletişimin Aracı ve Düzenleyici Etkileri

Süreç

Geliş: 14/09/2024

Kabul: 11/12/2024

Jel Kodları: M30, M31, M39

Bilgi: Bu çalışma, Gümüşhane Üniversitesi Sosyal Bilimler Enstitüsü İşletme Anabilim Dalında Doç. Dr. Emel YILDIZ danışmanlığında Mahmut KOÇAN tarafından hazırlanan "Elektronik Hizmet Ortamının Marka Değerine Etkisinde Ağızdan Ağıza İletişimin Aracı ve Düzenleyici Etkileri" başlıklı doktora tezinden türetilmiştir. Copyright



This work is licensed under Creative Commons Attribution-NonCommercial 4.0 International License

Öz

Bu çalışmanın temel amacı, çevrimiçi pazar yeri ve işletmeden tüketiciye web sitelerinin hizmet ortamlarının marka değerine etkisinde elektronik ağızdan ağıza iletişimin aracılık ve düzenleyici rolünü belirlemektir. Ayrıca çalışmada, elektronik hizmet ortamının elektronik ağızdan ağıza iletişim ve marka değerine etkisi ile elektronik ağızdan ağıza iletişimin marka değerine etkisi incelenmektedir. Araştırmada, son altı ayda internetten ürün satın alan tüketicilerden 402 adet kullanılabilir anket elde edilmiştir. Elektronik hizmet ortamı, marka değeri ve elektronik ağızdan ağıza iletişimin ölçeklerinin güvenilirliğini, geçerliliğini ve araştırma hipotezlerini test etmek için SPSS ve AMOS programları kullanılmıştır. Sonuç olarak, elektronik hizmet ortamının marka değerini ve elektronik ağızdan ağıza iletişimi etkilediği, elektronik hizmet ortamının marka değerine olan olumlu etkisinde elektronik ağızdan ağıza iletişimin kısmi aracılık rolü olduğu belirlenmiştir. Elektronik ağızdan ağıza iletişim, elektronik hizmet ortamının (eğlence değeri, kullanılabilirlik, bilginin uygunluğu, özelleştirme ve etkileşim) marka değerine olan etkisinde düzenleyici bir rolü olduğu belirlenmiştir. Araştırmanın literatüre en önemli katkısı, web sitelerinin elektronik hizmet ortamının marka değerine olan etkisinde elektronik ağızdan ağıza iletişimin aracılık eden ve düzenleyici rolünü vurgulamasıdır. Bu çalışma, yalnızca çevrimiçi pazar yerleri ve B2C e-ticaretinde faaliyet gösteren web sitelerinin hizmet ortamlarını ve marka değerini incelediği için önem taşımaktadır.

Anahtar Kelimeler: Markalaşma, Marka değeri, Elektronik ticaret, Elektronik hizmet ortamı, Elektronik ağızdan ağıza iletişim

Introduction

In a globalizing and modernizing world, businesses aim to reach more consumers by offering goods and services to consumers quickly and at low cost. Consumers also want to buy the best product and service by making comparisons in a shorter time. Therefore, the understanding of commerce is gradually turning from traditional to digitalization. Reports on electronic commerce in the world and in Turkey are prepared periodically. Worldef (2020) stated that electronic commerce has grown ten times in the last ten years in the world due to the positive contributions of electronic commerce to society and economy, electronic commerce being supported by states and the widespread use of the internet. Datareportal (2020) announced that the total value of global consumer (B2C-business-to-consumer) electronic commerce in 2019 was \$3,43 trillion. Turkey Informatics Industry Association (TÜBİSAD) (2020) stated that the share of online retail in total retail increased from 7,9% to 12,3% in developed countries and from 3,3% to 6,7% in developing countries between 2015 and 2019. At the same time, this share has increased by more than 100% in five years in developing countries. When the share of online retail in total retail is analyzed, the rate is 18,3% in the UK and 15,2% in the USA from developed countries, Poland 7,8%, Brazil 7,6% and Russia 7,2% in developing countries. In Turkey, this ratio is quite far from developed countries and quite close to developing countries. In 2018 and 2019, the electronic commerce market in Turkey grew by 39% from 59,9 Billion TL to 83,1 Billion TL. In 2019, 54% of the sector size is retail and 46% is non-retail. In addition, the electronic commerce market size alone online retail was 30,8 Billion TL in 2019, and it was the category with the highest increase by 48%.

Internet, web, computer or mobile devices are needed for businesses to offer their goods and services to consumers in e-servicescapes and for consumers to make transactions in e-servicescapes. Electronic servicescapes, where goods and services meet with consumers, constitute an important part of commerce. The visual, design, usability, ease of payment, perceived reliability, etc. of the website. Characteristics can significantly affect the goods and services offered to the consumer. Consumers can generally turn to branded products to use time better when purchasing goods and services. The brand ensures that the consumer creates feelings such as trust, quality, etc., about the purchased goods and services. These emotions create the value of the brand, such as the perception of quality, awareness, loyalty, association, etc., in the mind of the consumer against the brand. These affect the consumer-based brand equity positively or negatively. Brand Finance, which uses financial and consumer-based brand valuation method, among the 500 most powerful global brands in 2021, electronic commerce retail brands such as Amazon and Tmall draw attention (Brand Finance, 2021). Consumers can recommend the goods and services they purchase from websites that become brands in the electronic

commerce sector to another person/organization or submit their complaint. Consumers can share this situation in the customer comments section of the brand from which they purchased the goods and services, on social networking sites, blogs, etc. so that they reach other consumers. In this context, it influences the brand's sales and value either positively or negatively.

In the research, it was aimed to determine the mediator and moderator role of e-WOM in the effect of e-servicescape on brand value, as well as the effect of e-servicescape on e-WOM and brand value, and e-WOM on brand value. The research is important in terms of the effect of the e-servicescape on brand value. The research is valuable in terms of increasing the value of websites that only sell to online marketplaces and B2C which are engaged in electronic commerce, and to get better service to consumers. It is thought that websites will have an impact on the number of visitors and consumers through e-WOM when they make up for their deficiencies in the service environment and have brand value. In addition, it is expected that the number of B2C electronic companies will increase in the near future in the brand value lists published every year by brand valuation companies (Brand Finance, Interbrand etc.). This study is significant as it examines the service environments and brand value of websites exclusively dedicated to electronic commerce, focusing on online marketplaces and B2C sales. The mediator and regulatory role of e-WOM in the effect of the e-servicescape of websites on brand value is the most important contribution of the research to the literature.

Conceptual Framework

Electronic Servicescape

It is seen that most of the researchers focus their attention on the physical service environment to the electronic service environment, which is called the online service environment (Harris and Goode, 2010; Kühn et al., 2015), virtual service environment (Vilnai-Yavetz and Rafaeli, 2006; Mari and Poggesi, 2013), digital service environment (Ballantyne and Nilsson, 2017), e-servicescape (Hopkins et al., 2009; Lee and Park, 2013; Lai et al., 2014; Tran, 2014; Lai, 2015; Sreejesh and Ponnamp, 2017; Huang et al., 2017; Bulut and Onaran, 2017; Teng et al., 2018; Tankovic and Benazic, 2018; Tran and Strutton, 2020). A service environment refers to the physical environment offered by the service provider. With the increase in internet usage, businesses that turn to the online environment integrate consumer needs and preferences into the designs of their websites (Wu et al., 2017: 694). The design of the website can be defined as the design of the online environments of businesses in a way that creates a positive effect-reaction in consumers (Tankovic & Benazic, 2018: 1127). In this context, the online environment can be considered as a service asset. The online environment makes it possible to reflect and interact with basic service features such as intangibility, inseparability and quick perishability between the internet, business and consumer. The electronic

servicescape is based on consumers' perceptions when they visit the online store and are the online environment factors that exist during service delivery (Wu et al., 2017: 694; Harris & Goode, 2010: 231). The electronic servicescape consists of three dimensions: aesthetic appeal, order and functionality, and financial security (Harris & Goode, 2010: 231).

Aesthetic Appeal

Aesthetic appeal refers to online environment conditions and the extent consumers interpret e-servicescape as alluring or attractive (Harris & Goode, 2010: 231). In addition, aesthetic appeal can represent the overall impressiveness of the website which affects the online consumption style of consumers. In particular, aesthetic appeal refers to the pleasure the consumer experiences during an online interaction with a website. Aesthetic appeal consists of three sub-dimensions: visual appeal, originality of design, and entertainment value (Kühn et al., 2015: 48; Harris & Goode, 2010: 231-232). Visual appeal refers to the ability to influence consumers' enjoyment and use of the website. The website can be strengthened with visual appeal, originality of design (creative logo, distinctive color, use of appropriate backgrounds, and prominent use of consistent typography on the website), and entertainment value (entertaining consumers by creating an exciting and entertaining environment) (Kühn et al., 2015: 48). The entertainment value and the originality of the design can also appeal to the consumer with sound and image (Tran, 2014: 15).

Layout and Functionality

Layout includes the structure, organization and arrangement of websites (Tran, 2014: 16). In other words, layout refers to the arrangement, organization, structure and adaptability of websites. Functionality is the extent to which such items facilitate consumers' service goals. In order for the website to successfully meet the needs of consumers, the layout and functionality must be usable, informative, customizable and interactive (Kühn et al., 2015: 49; Harris & Goode, 2010: 232). The usability of the website is an important factor in gaining effectiveness, efficiency, and satisfaction. Usability includes various elements such as easy navigation with minimum effort in a short time, visible and easily accessible interface functionality (Phan & Pilik, 2018: 384-385). In short, usability means ease of navigation and maneuverability on the website. Relevance of information is another important factor in consumers' website evaluation. The relevance and interrelated of the content of the website to consumers refers to the relevance of the information. Customization is the modification of a website to meet the needs and wants of each consumer. Interaction is a two-way information transfer between the user and the central point of communication and is usually a continuous process (Tran, 2014: 16-18).

Financial Security

Financial security refers to the extent to which consumers perceive the payment processes and general policies of a website as safe or secure (Harris & Goode, 2010: 233). When consumers perceive the information

provided during online transactions to be secure, they view electronic commerce more positively (Ganguly et al., 2010: 302). At the same time, the presence of tight security systems and procedures on websites has a positive effect on the perceived security of websites (Harris & Goode, 2010: 242). In addition, consumers want convenience during the payment procedure. Ease of payment includes efficiency in the payment process, perceived ease of use for payment facilities, and not requiring too many details in the transaction (Tran, 2014: 18).

Brand Equity

A product's brand equity can positively affect firms' future profits and long-term cash flow, consumer's willingness to pay premium prices, merger and acquisition decisions, stock prices, sustainable competitive advantage, and marketing success (Yoo & Donthu, 2001: 1). Brand equity is the added value given to products and services in terms of company, trade or consumer (Farquhar, 1989: 24; Kotler & Keller, 2012: 243). In this context, brand equity is a series of brand assets and liabilities that are added to or subtracted from the value provided by the product or service to the company and/or the company's customers, depending on the name and symbol of a brand (Aaker, 1991: 26-27). In the literature, the assets and liabilities that underpin basic of brand equity vary, and the operationalization of consumer-based brand equity (CBBE) is generally divided into consumer perception (brand awareness, brand associations, perceived quality) and consumer behavior (brand loyalty, willingness to pay a high price) (Aaker, 1991: 27; Kim et al., 2003: 336). In addition, the most striking dimensions of brand equity discussed in the literature with a consumer focus are brand associations/image, brand awareness, perceived quality and brand loyalty (Londono et al., 2016: 71). At the same time, according to Aaker (1991), brand value consists of five categories: perceived quality, brand awareness, brand associations, brand loyalty and other proprietary brand assets (patents, distinctive features, channel relationships, etc.) (Aaker, 1991: 27). Various researches on brand equity result in all kinds of brand equity dimensions that can be associated with a brand. Nevertheless the common denominator in all models is the use of one or more dimensions of the Aaker model (Chieng & Lee, 2011: 35). The first four dimensions of brand equity (perceived quality, brand awareness, brand associations and brand loyalty) represent consumers' perceptions and reactions to the brand (Christodoulides & Chernatony, 2010: 47). Therefore, CBBE is a four-dimensional entity: perceived quality, brand awareness, brand associations and brand loyalty (Chieng & Lee, 2011: 35).

Perceived Quality

Perceived quality cannot be determined objectively, partly because it is a perception and includes judgments about what is important to customers. Perceived quality is defined according to an intended purpose and a series

of alternatives (Aaker, 1991: 92). In this direction, perceived quality is the customer's judgment regarding the overall excellence, reputation or superiority (according to the intended purposes) of a brand relative to alternative brands (Netemeyer et al., 2004: 210; Aaker, 1991: 92).

Brand Awareness and Association

Keller (1993) stated that brand awareness consists of brand recognition and recall performance. Brand recognition is when consumers confirm prior exposure to the brand when given a cue about the brand. In other words, when consumers go to the store, they may or may not recognize the brand as a brand they have been exposed to before. Brand recognition is when consumers differentiate the brand when there are other options (Keller, 1993: 3; Keller, 2013: 45; Foroudi et al., 2018: 464). Brand recall, on the other hand, is the ability of consumers to recall the brand from their memories, given the product category as a clue, the needs met by the category/a purchase/use situation (Keller, 2013: 45; Foroudi et al., 2018: 464). Brand association is an important component of brand perception and is a perceptual dimension of brand equity (Foroudi et al., 2018: 463). At the same time, brand association is defined as anything associated with a brand in memory (Aaker, 1991: 115).

Brand Loyalty

Brand loyalty, which has long been a central structure in marketing, expresses the measure of a customer's commitment to the brand (Aaker, 1991: 48). Brand loyalty is a deep commitment that leads to repeat purchases of the same brand or set of brands, which can cause situational effects, marketing efforts, and transitional behavior by enabling the consumer to repurchase or promote a preferred product or service consistently in the future (Thompson et al., 2014: 2437). In other words, brand loyalty is the extent to which consumers declare that they have purchased a certain brand or will buy it in the future (Godey et al., 2016: 5836).

Electronic Word of Mouth Communication

In recent years, as a result of technological developments changing the communication environment, e-WOM has emerged (Sun et al., 2021: 2). Less personal and very common, e-WOM has been an important area for consumer opinions (Bambauer-Sachse & Mangold, 2011: 38). The internet has allowed customers to share their ideas and experiences about goods and services with a large number of consumers through web-based consumer opinion platforms. Consumers can write about their product experiences and read product reviews of other consumers on different platforms such as retailers' websites, brand communities, independent websites, consumer blogs, and other platforms (Hennig-Thurau et al., 2004: 38; Lee & Koo, 2012: 1974). With the internet, consumers' options to collect unbiased product information from other consumers have expanded, giving consumers the opportunity to offer their own consumption advice. In this context, e-WOM refers to the positive or negative thoughts made by potential, real or

former customers about a product or company offered to many individuals and organizations over the internet (Hennig-Thurau et al., 2004: 39). In other words, e-WOM is traditional WOM behavior developed and adapted with electronic media, which allows individuals to easily convey their messages in many ways (Tran & Strutton, 2020: 2). In short, e-WOM is all informal communications to consumers regarding the use/features/vendors of certain goods and services via internet-based technology (Sun et al., 2021: 2).

Literature Review

Since there is a lack of research in the literature that directly examines the effect of the e-servicescape on brand equity, the focus was on studies conducted on the e-servicescape. The electronic servicescape affects consumers' purchase intention (Hopkins et al., 2009; Lee & Park, 2013; Athapaththu et al., 2019; Yadav & Mahara, 2020; Shin & Jeong, 2021; Li et al., 2024) and there is a relationship between the e-servicescape and trust (Harris & Goode, 2010; Tran et al., 2012; Tran, 2014; Hee-Young, 2016; Adiwijaya et al., 2017; Wu et al., 2017; Garlet et al., 2018; Oebit & Sari, 2018; Rahman et al., 2018a; Ihsan & Kurniawati, 2019; Gharibi et al., 2020; Amer, 2021; Andriani et al., 2021; Kurniawati & Yaakop, 2021; Shin & Jeong, 2021; Stefani & Rizal, 2022; Alipoor et al., 2022; Safira & Nirawati, 2024). Website trust mediates the relationship between the e-servicescape and consumers' purchase intention (Athapaththu et al., 2019; Aprianti & Rachmawati, 2020). Trust has a positive and significant effect on e-WOM (Andriani et al., 2021), while trust has a positive effect on e-WOM intentions (Tran et al., 2012). Electronic servicescape dimensions have a positive and significant effect on WOM (Alipoor et al., 2022). At the same time, e-servicescape dimensions have an indirect impact on WOM (Roy et al., 2014), and where online financial security is the best indicator of website trust, followed by layout and functionality and aesthetic appeal (Kühn et al., 2015). Electronic word of mouth communication, aesthetic appeal, and financial security have a positive impact on trust (Ningtyas et al., 2023). Aesthetic appeal and financial security influence website attitude (Wu et al., 2017). In addition, aesthetic and privacy dimensions affect brand attitude in the e-servicescape (Shin & Jeong, 2021). Brand attitude and trust have a partial mediating role in the relations between e-servicescape and brand image (Lai, 2015). There are studies in the literature that affect the brand image of the e-servicescape (Lai, 2015; Lai et al., 2015; Hee-Young, 2016). At the same time, there are studies on the relationship between the e-servicescape and loyalty (Serejesh & Ponnamp, 2017; Kechagia, 2018; Tankovic & Benazic, 2018; Gharibi et al., 2020; Ulum et al., 2022; Aprilia & Purwanto, 2023; Faiza & Rachman, 2023). Hakim and Deswindi (2015) found that the e-servicescape has a positive and strong effect on perceived quality. Faiza and Rachman (2023) determined that the e-servicescape has a significant impact on perceived value. Although layout and functionality have a positive effect on consumers' perceived values, aesthetic appeal and financial security do not have a positive effect on consumers' perceived values (Hermantoro & Albari, 2022). Aesthetic appeal and layout and functionality influence the perceived value (Amer, 2021).

Within the scope of studies on the dimensions of e-WOM and brand equity, the literature was examined. Studies showing that there is a relationship between e-WOM and brand image have been identified (Jalilvand & Samiei, 2012; Jatmika, 2014; Torlak et al., 2014; Elseidi & El-Baz, 2016; Lianto, 2015; Luong et al., 2017; Ivana & Utarestantix, 2018; Rahman et al., 2018b; Seo & Park, 2018; Dülek & Saydan, 2019; Mughoffar et al., 2019; Ningsih et al., 2019; Dewi & Giantari, 2020; Dewi & Rastini, 2020; Fadillah et al., 2020; Mustafaoğlu & Boztepe Taşkıran, 2020; Putra et al., 2020; Saputra & Wardana, 2020; Yohana et al., 2020; Budiman, 2021; Özdemir et al., 2021; Putri & Rahyuda, 2021; Samosir et al., 2021; Sayuti & Sukaatmadja, 2021; Urmak & Dayanç Kıyat, 2021). Electronic word of mouth influences perceived quality (Jalilian et al., 2013; Syahrivar & Ichlas, 2018; Taher & Almeshal, 2020), brand awareness (Jalilian et al., 2013; Shojaee & Azman, 2013; Seo & Park, 2018; Syahrivar & Ichlas, 2018; Dülek & Saydan, 2019; Bahi et al., 2020; Cuong, 2020; Foster & Johansyah, 2020; Pebrianti et al., 2020; Seo et al., 2020; Taher & Almeshal, 2020; Sihombing & Fachrodji, 2021), brand associations (Jalilian et al., 2013; Syahrivar & Ichlas, 2018) and brand loyalty (Jalilian et al., 2013; Syahrivar & Ichlas, 2018; Dülek & Saydan, 2019; Erşen et al., 2020; Taher & Almeshal, 2020; Budiman, 2021). At the same time, in studies (Vahdati & Nejad, 2016; Pasha & Sari, 2019; Sijoria et al., 2019; Amalia et al., 2021; Febrian & Fadly, 2021; Sun et al., 2021; Lin et al., 2023; Syah & Widodo, 2023) that evaluated brand equity as a whole, the effect of e-WOM on brand equity was determined. Corporate social responsibility communication directly and indirectly through e-WOM positively affects consumer loyalty (Wei et al., 2021). In another study (Khuong & Hanh, 2016), it is seen that trust indirectly affects brand value through e-WOM.

Model and Hypotheses of Research

The research was designed on two models and three main variables (e-servicescape, brand equity and e-WOM). In the literature, Harris and Goode (2010) evaluated the e-servicescape, which consists of three basic and nine sub-dimensions of aesthetic appeal (visual appeal, originality of design, entertainment value), layout and functionality (usability, relevance of information, customization/ personalization, interaction), financial security (perceived security, ease of payment), and examined the relationship between trust and purchase intention in e-servicescape. Tran et al. (2012) investigated the understanding of whether microblogging posts by online electronic sellers affect consumers' perceptions of the six-dimensional e-servicescape (visual appeal, entertainment value, interaction, usability, customization/personalization, financial security). In the same study, the effect of consumers' electronic service environment perceptions on e-WOM intentions was examined. Tran (2014) evaluated the relationships between the sub-dimensions of the e-servicescape (visual appeal, originality of design, entertainment value, usability, relevance of information, customization/personalization, interaction, customer reviews, perceived security, ease of payment) and trust, the perception of trust e-WOM intentions and customer loyalty. Aaker (1991), Aaker (1996), Yoo et al. (2000), Yoo and Donthu (2001), Pappu and Quester (2006), and Tong and Hawley (2009) conducted studies on brand equity. Duarte et al. (2018) and Abubakar and Ilkan (2016) conducted studies on e-WOM. In this context, the following models and hypotheses of the research were designed in order to determine the mediating and regulatory effect of e-WOM between the brand equity of the e-servicescape.

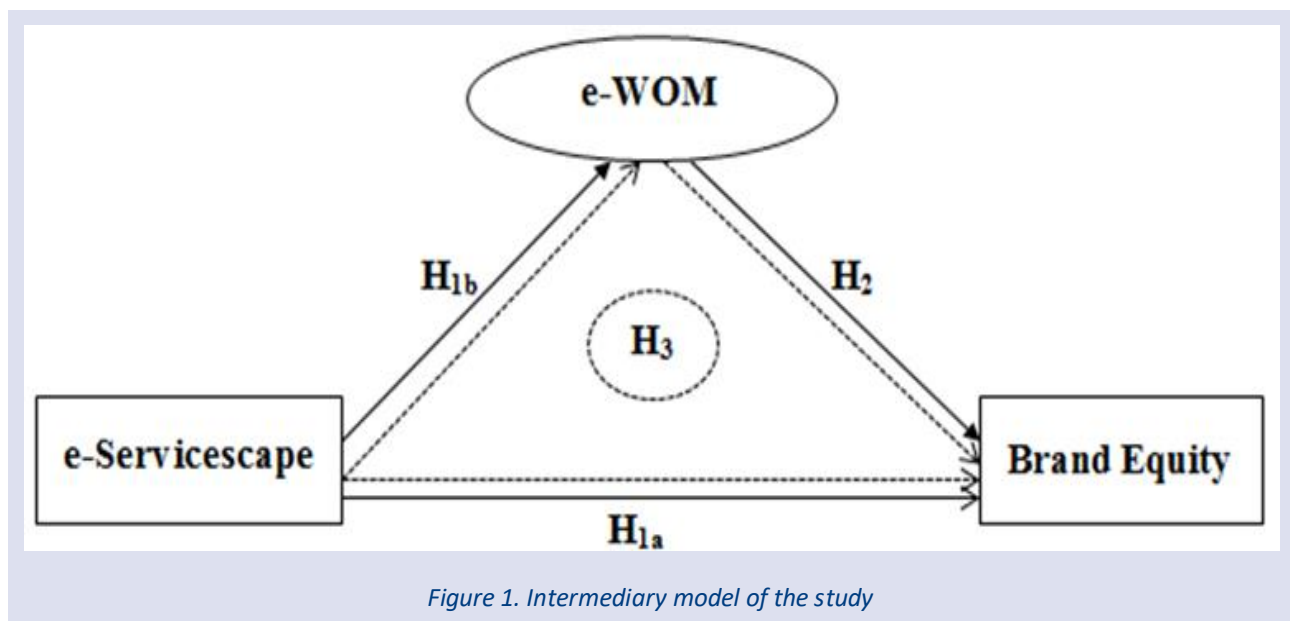


Figure 1. Intermediary model of the study

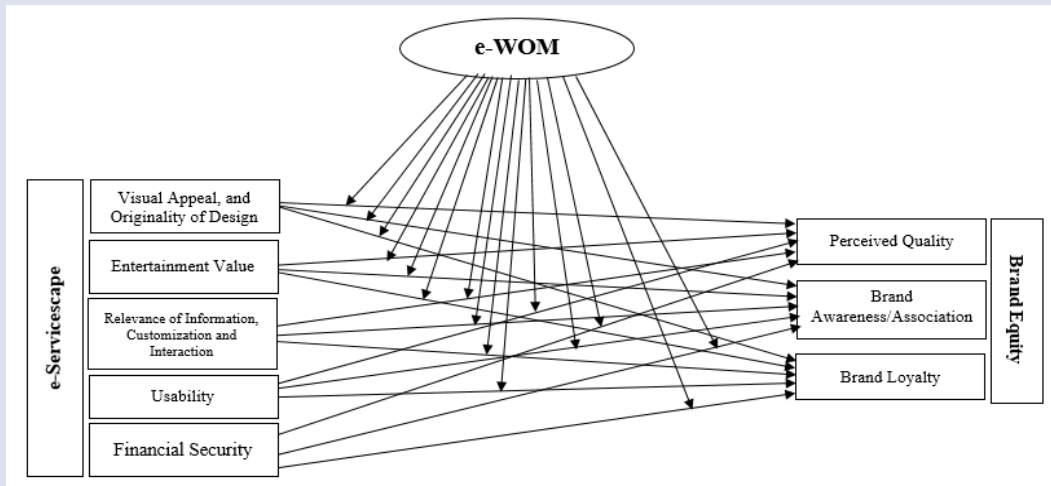


Figure 2. Regulatory model of the study

H₁: The electronic servicescape has a positive direct impact on (a) brand equity and (b) e-WOM.

H₂: Electronic word of mouth has a positive effect on brand equity.

H₃: Electronic word of mouth has a partial mediating role in the effect of e-servicescape on brand equity.

H₄: The electronic servicescape (a-visual appeal and originality of design, b-entertainment value, c-usability, d-relevance of information, customization and interaction, e-financial security) has a direct impact on brand equity (a-perceived quality, b-brand awareness/association, c-brand loyalty).

H₅: Electronic word of mouth has a regulatory role in the effect of e-servicescape (a-visual appeal and originality of design, b-entertainment value, c-usability, d-relevance of information, customization and interaction, e-financial security) on brand equity (a-perceived quality, b-brand awareness/association, c-brand loyalty).

H₆: Electronic word of mouth has an impact on brand equity (a-perceived quality, b-brand awareness/association, c-brand loyalty).

been determined that 42 of these consumers have shopped online in the last six months, and reliability and validity analyzes have been made with the data obtained. It was seen that the pre-test results were generally compatible with the literature. In addition, it is estimated that the reliability coefficients will increase and the factor structures will become more pronounced as the sample size increases. As a result of the pre-test, necessary arrangements were made in the survey in line with the suggestions from the consumers and data collection continued, and 552 surveys were collected between 01 January and 28 February 2021. In the surveys collected, it was determined that 82.4% of the consumers have purchased products from the Internet in the last six months, and 17.6% have not purchased a product in the last six months. In this context, 455 surveys were collected from consumers who purchased products from the Internet in the last six months. 31 surveys outside the scope of B2C with only the online marketplace of the most shopping website and 22 incorrect/incomplete surveys were removed. 402 usable surveys were obtained.

Methodology

Sample

Within the scope of business to consumer, the questionnaire form created to reach consumers who use electronic commerce more and to collect more qualified data was transferred to the electronic environment and a link was obtained. Then, the survey form link was delivered to the consumers via e-mail, WhatsApp, BIP and social network links. When consumers click on this link, they are directed to the web page where the survey form is located. The first question (consumers purchasing/not purchasing a product from the internet at least once in the last six months) of the survey form is for control purposes, and the survey continues when consumers select the answer option "yes", and the survey ends when they select the answer option "no". The questionnaire form was first applied to 50 consumers for the pilot study. It has

Measure

The questionnaire form created to collect the data of the research includes three parts with a control question (consumers purchasing/not purchasing a product from the internet at least once in the last six months) and 13 questions. In the first part, there are five questions related to which device consumers shop with the most, frequency of online shopping, monthly internet shopping expenditure, the category they spend the most on internet shopping, and the electronic commerce website they shop most in the last six months. These questions were created by examining TÜBİSAD and Turkish Industrialists and Businessmen's Association (TÜSİAD) electronic commerce reports, the Republic of Turkey Ministry of Commerce electronic commerce data, and only online-marketplace and B2C sales websites in Turkey. In the second part of the questionnaire, there are expressions of e-servicescape, brand equity and e-WOM

scales. The statements in these scales were first translated into Turkish by a translator. These expressions, which were later translated into Turkish, were checked by two marketing experts and given their final form. The e-servicescape consists of three dimensions (aesthetic appeal, layout and functionality and financial security) and nine sub-dimensions (visual appeal, originality of design, entertainment value, usability, relevance of information, customization/personalization, interaction, ease of payment, perceived security) and has 36 expressions. The e-servicescape scale of the research was formed by using the study by Harris and Goode (2010). In addition, since Tran (2014) uses some expressions in a more understandable and different way in the mentioned scale, some expressions of the research were taken from this study. Teng et al. (2018) determined the e-servicescape scale with four dimensions (aesthetic appeal, layout and functionality, interaction with financial security), eight sub-dimensions (visual appeal, originality of design, entertainment value, usability, relevance of information, customization/personalization, ease of payment, perceived security) and 44 statements developed and adapted by Harris and Goode (2010) and Lai et al. (2014). Dassanayake and Senevirathne (2018) created the e-servicescape scale with six dimensions (visual appeal, personification, interaction, ease of use, relevance of information, and social factors) and 38 statements based on the research of Harris and Goode (2010) and Jeong et al. (2003). Harris and Goode (2010) used a seven-point likert scale, and Tran (2014) and Tran and Strutton (2020) used a five-point Likert scale to measure the expressions of e-servicescape. In this direction, it was deemed appropriate to use a five-point Likert scale (1-Strongly disagree ... 5-Strongly agree) in the study. Although brand equity has dimensions of perceived quality, brand awareness, brand loyalty and brand association, e-WOM does not have any dimensions. In addition, brand equity scale (Aaker (1991), Aaker (1996), Yoo et al. (2000), Yoo & Donthu (2001), Pappu & Quester (2006)) 12, e-WOM scale (Abubakar & Ilkan (2016), Duarte et al. (2018)) contains five statements. Since Yoo et al. (2000) and Yoo and Donthu (2001) used a five-point Likert scale to measure brand value expressions. Duarte et al. (2018) and Abubakar and Ilkan (2016) used a five-point Likert scale to measure e-WOM expressions. Therefore, a five-point Likert scale was used in this study. The third part of the questionnaire consists of seven socio-demographic questions about the gender, age, marital status, occupation, education level, average monthly income and family size of the consumer.

Descriptive Statistical Information

It has been determined that 79,1% of consumers use smart mobile phones while shopping online, and 20,9% use computers. When the frequency of online shopping is examined, 40,5% of the consumers who shop 1-2 times a month, while 2,7% of the consumers who shop 3-4 times a week. It is seen that 66,4% of consumers shop online once or twice a month and more frequently. In addition,

the rate of consumers who shop online once every three months or less frequently is 20,1%. 83,1% of consumers have a monthly internet shopping expenditure of 500 TL or less, and 55% of them have a monthly internet shopping expenditure of 250 TL or less. However, only 7,7% of consumers have a monthly internet shopping expenditure of 751 TL or more. The categories with the highest spending in internet shopping are fashion (50,5%), home-life-stationery-office (14,2%) and electronics (12,2%), these categories make up 76,9% of all categories. Auto-garden-structure market (1,2%) and sports-outdoor (2,2%) were the categories in which consumers spent the least. Trendyol (61,4%) and Hepsiburada (21,9%) are the websites where consumers shop the most in the last six months. When the demographic characteristics of the consumers are examined, 53,2% are women, 67% are between the ages of 18-35, 1,2% are 56 years and over, 50,7% are single, and the family of 82,3% consists of three or more people. In addition, it is seen that 77,1% of consumers are public employees and students, 1,5% are retired, 83,3% are graduates of higher education, and 61,2% have an average monthly income of between 2501 TL and 7500 TL.

Analysis of Empirical Results

Measurement Quality Evaluation

Expressions obtained from the results of exploratory factor analysis (EFA) and reliability analysis of aesthetic appeal, layout and functionality, and financial security dimensions were subjected to EFA and reliability analysis within the framework of the basic dimension, the e-servicescape. As a result of the analysis, the scale of the e-servicescape consisted of the Relevance of Information, Customization and Interaction (RICI), Entertainment Value (EV), Visual Appeal and Originality of Design (VAOD), Financial Security (FS) and Usability (US) factors. It is seen that these factors explain 63,72% of the total variance and the Kaiser-Meyer-Olkin (KMO) (.914) value is at an excellent level. As a result of EFA and reliability, three factors of Brand Equity (BE) were identified and these factors were defined as Perceived Quality (PQ), Brand Loyalty (BL) and Brand Awareness/Association (BAA). These factors explain 73,04% of the total variance and the KMO (.877) value is at a very good level. In the e-WOM scale, a single factor was determined and it was seen that it explained 55,64% of the total variance. In addition, the KMO (.739) value was found to be moderate. It has been determined that the e-WOM scale is the only factor as a result of EFA and reliability. The scales in question were subjected to confirmatory factor analysis (CFA), and two statements were extracted and the model was analyzed. Because the e-servicescape scale VAOD factor affected the goodness-of-fit values of one expression negatively, and the error term of an expression from the RICI factor was related to the error terms of many expressions (e-Servicescape-EFA: 65,37% and KMO: ,911). In this context, the CFA results of e-servicescape, brand equity and e-WOM scales are given in Table 1.

Table 1. Confirmatory factor analysis results

Factors and Expressions	Cronbach Alpha	Average Variance Extract (AVE)	Composite Reliability (CR)	Standardised Loading
RICI: Relevance of Information, Customization and Interaction	,873	,496	,872	
Visual information about products is easily accessible on this website.				,73
Technical details about the products are easily accessible on this website.				,78
All information on this website can be found easily.				,77
Every page on this website clearly shows what we can expect to find.				,72
This website offers buying advice that fits my needs.				,63
This website has been designed to meet my needs.				,66
This website has a search tool that helps me find the product I want.				,63
EV: Entertainment Value	,808	,607	,819	
This website is a lot of fun.				,63
I shop for the full enjoyment of this website.				,83
The enthusiasm on this website boosts my morale.				,86
VAOD: Visual Appeal and Originality of Design	,838	,549	,829	
This website is aesthetically beautiful.				,79
I love the look of this website.				,77
The images of the products on this website are interesting.				,73
This website is innovative and creative.				,66
FS: Financial Security	,800	,508	,799	
The payment facilities of this website are easy to use.				,58
Online payment processing on this website is reasonable.				,54
This website is very secure.				,82
This website is generally security conscious.				,86
US: Usability	,812	,531	,818	
This website has useful directions.				,65
From this website the new consumer can make a purchase without much help.				,73
It is handy as this website has a good keyword search facility.				,81
The functions on this website are easy to use.				,72
e-Servicescape (ESS): χ^2/df : 2,582; CFI: ,929; GFI: ,896; RMSEA: ,063; SRMR: ,057				
PQ: Perceived Quality	,876	,709	,879	
The products of this website are of very high quality.				,89
I trust the quality of the products of this website.				,84
This website offers products with great features.				,79
BL: Brand Loyalty	,840	,508	,804	
I think myself loyal to this website.				,82
This website is always my first choice.				,83
If the product I am looking for is on this website, I will not buy from other websites.				,76
BAA: Brand Awareness/Association	,801	,642	,843	
I am aware of this website.				,67
I generally know the products/features of this website.				,75
Among other competing sites, I can recognize this website.				,78
I can quickly remember the symbol or logo of this website.				,65
Brand Equity (BE): χ^2/df : 2,752; CFI: ,972; GFI: ,959; RMSEA: ,066; SRMR: ,040				
e-WOM: Electronic Word of Mouth Communication	,790	,407	,766	
I recommend this website.				,86
I always share info/informations about this website.				,59
I am proud to tell others that I am a customer of this website.				,66
I often read customer reviews of this website.				,44
Customer reviews of this website give me confidence in my purchasing decision.				,58
e-WOM: χ^2/df : 1,304; CFI: ,999; GFI: ,996; RMSEA: ,028; SRMR: ,014				

For adequate convergent validity, the AVE value should be ,50 or greater (Bagozzi and Yi, 1988: 82; Hair et al., 2014: 605), and the CR value should be ,70 or greater to indicate sufficient convergence or internal consistency (Hair et al. et al., 2014: 605). It is seen that the AVE value (,496) of the relevance of information, customization and interaction factor is very close to the threshold value and the CR value (,872) is well above the acceptable level. In the study of Teng et al. (2018), AVE values of the originality of the design (AVE: ,447; CR: ,801), the entertainment value (AVE: ,414; CR: ,738), and the the perceived safety (AVE: ,388; CR: ,717) factors are below the threshold and the CR values are above the threshold. The results of other factors were found to be above the threshold values. In this framework, the convergent validity and internal consistency of the factors included in the measurement model are ensured. Harris and Goode (2010)'s e-servicescape scale was used by Tran (2012), Tran (2014) and Tran and Strutton (2020), but they added and subtracted factors and expressions to the scale. Harris and Goode (2010) e-servicescape scale has three factors (ten sub-dimensions) and 52 expressions, Tran (2012) e-servicescape scale has 6 factors and 25 expressions. Tran (2014) and Tran and Strutton (2020) reduced the e-servicescape scale from 10 factors and 37 statements to 7 factors and 24 statements. In this context, e-servicescape scale factors and expressions in Harris and Goode (2010) and Tran (2014) researches were examined, and the e-servicescape scale was prepared by adhering to the scales of these studies in order to be suitable for Turkey's conditions. Thus, as a result of CFA, it was determined that the e-servicescape scale of the research consisted of five factors and 22 statements, and the scale was usable. It was determined that the AVE and CR values of the brand equity scale were above the values accepted in the literature, and the convergent validity and internal consistency of the factors in the measurement model were ensured. The brand awareness/association scale was measured by Yoo et al. (2000) six statements, Yoo and Donthu (2001) five statements, Yoo and Donthu (2002) six statements, and Tran et al. (2021) five statements. The perceived quality and brand loyalty of the brand equity scale consists of three statements, brand awareness/association consists of four statements, and it is seen that the scale is usable. Finally, it was determined that the goodness-of-fit values of the e-WOM scale model were at a good level. It was determined that the AVE value (,407) of the e-WOM scale was below the threshold value and the CR value (,766) was above the value accepted in the literature. Since the model fit values of the e-WOM scale are at a good level and the internal consistency of the CR value is provided, the AVE value is acceptable (Teng et al., 2018) and the said scale can be used.

Hypothesis Tests

Testing Mediation Effect

In the research, the parcellation method was applied to the factors in the e-servicescape and brand equity

scales in order to determine the mediating role of e-WOM in the effect of the e-servicescape on the brand equity and to ensure the compatibility of the research with the mediator model. Parceling is the most widely used measurement application with latent variable analysis techniques in multivariate approaches to psychometrics (Little et al., 2002: 152). In recent years, the use of expression plots in structural equation modeling (SEM) has become quite common. The technique of dividing or combining statements by parcelling is used by researchers in fields such as education, psychology, marketing and organizational research (Bandalos, 2002: 78-79). Parceling is an aggregate level indicator consisting of the sum or average of two or more expressions of a parcel (Little et al., 2002: 152), it is to collect particularly expressions in one or more parcels and to use these parcels instead of expressions as indicators of target implicit structure (Matsunaga, 2008: 261). In other words, the use of parcel scores found by adding or averaging the scores of two or more expressions instead of expression scores in SEM analysis is defined as parcellation (Bandalos, 2002: 78). The parcels are also an analytical tool (Little et al., 2013: 285). When a construct is broadly defined or when the measurement scale has multiple sub-dimensions/levels, indicators at a high aggregation level may be most appropriate. However, there is only one good measure of the construct one is interested or there are organizational constraints on the number of scales that can be included in the survey. Thus, individual scale expressions can be used as indicators, or subsets of expressions can then be aggregated or averaged to form expression parcels that serve as indicators for a partial decomposition model (Hall et al., 1999: 235). Kishton and Widaman (1994) described two approaches (internal consistency and field representation) for dealing with multidimensional expression sets. For example, a nine-item scale consisting of three dimensions (A, B and C) each measured by three statements (A1, A2 and A3) is created in the first approach (internal consistency approach) using dimensions as grouping criteria. In the first parcel, the sum or average of A1, A2, and A3 is taken and reflects dimension A. The second parcel reflects dimension B and the third reflects dimension C. In this case, a higher layer results in the implicit structure, the lower layer of internally consistent directions is used as clear indication of more higher layer or graded structure. One of the advantages of the first approach is that it keeps the multidimensional nature of the structure open and allows the unique component of a surface to be associated with other structures in the model. The second approach (area representation) attempts to take multidimensionality into account by creating parcels that also include reliable and unique aspects of multiple dimensions. In this approach, parcels are formed by combining expressions of different sizes into expression sets. For example; first parcel (A1, B1 and C1), second parcel (A2, B2 and C2), third parcel (A3, B3 and C3). Each parcel reflects all aspects or dimensions found in the indicator set (Little et al., 2002: 167-168). In this

context, with the internal consistency approach of Kishiton and Widaman (1994), it was transformed into five statements by taking the averages of the five factors of the e-servicescape scale separately. It was transformed into three statements by taking the averages of the three factors of the brand equity scale separately. Thus, the variables and expressions of the research were formed as follows:

- **ESS:** ESS1:VAOD, ESS2:EV, ESS3:RICI, ESS4: US, ESS5:FS
- **BE:** BE1:PQ, BE2:BAA, BE3:BL
- **e-WOM:** EWOM1, EWOM2, EWOM3, EWOM4, EWOM5

In the mediation analysis method suggested by Baron and Kenny (1986), they stated that in order to be a mediator, the independent variable must first affect the mediating variable, second the independent variable should affect the dependent variable, and thirdly, the mediating variable should affect the dependent variable. In the mediator model, all of these things happen and if the effect of the independent variable on the dependent variable decreases in the mediating model, compared to the model without the mediator (direct effect of the independent variable on the dependent variable) partial mediation is mentioned. If the independent variable has no effect on the dependent variable in the mediating model full mediation is mentioned (Baron & Kenny, 1986: 1177). In this direction, first of all, it was analyzed through the structural model with implicit variables in order to test the total effect of the e-servicescape on brand equity. As a result of the analysis, it was determined that the goodness of fit values were at an acceptable level in the literature (χ^2/df : 3,959; GFI: ,955; NFI: ,939; CFI: ,953; TLI: ,931; SRMR: ,036; RMSEA: ,086). The effect of the e-servicescape on the brand equity was found to be statistically significant ($\beta = ,954$; $p < ,001$) and the e-servicescape explained 90.9% of the brand equity.

In order to test the relationship between the variables in the mediator model of the research, the research hypotheses were analyzed through the latent variable structural model. As a result of the analysis, it was determined that the values of goodness of fit (χ^2/df : 3,907; GFI: ,912; NFI: ,907; CFI: ,928; TLI: ,905; SRMR: ,045; RMSEA: ,085) were at an acceptable level in the literature and the results of the analysis are given in Table 2.

The positive direct effect of the e-servicescape on the brand equity ($\beta = ,437$; $p < ,001$) and the e-WOM ($\beta = ,846$; $p < ,001$) were found to be statistically significant. It was observed that the e-servicescape explained 71,6% of the e-WOM. In addition, it was determined that the positive effect of e-WOM on brand equity ($\beta = ,598$; $p < ,001$) was statistically significant. Thus, research hypotheses H_{1a} , H_{1b} and H_2 were accepted. When these results are examined, it is seen that the research meets all three conditions of Baron and Kenny (1986)'s mediation analysis. The

mediating effect of the e-servicescape on the brand equity was found to be ,506 and the 95% confidence interval was ,276-,775. The mediation effect was found to be statistically significant ($p < ,001$), since the said interval did not include the zero value. In other words, H_3 research hypothesis is supported since e-WOM has a positive partial mediation effect on the brand equity of the e-servicescape.

Testing Regulatory Effect

It is generally expressed as a qualitative (gender, class, etc.) or quantitative (reward level, etc.) variable that affects the direction and/or strength of the relationship between the moderator, the independent or predicted variable, and the dependent variable or criterion. Regulatory indicates that the causal relationship between two variables changes as a function of the moderator variable, and statistical analysis needs to measure and test the differential effect of the independent variable on the dependent variable. In this context, measuring and testing differential effects partially depends on the level of measurement of the independent and moderator variable. Baron and Kenny (1986) stated the effect of predictor, moderator and interaction (predictor x moderator) on the outcome variable in the moderator model, and stated that if the interaction is significant on the outcome variable, there would be a moderator effect. The predictor and moderator can have significant effects on the outcome variable. However, they do not directly test the regulatory hypothesis conceptually (Baron & Kenny, 1986: 1174). In order to determine the regulatory role of e-WOM in the effect of the dimensions of the e-servicescape on brand equity and to ensure the compatibility of the research with the regulatory model, the averages of the VAOD, EV, RICI, US, FS, PQ, BAA, BL and e-WOM variables were calculated. Then, five interaction variables were obtained by multiplying the independent variables (VAOD, EV, RICI, US, FS) and the moderator (e-WOM) separately using SPSS. Regulatory analysis was conducted through AMOS within the scope of the regulatory model of the research. In addition, statistically insignificant regression paths were deleted in the estimation of regression weights, thus increasing the degree of freedom of the model (Tunçer, 2018: 150; Gaskin, 2016). In this context, the model of the research has an acceptable goodness-of-fit values (χ^2/df : 1,785; SRMR: ,015; GFI: ,990; CFI: ,996; PCLOSE: ,583; HI90: ,074; RMSEA: ,044). R^2 in the results of the research's regulatory analysis represents the rate of explanation of the dependent variable of the independent variable. In this context, it is seen that the dependent variables of the model have high R^2 values (PQ: ,48; BAA: ,57 and BL: ,54). The high R^2 values of the study and the excellent goodness of fit values of the model show that the model is suitable and sufficient to test the research hypotheses. In this direction, the results of the regulatory effect test regarding the research hypotheses are given in Table 3.

Table 2. Mediation effect results

Variables	e-WOM		BE	
	β	SE	β	SE
ESS	,846*	,116		
R ²	,716			
ESS			,437*	,143
e-WOM			,598*	,127
R ²			,991	
Intermediary Effect			,506* (.276 - ,775)	

* $p < .001$

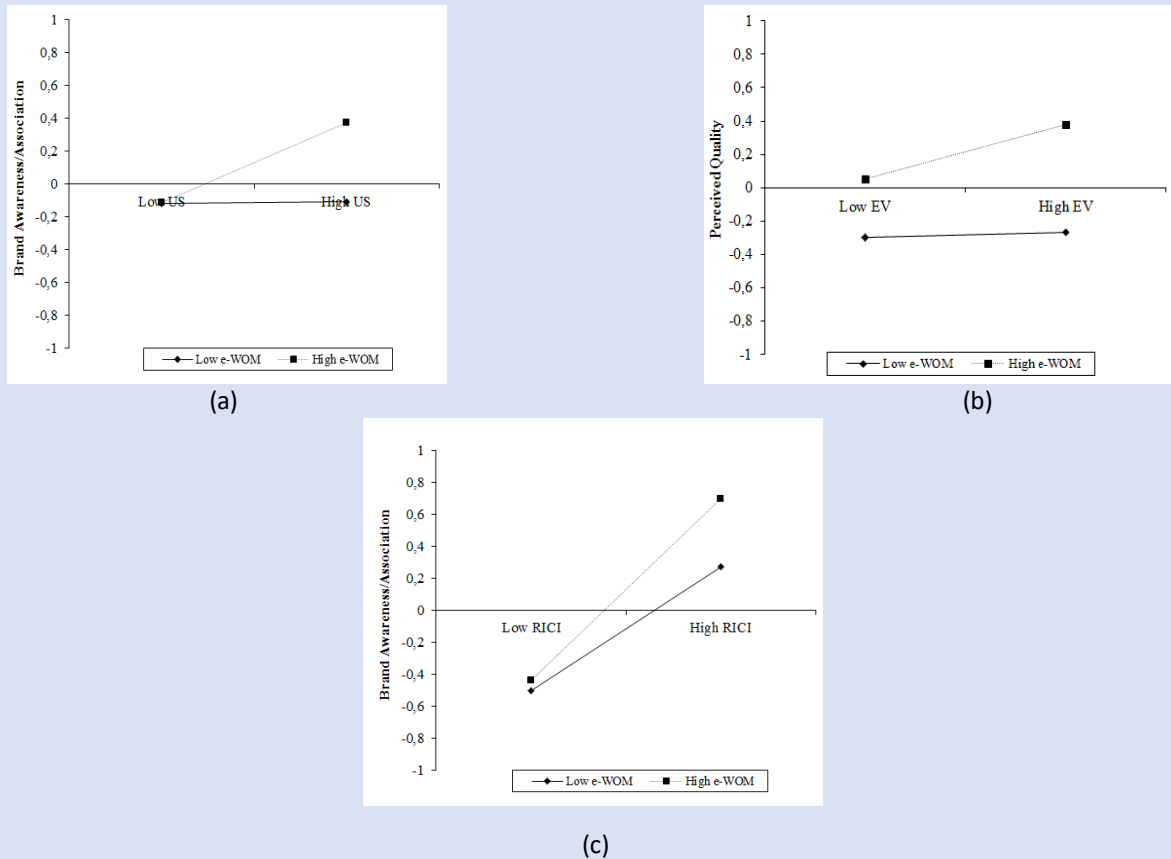
Table 3. Regulatory effect results

Variables	PQ		BAA		BL	
	β	SE	β	SE	β	SE
e-WOM	,250*	,054	,122*	,047	,527*	,046
EV	,089*	,043			,168*	,039
US	-,144*	,051	,123*	,046		
RICI	,283*	,055	,478*	,049	,160*	,045
FS	,308*	,051	,129*	,046		
EV x e-WOM	,073*	,035				
US x e-WOM			-,119*	,043		
RICI x e-WOM			,091*	,036		

H4_{ba} and H4_{bc} hypotheses are supported ($p < .05$), since entertainment value directly affects perceived quality ($\beta = .089$) and brand loyalty ($\beta = .168$) statistically. H5_{ba} hypothesis was accepted ($p < .05$), because the moderator role of e-WOM in the effect of entertainment value on perceived quality was statistically significant ($\beta = .073$). H4_{ca} and H4_{cb} hypotheses are supported ($p < .05$), since usability directly affects perceived quality ($\beta = -.144$) and brand awareness/association ($\beta = .123$) statistically. H5_{cb} hypothesis was accepted ($p < .05$), as the moderator role of e-WOM in the effect of usability on brand awareness/association was found to be statistically significant ($\beta = -.119$). H4_{da}, H4_{db} and H4_{dc} hypotheses are supported ($p < .05$), since the relevance of information, customization and interaction statistically directly affect perceived quality ($\beta = .283$), brand awareness/association ($\beta = .478$) and brand loyalty ($\beta = .160$). H5_{db} hypothesis was accepted ($p < .05$), as the moderator role of e-WOM in the effect of the relevance of information, customization and interaction on brand awareness/associations was found to be statistically significant ($\beta = .091$). H4_{ea} and H4_{eb} hypotheses are supported ($p < .05$), since financial reliability directly affects perceived quality ($\beta = .308$) and brand awareness/association ($\beta = .129$) statistically. Hypotheses H6_a, H6_b, and H6_c were accepted ($p < .05$), since e-WOM affected perceived quality ($\beta = .250$), brand awareness/association ($\beta = .122$) and brand loyalty ($\beta = .527$) statistically. In this context, the moderator role of e-WOM was found in the effect of entertainment value on perceived quality. At the same time, the regulatory role of e-WOM has been

determined in the effect of the relevance of information, customization and interaction, and usability on brand awareness/associations. The regulatory role of e-WOM on the effect of entertainment value(a) on perceived quality, usability(b) and the relevance of information, customization and interaction(c) on brand awareness/association is shown in Graph 1.

As the entertainment value of the websites increases and there is high e-WOM, the perceived quality is affected ($p < .05$). If the availability, customization and interaction of information increases with usability, and there is high e-WOM, the brand awareness/association is affected ($p < .05$). At the same time, it is seen that brand awareness/association is affected when the relevance of information on the website, customization and interaction increase, and when there is low e-WOM ($p < .05$). However, as the entertainment value of the websites increases, if there is low e-WOM, perceived quality is not affected. As a result, it is seen that e-WOM plays a regulatory role between the relevance of information, customization and interaction, and brand awareness/association in cases where e-WOM is high and low. In addition, when there is a high level of e-WOM, the entertainment value leads to an increase in perceived quality, and usability leads to an increase in brand awareness/association, thus e-WOM having a regulatory role. However, when low e-WOM is applied, e-WOM does not have a moderating role in the effect of entertainment value on perceived quality and usability on brand awareness/association.



Graph 1. The Regulatory Role of e-WOM on the Effect of Entertainment Value(a) on Perceived Quality, Usability(b) and Relevance of Information, Customization and Interaction(c) on Brand Awareness/Association

Conclusion

Theoretical and Managerial Contributions

Today, traditional commerce continues to rapidly transform into digital commerce. In the digitalization process, the number of businesses and consumers using electronic commerce is increasing. In the study, it was aimed to determine the mediator and regulatory role of e-WOM in the effect of the service environments of online marketplace and B2C sales websites, which are engaged in electronic commerce on the brand equity. In addition, it is to determine the effect of e-servicescapes on e-WOM and brand equity, and the effect of e-WOM on brand equity. Within the framework of the research intermediary model, it has been determined effect on positive and direct the brand equity and e-WOM of the e-servicescape, and positively on brand equity of e-WOM. It has been determined that e-WOM has a partial mediating effect in the positive direction in the effect of the e-servicescape on brand equity. Within the scope of the regulatory model, the direct effects of entertainment value, usability, financial security and relevance of information, customization and interaction on brand equity (perceived quality, brand awareness/association and brand loyalty) were determined. It has been found that e-WOM has a moderator role in the effect of entertainment value on perceived quality, usability and relevance of information, customization and interaction on brand awareness/association. In addition, it has been determined that e-WOM has an effect on perceived quality, brand

awareness/association and brand loyalty. Since there is not to come across in the literature specifically addressing the impact of the e-servicescape on brand equity and e-WOM, the findings of this study are partially supported by those of Hakim and Deswindi (2015), Roy et al. (2014), Lai et al. (2015), Hee-Young (2016), Sreejesh and Ponnam (2017), Kechiga (2018), Phan and Pilik (2018), Tankovic and Benazic (2018), and Gharibi et al. (2020). When the literature on the determination of the effect of e-WOM on brand equity is examined, it is seen that Jalilian et al. (2013), Shojaee and Azman (2013), Vahdati and Nejad (2016), Seo and Park (2018), Syahrivar and Ichlas (2018), Dülek and Saydan (2019), Pasha and Sari (2019), Sijoria et al. (2019), Bahi et al. (2020), Foster and Johansyah (2020), Pebrianti et al. (2020), Seo et al. (2020), Taher and Almeshal (2020), Amalia et al. (2021), Budiman (2021), Febrian and Fadly (2021), Sihombing and Fachrodji (2021), Sun et al. (2021), Alipoor et al. (2022), Ulum et al. (2022), Aprilia and Purwanto (2023), Faiza and Rachman (2023), Lin et al. (2023), Syah & Widodo (2023) studies seem to support the findings of the research. However, since there is not to come across a study in the literature that affects the brand equity of the e-servicescape, studies supporting the mediator and regulatory findings could not be included. As a result, it has been determined that the e-servicescape affects brand equity and e-WOM, e-WOM has a partial mediation role in the effect of the e-servicescape on the brand equity, and e-WOM has a regulatory role in the effect of the e-servicescape on the brand equity.

As in traditional commerce, in electronic commerce consumers generally goods and services want to research, compare, buy better quality and cheaper before purchasing. In order to achieve this situation in the electronic commerce sector, businesses attach importance to and develop features such as the visuality, design, usability, ease of payment, perceived security, etc. of the website. Since consumers want to use their time economically by making the process of purchasing goods and services quickly, a brand appears in front of the consumer in electronic commerce. Consumers can convey their satisfaction or dissatisfaction with the brand during and after the process of purchasing goods and services by sharing them on platforms such as customer comments, social networking sites, blogs, etc. Thus, the market size and sales volume of the brand can be significantly affected by the e-WOM. In this context, it is thought that the positive or negative situations that consumers may experience in the e-servicescape may also affect the relevant brand. In order to increase the value of electronic commerce brands, first of all, e-servicescapes should give importance to entertainment value, usability, relevance of information, customization, interaction and financial security. In addition, brands should be aware of the importance of reaching out to each other of consumers and ensure greater consumer satisfaction, recognizing that this is an important element in increasing their value. Brands should meet the demands of the consumers without distinguishing the consumers who have problems at every stage of purchasing, and increase satisfaction by providing promotions etc. to the consumer. In addition, brands can contact and provide satisfaction to consumers who share negative comments in the customer comments section or on different platforms. The comments about the brand on the complaint sites can be examined, so that the problems of the consumers can be resolved more quickly and the brand equity can be positively affected by providing satisfaction. For example, electronic commerce brands have insufficient possibilities after discount campaigns in some periods. After purchasing the product, the consumer may experience

grievances such as late delivery of the product, incomplete delivery, non-delivery of the product and inability to receive support from customer services due to the inadequate transportation system of the brand. As a result, the consumer can share their experiences about the brand in question on different platforms, especially the consumer comments on the brand, and enable them to reach other consumers. When brands give importance to the complaints of the consumers, they can also follow the consumer comments from different platforms. Thus, consumer satisfaction and brand equity can be positively affected. It can be said that the development of the e-servicescape will positively affect both brand equity and e-WOM. At the same time, since the e-servicescape significantly affects the e-WOM, it can be suggested that electronic commerce brands organize their e-servicescapes and make up for their deficiencies in line with the suggestions and requests of the consumers.

Limitation and Future Studies

One significant limitation is the inability to focus research on a single e-commerce brand. In addition, the inability of some electronic commerce brands in Turkey to work in cooperation with researchers is another limitation of the research. Another limitation is that some of the consumers do not use electronic commerce and their purchasing power is low, and that electronic commerce brands are more in the background than physical brands.

Electronic servicescapes and consumer-based brand equities of electronic commerce brands can be evaluated and compared on a brand basis. The research can be done using qualitative methods at national and international level. In electronic commerce, intermediary and regulatory studies on online marketplaces can use a five-dimensional e-servicescape and a three-dimensional brand equity scale. In this context, general and socio-demographic questions can play a regulatory role in future studies, and second and third level regulatory studies can be planned.

Katkı Oranları ve Çıkar Çatışması /Contribution Rates and Conflicts of Interest

Etik Beyan	Bu çalışmanın hazırlanma sürecinde bilimsel ve etik ilkelere uyulduğu ve yararlanılan tüm çalışmaların kaynakçada belirtildiği beyan olunur.	Ethical Statement	It is declared that scientific and ethical principles have been followed while carrying out and writing this study and that all the sources used have been properly cited.
Yazar Katkıları	Çalışmanın Tasarlanması: MK (%60), EY (%40) Veri Toplanması: MK (%60), EY (%40) Veri Analizi: MK (%60), EY (%40) Makalenin Yazımı: MK (%60), EY (%40) Makale Gönderimi ve Revizyonu: MK (%60), EY (%40)	Author Contributions	Research Design: MK (%60), EY (%40) Data Collection: MK (%60), EY (%40) Data Analysis: MK (%60), EY (%40) Writing the Article: MK (%60), EY (%40) Article Submission and Revision: MK (%60), EY (%40)
Etik Bildirim Çıkar Çatışması	iibfdergi@cumhuriyet.edu.tr Çıkar çatışması beyan edilmemiştir.	Complaints Conflicts of Interest	iibfdergi@cumhuriyet.edu.tr The author(s) has no conflict of interest to declare.
Finansman	Bu araştırmayı desteklemek için dış fon kullanılmamıştır.	Grant Support	The author(s) acknowledge that they received no external funding in support of this research.
Telif Hakkı & Lisans	Yazarlar dergide yayınlanan çalışmalarının telif hakkına sahiptirler ve çalışmalarını CC BY-NC 4.0 lisansı altında yayımlanmaktadır.	Copyright & License	Authors publishing with the journal retain the copyright to their work licensed under the CC BY-NC 4.0
Etik Kurul	Bu çalışmada kullanılan veriler, Gümüşhane Üniversitesi Bilimsel Araştırma ve Yayın Etiği Kurulu tarafından onaylanmıştır.	Ethics Committee	The data used in this study were approved by the Scientific Research and Publication Ethics Committee of Gümüşhane University.

References

- Aaker, D. A. (1991). *Managing brand equity*. New York: The Free Press.
- Aaker, D. A. (1996). Measuring brand equity across products and markets. *California Management Review*, 38(3), 102-120. <https://doi.org/10.2307/41165845>
- Abubakar, A. M. & Ilkan, M. (2016). Impact of online WOM on destination trust and intention to travel: A medical tourism perspective. *Journal of Destination Marketing and Management*, 5(3), 192-201. <https://doi.org/10.1016/j.jdmm.2015.12.005>
- Adiwijaya, M., Kaihatu, T., Nugroho, A. & Kartika, E. W. (2017). The issues of risk, trust, and customer intention: A search for the relationship. *Risk Governance and Control: Financial Markets and Institutions*, 7(1), 82-90. <https://doi.org/10.22495/rgcv7i1art11>
- Alipoor, V., Sa'di, M. R. & Golshan, G. (2022). Investigating the impact of e-servicescape dimensions and experience & risk factors on E-WOM: Mediating role of trust. *Journal of Business Intelligence Management Studies*, 11(41), 87-114. <https://doi.org/10.22054/IMS.2022.64229.2080>
- Amalia, M., Maupa, H. & Parawansa, D. A. S. (2021). The influence of social media marketing and electronic word of mouth (e-WOM) on brand equity and its impact on purchasing decisions case studies on British English education. *Hasanuddin Journal of Applied Business and Entrepreneurship*, 4(1), 65-74.
- Amer, S. M. (2021). The effect of e-servicescape, website trust and perceived value on consumer online booking intentions: the moderating role of online booking experience. *International Business Research*, 14(6), 133-149. <https://doi.org/10.5539/ibr.v14n6p133>
- Andriani, P., Setyorini, N. & Shibghatulloh, A. H. (2021). Investigating e-servicescape influence to customer response in digital Islamic banking. *International Journal of Islamic Economics and Finance*, 4(1), 101-120. <https://doi.org/10.18196/ijief.v4i1.10299>
- Aprianti, R. & Rachmawati, I. (2020). The effect of e-servicescape dimensions on repurchase intention with trust as an intervening variable. *Journal of Management and Business*, 4(3), 309-315.
- Aprilia, R. W. P. K. & Purwanto, S. (2023). The effect of e-servicescape and gamification on TOKOPEDIA customer loyalty (Study on TOKOPEDIA customers in SURABAYA City). *COSTING: Journal of Economic, Business and Accounting*, 7(1), 1632-1640. <https://doi.org/10.31539/costing.v7i1.7308>
- Athapathhu, A. M. B. T., Ushantha, R. A. C. & Rathnayaka, R. M. K. T. (2019, October). The impact of e-servicescape on consumers' online purchase intention towards online retail websites in Sri Lanka: The mediating effect of website trust. *In Proceedings of the 4th Interdisciplinary Conference of Management Researchers* (pp. 28-46).
- Bagozzi, R. P. & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, 16(1), 74-94. <https://doi.org/10.1007/BF02723327>
- Bahj, H. A., Pratikto, H. & Dhewi, T. S. (2020). The impact of e-WOM and advertising on purchase decision Si.SE.SA Syar'i clothes with brand awareness as an intervening variables (a study on Si.SE.SA fashion consumers). *International Journal of Business, Economics and Law*, 23(1), 255-261.
- Ballantyne, D. & Nilsson, E. (2017). All that is solid melts into air: The servicescape in digital service space. *Journal of Services Marketing*, 31(3), 226-235. <https://doi.org/10.1108/JSM-03-2016-0115>
- Bambauer-Sachse, S. & Mangold, S. (2011). Brand equity dilution through negative online word-of-mouth communication. *Journal of Retailing and Consumer Services*, 18(1), 38-45. <https://doi.org/10.1016/j.jretconser.2010.09.003>
- Bandalos, D. L. (2002). The effects of item parceling on goodness-of-fit and parameter estimate bias in structural equation modeling. *Structural Equation Modeling*, 9(1), 78-102. https://doi.org/10.1207/S15328007SEM0901_5
- Baron, R. M. & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173-1182. <https://doi.org/10.1037/0022-3514.51.6.1173>
- Brand Finance (2021, June 10). *Global-500*. Retrieved from <https://brandirectory.com/rankings/global/table>.
- Budiman, S. (2021). The effect of social media on brand image and brand loyalty in generation Y. *Journal of Asian Finance, Economics and Business*, 8(3), 1339-1347. <https://doi.org/10.13106/jafeb.2021.vol8.no3.1339>
- Bulut, Z. A. & Onaran, B. (2017, September). The link between consumers' online shopping behaviours and e-servicescape in C2C e-commerce: Evidences from Turkey. *In Proceedings of the 23rd International Scientific Conference on Economic and Social Development* (pp. 390-400).
- Chieng, F. Y. L. & Lee, G. C. (2011). Customer-based brand equity: A literature review. *Journal of Arts Science & Commerce*, 2, 33-42.
- Christodoulides, G. & Chernatony, L. (2010). Consumer-based brand equity conceptualisation and measurement: A literature review. *International Journal of Market Research*, 52(1), 43-66. <https://doi.org/10.2501/S1470785310201053>
- Cuong, P. H. (2020). Factors influencing e-WOM online consumer goods purchase behavior: Evidence from Vietnam. *Academy of Entrepreneurship Journal*, 26(2), 1-11.
- Dassanayake, H. C. & Senevirathne, A. (2018). Impact of e-servicescapes on student engagement: Mediating impact of experience quality. *Asian Association of Open Universities Journal*, 13(2), 203-222. <https://doi.org/10.1108/aaouj-11-2018-0024>
- Datareportal (2020, December 20). *Digital 2020: Global digital overview*. Retrieved from <https://datareportal.com/reports/digital-2020-global-digital-overview>.
- Dewi, N. P. T. & Rastini, N. M. (2020). The role of brand image mediating the effect of e-WOM on the purchase intention of Yamaha n-max in Denpasar city. *American Journal of Humanities and Social Sciences Research*, 4(3), 60-66.
- Dewi, K. A. P. & Giantari, I. G. A. K. (2020). The role of brand image in mediating the influence of e-WOM and celebrity endorser on purchase intention. *American Journal of Humanities and Social Sciences Research*, 4(1), 221-232.
- Duarte, P., Costa e Silva, S. & Ferreira, M.B. (2018). How convenient is it? Delivering online shopping convenience to enhance customer satisfaction and encourage e-WOM. *Journal of Retailing and Consumer Services*, 44, 161-169. <https://doi.org/10.1016/j.jretconser.2018.06.007>
- Dülek, B. & Saydan, R. (2019, December). The effect of electronic word of mouth on brand awareness, brand image and brand loyalty. *In Proceedings of the 3rd International Congress of Social Sciences and Humanities* (pp. 887-897). (ISPEC)
- Elseidi, R. I. & El-Baz, D. (2016). Electronic word of mouth effects on consumers' brand attitudes, brand image. *International conference on Restructuring of the Global Economy*, 7(5), 268-276.
- Erşen, D., Karabiyik Yerden, N. & Öztekin, M. (2020). The effect of electronic word of mouth on brand loyalty through brand trust within the scope of information adoption model: A research on online consumers. *Galatasaray University Journal of Communication*, 32, 163-197. <https://doi.org/10.16878/gsuilet.696855>

- Fadillah, L. M., Afifah, D., Samosir, J. R. & Ayutia, Y. (2020). Promotion of Garuda Indonesia through social media on e-WOM, online ticket sales, and brand image during the Covid-19 Pandemic. *Global Research on Sustainable Transport & Logistic*, 718-726.
- Faiza, N. & Rachman, R. (2023). Perceived value as a mediation of the influence of e-servicescape on customer loyalty. *Journal of Economics and Business Growth (JEBG)*, 21(2), 458-472. <https://doi.org/10.36841/growth-journal.v21i2.3975>
- Farquhar, P. H. (1989). Managing brand equity. *Marketing Research*, 24-33.
- Febrian, A. & Fadly, M. (2021). The impact of customer satisfaction with e-WOM and brand equity on e-commerce purchase intention in Indonesia moderated by culture. *Binus Business Review*, 12(1), 41-51. <https://doi.org/10.21512/bbr.v12i1.6419>
- Foroudi, P., Jin, Z., Gupta, S., Foroudi, M. M. & Kitchen, P. J. (2018). Perceptual components of brand equity: Configuring the symmetrical and asymmetrical paths to brand loyalty and brand purchase intention. *Journal of Business Research*, 89, 462-474. <https://doi.org/10.1016/j.jbusres.2018.01.031>
- Foster, B. & Johansyah, M. D. (2020). Effect of the use of internet marketing and e-WOM on brand awareness. *Opcion*, 36(91), 158-175.
- Ganguly, B., Dash, S. B., Cyr, D. & Head, M. (2010). The effects of website design on purchase intention in online shopping: The mediating role of trust and the moderating role of culture. *International Journal of Electronic Business*, 8(4/5), 302-330. <https://doi.org/10.1504/ijeb.2010.035289>
- Garlet, N., Santos, A. R. & Tezza, R. (2018). The impact of the institutional website on corporate image: A framework proposition from the e-servicescape. *Brazilian Journal of Marketing*, 17(6), 946-960. <https://doi.org/10.5585/bmj.v17i6.3906>
- Gaskin, J. (2016, January 20). StatWiki. Retrieved from www.statwiki.gaskination.com.
- Gharibi, N., Rudsari, S. M. M. & Nasouti, M. (2020). Tourists' e-loyalty to a destination website: A case of an Iranian tourism website. *International Journal of Tourism Policy*, 10(1), 88-96. <https://doi.org/10.1504/IJTP.2020.107198>
- Godey, B., Manthiou, A., Pedersoli, D., Rokka, J., Aiello, G., Donvito, R. & Singh, R. (2016). Social media marketing efforts of luxury brands: Influence on brand equity and consumer behavior. *Journal of Business Research*, 69(12), 5833-5841. <https://doi.org/10.1016/j.jbusres.2016.04.181>
- Hair, J. F., Black, W. C., Babin, B. J. & Anderson R. E. (2014). *Multivariate data analysis*. London: Pearson.
- Hakim, L. & Deswindi, L. (2015). Assessing the effects of e-servicescape on customer intention: A study on the hospital websites in South Jakarta. *Procedia-Social and Behavioral Sciences*, 169, 227-239. <https://doi.org/10.1016/j.sbspro.2015.01.306>
- Hall, R. J., Snell, A. F. & Foust, M. S. (1999). Item parceling strategies in SEM: Investigating the subtle effects of unmodeled secondary constructs. *Organizational Research Methods*, 2(3), 233-256. <https://doi.org/10.1177/109442819923002>
- Harris, L.C. & Goode, M. M. H. (2010). Online servicescapes, trust, and purchase intentions. *Journal of Services Marketing*, 24(3), 230-243. <https://doi.org/10.1108/08876041011040631>
- Hee-Young, J. (2016). Effects of e-servicescape of eco-friendly agricultural product specialty shopping malls on site loyalty of shopping mall users: Focusing on mediation effects of trust, site image and involvement. *Journal of Distribution Management*, 19(6), 43-67. <https://doi.org/10.17961/jdmr.19.6.201612.43>
- Hennig-Thurau, T., Gwinner, K. P., Walsh, G. & Gremler, D. D. (2004). Electronic word-of-mouth via consumer-opinion platforms: What motivates consumers to articulate themselves on the Internet? *Journal of Interactive Marketing*, 18(1), 38-52. <https://doi.org/10.1002/dir.10073>
- Hermantoro, M. & Albari (2022). E-Servicescape analysis and its effect on perceived value and loyalty on e-commerce online shopping sites in Yogyakarta. *International Journal of Business Ecosystem & Strategy*, 4(4), 39-49. <http://dx.doi.org/10.36096/ijbes.v4i4.354>
- Hopkins, C. D., Grove, S. J., Raymond, M. A. & Laforge, M. C. (2009). Designing the e-servicescape: Implications for online retailers. *Journal of Internet Commerce*, 8(1/2), 23-43. <https://doi.org/10.1080/15332860903182487>
- Huang, D., Li, Z., Mou, J. & Liu, X. (2017). Effects of flow on young Chinese consumers' purchase intention: A study of e-servicescape in hotel booking context. *Information Technology and Tourism*, 17(2), 203-228. <https://doi.org/10.1007/s40558-016-0073-0>
- Ihsan, A. & Kurniawati, D. T. (2019). The effect of e-servicescape dimension on Tokopedia consumer trust. *Student Scientific Journal*, 8(2), 1-15.
- Ivana, W. & Utarestantix. (2018). Does brand image certainly mediate relationships between e-WOM and purchase intention? A case study of Samsung smartphone marketing in Papua. *Advances in Social Sciences Research Journal*, 5(3), 567-577. <https://doi.org/10.14738/assrj.53.3896>
- Jalilian, H., Ebrahimi, E. & Mahmoudian, O. (2013). The effect of electronic word of mouth (e-WOM) on consumer's purchase intention through customer based brand equity. *Journal of Business Management*, 4(4), 41-64.
- Jalilvand, M. R. & Samiei, N. (2012). The effect of electronic word of mouth on brand image and purchase intention: An empirical study in the automobile industry in Iran. *Marketing Intelligence and Planning*, 30(4), 460-476. <https://doi.org/10.1108/02634501211231946>
- Jatmika, C. S. (2014). The effect of electronic word of mouth on brand image and purchase intention of Samsung smartphone in Surabaya. *University of Surabaya Student Scientific Journal*, 3(2), 1-15.
- Jeong, M., Oh, H. & Gregoire, M. (2003). Conceptualizing web site quality and its consequence in the lodging industry. *International Journal of Hospitality Management*, 22(2), 161-175.
- Kechagia, K. (2018). *Servicescape in digital environment*. Unpublished master thesis, Aristotle University of Thessaloniki, Thessaloniki.
- Keller, K. L. (1993). Conceptualizing, measuring, and managing customer-based brand equity. *Journal of Marketing*, 57, 1-22.
- Keller, K. L. (2013). *Strategic brand management*. Boston: Pearson.
- Khuong, M. N. & Hanh, N. H. (2016). Factors affecting brand equity of online travel booking service in Ho Chi Minh city-A mediation analysis of e-word of mouth. *Journal of Economics, Business and Management*, 4(4), 266-271. <https://doi.org/10.18178/joebm.2016.4.4.402>
- Kim, H. B., Kim, W. G. & An, J. A. (2003). The effect of consumer-based brand equity on firms' financial performance. *Journal of Consumer Marketing*, 20(4/5), 335-351. <https://doi.org/10.1108/07363760310483694>
- Kishton, J. M. & Widaman, K. F. (1994). Unidimensional versus domain representative parceling of questionnaire items: An empirical example. *Educational and Psychological Measurement*, 54(3), 757-765. <https://doi.org/10.1177/0013164494054003022>

- Kotler, P. & Keller, K. L. (2012). *Marketing management*. Boston: Prentice Hall.
- Kurniawati, D. T. & Yaakop, A. Y. (2021). The effect of e-servicescape dimensions on customer trust of Tokopedia e-store during Covid-19 pandemic. *Journal of Management Application*, 19(1), 1-10. <https://doi.org/10.21776/ub.jam.2021.019.01.01>
- Kühn, S. W., Spies, H. & Petzer, D. J. (2015). Online servicescape dimensions as predictors of website trust in the South African domestic airline industry. *Southern African Business Review*, 19(1), 44-71. <https://doi.org/10.25159/1998-8125/5833>
- Lai, K. P. (2015). *E-servicescape attributes and their effects to online brand image*. Unpublished doctoral thesis, Multimedia University, Malaysia.
- Lai, K. P., Chong, S. C., Ismail, H. B., & Tong, D. Y. K. (2014). An explorative study of shopper-based salient e-servicescape attributes: A means-end chain approach. *International Journal of Information Management*, 34(4), 517-532. <https://doi.org/10.1016/j.ijinfomgt.2014.01.010>
- Lai, K. P., Chong, S. C., Ismail, H. B. & Tong, D. Y. K. (2015). Do salient e-servicescape attributes predict online brand image? *International Journal of Internet Marketing and Advertising*, 9(3), 209-232. <https://doi.org/10.1504/IJIMA.2015.071487>
- Lee, C. & Park, E. (2013). Effects of e-servicescape and positive emotion on purchase intention for fashion products. *Korean Journal of Human Ecology*, 22(1), 157-166.
- Lee, K. T. & Koo, D. M. (2012). Effects of attribute and valence of e-WOM on message adoption: Moderating roles of subjective knowledge and regulatory focus. *Computers in Human Behavior*, 28(5), 1974-1984. <https://doi.org/10.1016/j.chb.2012.05.018>
- Li, Z., Tulcanaza-Prieto, A.B. & Lee, C.W. (2024). Effect of e-servicescape on emotional response and revisit intention in an internet shopping mall. *J. Theor. Appl. Electron. Commer. Res.*, 19, 2030-2050. <https://doi.org/10.3390/jtaer19030099>
- Lianto, A. S. (2015). The effect of e-WOM on brand image and brand trust and its impact on interest in buying smartphones in Surabaya. *Petra Business & Management Review*, 1(2), 50-65.
- Lin, K., Du, W., Yang, S., Liu, C. & Na, S. (2023). The effects of social media communication and e-WOM on brand equity: The moderating roles of product involvement. *Sustainability*, 15(8), 1-19. <https://doi.org/10.3390/su15086424>
- Little, T. D., Cunningham, W. A., Shahar, G. & Widaman, K. F. (2002). To parcel or not to parcel: Exploring the question, weighing the merits. *Structural Equation Modeling*, 9(2), 151-173. https://doi.org/10.1207/S15328007SEM0902_1
- Little, T. D., Rhemtulla, M., Gibson, K. & Schoemann, A. M. (2013). Why the items versus parcels controversy needn't be one. *Psychological Methods*, 18(3), 285-300. <https://doi.org/10.1037/a0033266>
- Londono, J. C., Elms, J. & Davies, K. (2016). Conceptualising and measuring consumer-based brand-retailer-channel equity. *Journal of Retailing and Consumer Services*, 29, 70-81. <https://doi.org/10.1016/j.jretconser.2015.11.004>
- Luong, B. D., Vo, T. H. G. & Le, K. H. (2017). The impact of electronic word of mouth on brand image and buying decision: An empirical study in Vietnam tourism. *International Journal of Research Studies in Management*, 6(1), 53-63. <https://doi.org/10.5861/ijrsm.2017.1738>
- Mari, M. & Poggesi, S. (2013). Servicescape cues and customer behavior: A systematic literature review and research agenda. *Service Industries Journal*, 33(2), 171-199. <https://doi.org/10.1080/02642069.2011.613934>
- Matsunaga, M. (2008). Item parceling in structural equation modeling: A primer. *Communication Methods and Measures*, 2(4), 260-293. <https://doi.org/10.1080/19312450802458935>
- Mughoffar, M., Sumarwan, U. & Tinaprilla, N. (2019). The effect of e-WOM and brand image on the interest in buying the heavenly blush yoghurt product. *Indonesian Journal of Business and Entrepreneurship*, 5(2), 158-167. <https://doi.org/10.17358/ijbe.5.2.158>
- Mustafaoğlu, G. & Boztepe Taşkıran, H. (2020). The role of electronic word of mouth communication on destination brand image and brand preference. *Kocaeli University Faculty of Communication Research Journal*, 16, 101-131.
- Netemeyer, R. G., Krishnan, B., Pullig, C., Wang, G., Yagci, M., Dean, D., Ricks, J. & Wirth, F. (2004). Developing and validating measures of facets of customer-based brand equity. *Journal of Business Research*, 57(2), 209-224. [https://doi.org/10.1016/S0148-2963\(01\)00303-4](https://doi.org/10.1016/S0148-2963(01)00303-4)
- Ningsih, D. R., Ap, I. W. J. & Sopiah (2019). The effect of service quality and electronic word of mouth (e-WOM) towards the loyalty through brand image (The study on the customers of Sriwijaya Air in Indonesia). *European Journal of Business and Management*, 11(12), 79-88.
- Ningtyas, I. N. A., Setyawati, S. M. & Luhita, T. (2023). Analysis of the influence of electronic word of mouth and e-servicescapes on consumer trust and online purchase interest (Study on Shopee e-commerce users). *Journal of Economics, Business and Accounting (JEBA)*, 25(2), 77-87. <https://doi.org/10.32424/jeba.v25i2.3770>
- Oebit, Z. & Sari, P. K. (2018). The effect of e-servicescape on trust and their impact on repurchase intention: A case study of go-food. *Journal of Information System*, 14(2), 43-52. <https://doi.org/10.21609/jsi.v14i2.698>
- Özdemir, S., Kayhan, R., & Aksoy Özer, İ. (2021). The effect of source credibility dimensions, electronic word of mouth communication and brand image dimensions on consumer purchase intention in the pandemic (Covid-19) period: A research on Instagram Phenomena. *Journal of Marketing and Marketing Research*, 14(1), 113-146. <https://doi.org/10.15659/ppad.14.2.258>
- Pappu, R. & Quester, P. (2006). A consumer-based method for retailer equity measurement: Results of an empirical study. *Journal of Retailing and Consumer Services*, 13(5), 317-329. <https://doi.org/10.1016/j.jretconser.2005.10.002>
- Pasha, R. R. & Sari, D. (2019). Analysis the effect of social media marketing activity and e-WOM on brand equity at online marketplace shopee of bandung citizen. *e-Proceeding of Management*, 6(2), 3920-3929.
- Pebrianti, W., Arweni, A. & Awal, M. (2020). Digital marketing, e-WOM, brand awareness and millennial coffe purchase decisions. *Journal of Economics & Social Science*, 11(1), 48-56. <https://doi.org/10.35724/jjes.v11i1.2848>
- Phan, Q. P. T. & Piliik, M. (2018). The relationship between website design and positive e-WOM intention: Testing mediator and moderator effect. *Journal of Business Economics and Management*, 19(2), 382-398. <https://doi.org/10.3846/jbem.18.5690>
- Putra, T. R. I., Ridwan & Calvin, M. (2020). How electronic word of mouth (e-WOM) affects purchase intention with brand image as a mediation variable: Case of Xiaomi smartphone in student. *Journal of Physics*, 1-7. <https://doi.org/10.1088/1742-6596/1500/1/012094>
- Putri, L. M. & Rahyuda, K. (2021). The role of brand image mediates the effect of e-WOM on purchase intention. *American Journal of Humanities and Social Sciences Research*, 5(2), 531-541.

- Rahman, M. M., Arifin, Z. & Bafadhal, A. S. (2018a). The effect of e-servicescape on e-trust. *Journal of Business Administration*, 61(4), 169-176.
- Rahman, A., Khan, S. A., Hamid, A. B. A., Latiff, A. S. A. & Mahmood, R. (2018b, November). Impact of electronic word of mouth (e-WOM) on brand image and online purchase intention: The perspective of Bangladesh. In *Proceedings of the 3rd International Conference on Dynamic Innovation Conference* (pp. 61-79). (ICDI)
- Roy, S. K., Lassar, W. M. & Butaney, G. T. (2014). The mediating impact of stickiness and loyalty on word-of-mouth promotion of retail websites: A consumer perspective. *European Journal of Marketing*, 48, 1828-1849. <https://doi.org/10.1108/EJM-04-2013-0193>
- Safira, S. N. & Nirawati, L. (2024). The influence of e-servicescape, e-trust, and e-service quality on customer satisfaction on the e-commerce (Study of Shopee users in Surabaya city). *Journal of Business Management*, 11(2), 1530-1543. <https://doi.org/10.33096/jmb.v11i2.920>
- Samosir, J., Kuntohadi, H., Sihombing, S., Fadillah, L.M. & Afifah, D. (2021). A study on the influence of promotion of Garuda Indonesia by social media on e-WOM, online ticket sales, brand image, and brand loyalty during the Covid-19 pandemic. *Turkish Journal of Computer and Mathematics Education*, 12(3), 4458-4464.
- Saputra, A. A. A. J. & Wardana, I. M. (2020). The role of trust and brand images in meditation of e-WOM effects on purchase decisions. *American Journal of Humanities and Social Sciences Research*, 4(7), 1-8.
- Sayuti, N. P. H. K. & Sukaatmadja, P. G. (2021). The effect of advertisement attitude and positive e-WOM on purchase intention mediated by brand image of Samsung smartphone in Denpasar city. *International Journal of Economics, Commerce and Management*, 9(2), 195-211.
- Seo, E. J. & Park, J. W. (2018). A study on the influence of the information characteristics of airline social media on e-WOM, brand equity and trust. *The Open Transportation Journal*, 12(1), 289-300. <https://doi.org/10.2174/1874447801812010289>
- Seo, E. J., Park, J. W. & Choi, Y. J. (2020). The effect of social media usage characteristics on e-WOM, trust, and brand equity: Focusing on users of airline social media. *Sustainability*, 12(4), 1-18. <https://doi.org/10.3390/su12041691>
- Shin, J. H. & Jeong, Y. G. (2021). The effect of e-servicescape on website trust and repurchase intention. *Journal of the Korean Contents Association*, 21(3), 490-504.
- Shojaee, S. & Azman, A.B. (2013). An evaluation of factors affecting brand awareness in the context of social media in Malaysia. *Asian Social Science*, 9(17), 72-78. <https://doi.org/10.5539/ass.v9n17p72>
- Sihombing, B. I. & Fachrodji, A. (2021). The influence of social media promotion activities and e-WOM on treatment decision meditating by brand awareness of EMC tangerang hospital. *International Journal of Research and Review*, 8(2), 492-504.
- Sijoria, C., Mukherjee, S. & Datta, B. (2019). Impact of the antecedents of electronic word of mouth on consumer based brand equity: A study on the hotel industry. *Journal of Hospitality Marketing and Management*, 28(1), 1-27. <https://doi.org/10.1080/19368623.2018.1497564>
- Sreejesh, S. & Ponnampal, A. (2017). Investigating the process through which e-servicescape creates e-loyalty in travel and tourism websites. *Journal of Travel and Tourism Marketing*, 34(1), 20-39. <https://doi.org/10.1080/10548408.2015.1126213>
- Stefani, S. A. & Rizal, A. (2022). The Influence of E-servicescape (Aesthetic Appeal, Layout & Functional, Financial Security) on Trust (Study on Shopee Users). *Journal of Management YUME*, 5(1), 269-278. <https://doi.org/10.37531/yum.v5i1.1465>
- Sun, Y., Gonzalez-Jimenez, H. & Wang, S. (2021). Examining the relationships between e-WOM, consumer ethnocentrism and brand equity. *Journal of Business Research*, 130, 564-573. <https://doi.org/10.1016/j.jbusres.2019.09.040>
- Syahriwar, J. & Ichlas, A. M. (2018). The impact of electronic word of mouth (e-WOM) on brand equity of imported shoes: Does a good online brand equity result in high customers' involvements in purchasing decisions? *The Asian Journal of Technology Management (AJTM)*, 11(1), 57-69. <https://doi.org/10.12695/ajtm.2018.11.1.5>
- Taher, S. F. & Almeshal, S. A. (2020). The influence of value-co-creation on brand equity: An empirical study in Saudi Arabia. *International Journal of Management & Information Technology*, 15, 43-53. <https://doi.org/10.24297/ijmit.v15i.8749>
- Tankovic, A. C. & Benazic, D. (2018). The perception of e-servicescape and its influence on perceived e-shopping value and customer loyalty. *Online Information Review*, 42(7), 1124-1145. <https://doi.org/10.1108/OIR-12-2016-0354>
- Teng, H. J., Ni, J. J. & Chen, H. H. (2018). Relationship between e-servicescape and purchase intention among heavy and light internet users. *Internet Research*, 28(2), 333-350. <https://doi.org/10.1108/IntR-10-2016-0303>
- Thompson, M. F., Newman, A. & Liu, M. (2014). The moderating effect of individual level collectivist values on brand loyalty. *Journal of Business Research*, 67(11), 2437-2446. <https://doi.org/10.1016/j.jbusres.2014.02.011>
- Tong, X. & Hawley, J. M. (2009). Measuring customer-based brand equity: Empirical evidence from the sportswear market in China. *Journal of Product and Brand Management*, 18(4), 262-271. <https://doi.org/10.1108/10610420910972783>
- Torlak, O., Ozkara, B., Tiltay, M., Cengiz, H. & Dulger, M. (2014). The effect of electronic word of mouth on brand image and purchase intention: An application concerning cell phone brands for youth consumers in Turkey. *Journal of Marketing Development and Competitiveness*, 8(2), 61-68.
- Tran, G. A. (2014). *Investigating e-servicescape, trust, e-WOM, and customer loyalty*. Unpublished doctora thesis, University of North Texas, Texas.
- Tran, T. P., Mai, E. S. & Taylor, E. C. (2021). Enhancing brand equity of branded mobile apps via motivations: A service-dominant logic perspective. *Journal of Business Research*, 125, 239-251. <https://doi.org/10.1016/j.jbusres.2020.12.029>
- Tran, G. A. & Stratton, D. (2020). Comparing email and SNS users: Investigating e-servicescape, customer reviews, trust, loyalty and e-WOM. *Journal of Retailing and Consumer Services*, 53, 1-17. <https://doi.org/10.1016/j.jretconser.2019.03.009>
- Tran, G. A., Stratton, D. & Taylor, D. G. (2012). Do microblog postings influence consumer perceptions of retailers' e-servicescapes? *Management Research Review*, 35(9), 818-836. <https://doi.org/10.1108/01409171211256217>
- Tunçer, A. (2018). *The role of innovative organizational climate on intellectual capital's effect on business performance in companies: A research in large-scale enterprises*. Unpublished doctoral thesis, Haliç University, Istanbul.
- TÜBİSAD (2020, November 14). *E-Commerce in Turkey 2019 Market Size*. Retrieved from https://www.tubisad.org.tr/tr/images/pdf/tubisad_e-ticaret_2019_pazar_buyuklugu_raporu.pdf.

- Ulum, F., Basalamah, M. R. & Farida, E. (2016). The effect of e-servicescape in increasing customer loyalty through customer satisfaction and trust as intervening variables on Tokopedia users in Malang. *Budapest International Research and Critics Institute-Journal (BIRCI-Journal)*, 5(3), 22533-22544. <https://doi.org/10.33258/birci.v5i3.6266>
- Urmak, T. T. & Dayanç Kiyat, G. (2021). The effect of brand image on electronic word of mouth (e-WOM) marketing: A research on notebook users. *Istanbul Commerce University Journal of Social Sciences*, 20(40), 505-524. <https://doi.org/10.46928/iticusbe.824941>
- Vahdati, H. & Nejad, S. H. M. (2016). Brand personality toward customer purchase intention: The intermediate role of electronic word-of-mouth and brand equity. *Asian Academy of Management Journal*, 21(2), 1-26. <https://doi.org/10.21315/aamj2016.21.2.1>
- Vilnai-Yavetz, I. & Rafaeli, A. (2006). Aesthetics and professionalism of virtual servicescapes. *Journal of Service Research*, 8(3), 245-259. <https://doi.org/10.1177/1094670505281665>
- Wei, G., Lin, W., Yanxiong, W., Jingdong, Y. & Musse, S. Y. (2021). The relationship of sustainability communication on social media with banking consumers' loyalty through e-WOM. *Sustainability*, 13(7), 1-13. <https://doi.org/10.3390/su13073832>
- Syah, M. P. A. & Widodo, T. (2023). The role of consumer ethnocentrism in mediating the influence of e-WOM on brand equity (Study on Shopee and Bukalapak). *Journal of Humanities and Social Studies*, 7(3), 740-745. <https://doi.org/10.33751/jhss.v7i3.8438>
- Worldef (2020, December 20). *Expected changes in the field of e-export in the post-pandemic world*. Retrieved from <https://worlddef.net/raporlar/covid-19-e-ticaret-ve-e-ihracat-raporu-sayfasi/>.
- Wu, W. Y., Quyen, P. T. P., & Rivas, A. A. A. (2017). How e-servicescapes affect customer online shopping intention: The moderating effects of gender and online purchasing experience. *Information Systems and e-Business Management*, 15(3), 689-715. <https://doi.org/10.1007/s10257-016-0323-x>
- Yadav, R. & Mahara, T. (2020). Exploring the role of e-servicescape dimensions on customer online shopping: A stimulus-organism-response paradigm. *Journal of Electronic Commerce in Organizations (JECO)*, 18(3), 53-73. <http://doi.org/10.4018/JECO.2020070104>
- Yohana, N. K. Y., Dewi, K. A. P. & Giantari, G. A. K. (2020). The role of brand image mediates the effect of electronic word of mouth (e-WOM) on purchase intention. *American Journal of Humanities and Social Sciences Research*, 4(1), 215-220.
- Yoo, B. & Donthu, N. (2001). Developing and validating a multidimensional consumer-based brand equity scale. *Journal of Business Research*, 52(1), 1-14. [https://doi.org/10.1016/S0148-2963\(99\)00098-3](https://doi.org/10.1016/S0148-2963(99)00098-3)
- Yoo, B. & Donthu, N. (2002). Testing cross-cultural invariance of the brand equity creation process. *Journal of Product & Brand Management*, 11(6), 380-398. <https://doi.org/10.1108/10610420210445505>
- Yoo, B., Donthu, N. & Lee, S. (2000). An examination of selected marketing mix elements and brand equity. *Journal of the Academy of Marketing Science*, 28(2), 195-211.



An Analysis of the Determinants of Environmental, Social and Governance (ESG) Scores at the Firm level on Borsa İstanbul Companies

Nida Abdioğlu^{1,a,*}, Sinan Aytekin^{2,b}

¹Department of Business Administration, Faculty of Economics and Administrative Sciences, Bandırma Onyedi Eylül University, Balıkesir, Türkiye

²Department of Business Administration, Faculty of Economics and Administrative Sciences, Balıkesir University, Balıkesir, Türkiye

*Corresponding author

Research Article

History

Received: 14/09/2024

Accepted: 27/11/2024

JEL Codes: C33, L25, O16, Q56

ABSTRACT

Environmental, Social, and Governance (ESG) scores reflect how major corporations are evaluated based on ethical practices and sustainability efforts. This study aims to analyse the factors at the firm level that influence the ESG scores of 34 companies traded on Borsa İstanbul between 2018 and 2022. While the dependent variables are the ESG scores, the independent variables are financial leverage (LEV), the logarithm of total assets (SIZE), return on invested capital (ROIC), return on capital employed (ROCE), market to book value (MB) ratio, and foreign net transactions/total volume (YS) ratio. The analyses are carried out individually, focusing on the three distinct aspects of corporate sustainability: environmental, social, and governance. This study employs fixed-effect panel data analysis utilizing the Driscoll and Kraay (1998) estimators. According to the results of the analyses, it is found that the variables LEV, ROCE, YS, and SIZE have positive impacts on ESG scores. Furthermore, the criteria that make up the ESG score are also examined separately. It is determined that the environmental criterion (ENV) is positively influenced by the variables LEV, ROCE, MB, and SIZE. The social criterion (SOC) is positively and significantly influenced by the variables LEV, ROCE, MB, and SIZE, while the variable ROIC has a negative effect. The governance criterion (GOV) is positively influenced by the variables ROCE, YS, and SIZE, while the variable MB has a negative impact on the criterion. The results of the analyses are in line with the legitimacy theory and agency theory.

Keywords: ESG Performance, Sustainability, Firm Performance, Profitability, BIST

Borsa İstanbul Firmalarında ESG Skorlarının Firma Düzeyindeki Belirleyicilerinin Analizi

Süreç

Geliş: 14/09/2024

Kabul: 27/11/2024

Jel Kodlar: C33, L25, O16, Q56

Öz

Çevresel, Sosyal ve Yönetişim (ESG) skorları, büyük şirketlerin etik uygulamalar ve sürdürülebilirlik çabalarına göre nasıl değerlendirildiğini yansıtır. Bu skorlar, bir şirketin çevresel, sosyal ve yönetişim uygulamalarıyla ilgili çeşitli faktörlerden etkilenir. Bu çalışmada Borsa İstanbul'da işlem gören 34 firmanın 2018-2022 dönemi ESG skorlarını etkileyen firma düzeyindeki faktörlerin incelenmesi amaçlanmıştır. Bağımlı değişken olarak ESG skorları kullanılırken bağımsız değişkenler olarak ise finansal kaldıraç (LEV), toplam varlıkların logaritması (SIZE), yatırılan sermayenin getirisi (ROIC), kullanılan sermayenin getirisi (ROCE), piyasa değeri/defter değeri (MB) ve hisse yabancı net işlem/toplam hacim (YS) oranları kullanılmıştır. Analizler ayrı ayrı yürütülmekte olup, kurumsal sürdürülebilirliğin üç farklı boyutuna odaklanılmaktadır: çevresel, sosyal ve yönetişim. Çalışmada Driscoll ve Kraay (1998) tahminçileri ile sabit etkiler panel veri analizi kullanılmaktadır. Analiz sonuçlarına göre LEV, ROCE, YS ve SIZE değişkenlerinin ESG skorları üzerinde pozitif etkiye sahip olduğu bulunmuştur. Ayrıca ESG skorunu oluşturan ölçütler ayrı ayrı da incelenmiştir. Çevre ölçütünü (ENV) LEV, ROCE, MB ve SIZE değişkenlerinin olumlu etkilediği tespit edilmiştir. Sosyal ölçüt (SOC) üzerinde LEV, ROCE, MB ve SIZE değişkenleri pozitif ve anlamlı bir etkiye sahipken ROIC değişkeninin negatif etkisi olduğu görülmüştür. Yönetişim ölçütünü (GOV) ROCE, YS ve SIZE değişkenlerinin pozitif yönde etkilediği, diğer taraftan MB değişkeninin ölçüt üzerinde negatif etkiye sahip olduğu bulunmuştur. Analiz sonuçları meşruyet teorisi ve vekalet teorisi ile uyumludur.

Anahtar Kelimeler: ESG Performansı, Sürdürülebilirlik, Firma Performansı, Karlılık, BIST

Copyright



This work is licensed under
Creative Commons
AttributionNonCommercial 4.0
International License International
License

^a nabdiaqlu@bandirma.edu.tr

^b [0000-0002-8498-9893](tel:0000-0002-8498-9893)

^b saytekin@balikesir.edu.tr

^b [0000-0003-1502-2643](tel:0000-0003-1502-2643)

How to Cite: Abdioğlu N, Aytekin S (2025) An Analysis of the Determinants of Environmental, Social and Governance (ESG) Scores at the Firm level on Borsa İstanbul Companies, Journal of Economics and Administrative Sciences, 26(1): 95-104, DOI: 10.37880/cumuiibf.1550128

Introduction

The Environmental, Social and Governance (ESG) scores are implications of how higher corporate entities are judged on the grounds of ethics and sustainability. These scores are affected by various features of the Environmental Social Governance of business.

The environmental scores are determined by various factors related to a firm's ESG performance. Key internal initiatives such as evaluating climate change risks, energy consumption intensity, and emission reduction efforts play a significant role in shaping these scores (Mahapatra et al., 2021: 3). Apart from that, Wang and Wang (2022) explain that the level of environmental regulations played a role via triggers, including foreign direct investment, technological revolution, and industrial construction. Among them, the lack of good governance, barriers to renewable energy adoption, and national energy policies are identified as key critical determinants impeding the elevation of an environmental rating (Fatima et al., 2021: 51716).

Factors that can influence the social scores under workforce diversity, community engagement and stakeholder relations are a pool of factors. For example, research has found that social scores are particularly sensitive to workforce composition concerning gender and ethnicity (Kiradoo, 2022: 144). This increasing importance of ESG criteria in measuring how ethical and sustainable a firm's practices are cement yet again the domineering contribution that social factors have on overall ratings (Warouw et al., 2024: 817).

Governance ratings, a principal part of ESG evaluations, are influenced by board composition and corporate practice as well as company structure. The study documents a positive relation between board diversity, in particular women representation, and company value (Carter et al., 2003: 38). From the empirical analysis significant determinants of disclosure are firm size, firm age, family members in the board and verticality (Pfeiffer & Jarchow, 2024: 662). Certain others act as the major discriminants between good governance firms and high governance-rated ones underlining the importance of strategic management decisions.

The Dow Jones Sustainability Index is the world's first universal sustainability index, founded in 1999. The Sustainability Index was launched as a joint publication under the roof of Borsa İstanbul (BIST) on November 4, 2014. The primary purpose of the BIST Sustainability Index, which replaced the voluntary market segments Star Market, Main Market, and SubMarket, is to try and increase understanding, knowledge, and practice on sustainability by creating an index with BIST traded companies having high corporate sustainability performance. Formerly calculated by EIRIS (Ethical Investment Research Services Limited), the BIST Sustainability Index began to utilize Refinitiv ESG scores as of October 2021. Also, BIST Sustainability 25 Index started to be published within BIST on November 21, 2022.

Assessing the factors affecting ESG scores reveals the inextricable interplay between the environmental, social and governance dimensions of firm operations. Understanding and addressing these determinants is key for businesses in the driver's seat to improve ESG performance and stakeholder trust. This way, by ranking environmental sustainability, social accountability, and effective governance performance, firms will be able to enhance ESG scores while making their share of contribution to society and environment goodwill as well. It's no other way that these efforts have to be followed up by adequate and balanced financing. With that, this paper therefore goals to explore the firm-level factors influencing the ESG scores of 34 firms listed on the BIST during 2018-2022. In this study, which is modelled by utilizing variables used in international literature owing to the restricted number of studies specific to firms traded on BIST and is thought to contribute to the field in this respect, independent variables are the same as those foreign ones used in most international sources as there were no earlier research specifically tailored for companies traded on BIST. These are the ESG scores from the Refinitiv Eikon database as dependent variables and financial leverage, logarithm of total assets, ROIC, ROCE, market to book value, and foreign stock net transaction/total volume ratios obtained from the Finnet Stock Expert application. The present study also contributes to shedding light on the mechanisms underlying corporate behaviour with respect to sustainability and social responsibility, through an investigation of ESG score determinants. As the importance of ESG scores rises, so does the trend among investors to show preference for firms with strong environmental and social credentials, coupled with good governance. For this reason, knowledge about what drives the ESG scores will be essential not only for knowing what companies are doing but also for making investment decisions and policy formulations as far as Türkiye's growing market is concerned.

Literature Review

ESG scores have been examined in the finance literature in three basic ways: as firm-level variables, sector-level variables, and country-level variables. Stakeholder theory (Ansoff, 1965), legitimacy theory (Perrow, 1970), agency theory (Jensen & Meckling, 1976), signalling theory (Spence, 1973), and institutional theory (DiMaggio and Powell, 1983) provide a few among many possible explanations. The variables that drive our study have been shown are the most widely used in the literature. While some of these consider ESG scores and/or basic measures as dependent variables, there are also some that include these scores in the analysis as independent variables in the literature. Overall, though ESG scores are positively related to profitability and firm value, some studies find a negative relation between these variables. Studies have also indicated that the relation between ESG scores and firm value as well as

profitability is heterogeneous with respect to (positive, neutral or negative) different key metrics of ESG scores.

In this study, ESG score is accepted as a dependent variable and determinants of ESG score have been investigated. The main aim of this paper is to investigate which factors affect the ESG scores of BIST firms. In the case of dependent variables being ESG scores and/or basic metrics, Crespi & Migliavacca (2020) study the determinants of ESG scores for 22 countries over the period 2006 to 2017. They find that ESG scores increased linearly over time and that return on equity and firm size have positive effects on ESG scores. In addition to reporting a similar finding Sharma et al. (2020) investigated the determinants of ESG scores for Indian firms from 2015 to 2016. The results expose that variables like return on assets and ROCE have positive effect on ESG scores. Further, market performance, the share of foreign institutional investors, and the leverage ratio have a negative relation with ESG scores. In their report, Zhao & Murrell (2022) note that "Might financial performance (ROA, ROE, and Tobin's Q) have positive relations with ESG scores." In another research work described by Garcia et al. (2017), 365 firms' data in BRICS stock exchanges during the period 2010-2012 are reviewed. It is therefore profitability (ROA) has a positive influence on environmental scores, one of the ESG basic metrics, for sensitive companies exposed to systematic social taboos and moral debates, political pressures that cause social and environmental damage and are likely to be sensitive. Just recently, Drempeć et al. (2020) commented that 'May firm size' have positive relations with ESG scores. In their study, they report that examining 3828 companies from different countries, namely the USA, UK, Canada and Japan. Furthermore, Khaled et al. (2021) established that higher market capitalization, profitable, more substantial, and less levered firms enjoy better ESG scores. ESG scores are influenced more by country-specific factors compared to firm-specific factors, as indicated by Cai et al. (2016), who analyse data on 2,632 companies from 36 countries. DasGupta (2021) find that firms in both developed and developing country stock exchanges between 2010 and 2019 report very strong financial performance deficiencies leading to high ESG scores. In his analysis, there is high, and statistically significant negative relation between R&D intensity and ESG scores. In the line with the study by Garcia-Blandon (2019), the financial performance of companies led by the World's Best-Performing CEOs, as ranked by Harvard Business Review in 2016, showed a negative effect in relation to ESG scores. This finding is further supported by Shahbaz et al. (2020), who found that superior ESG scores do not necessarily lead to high financial performance, based on their study of energy companies from 2011 to 2018. However, the research by Choi & Lee (2018) confirms the opposite: it also has a positive influence on performance, diminishing only as companies granted franchises. Another work confirming this was by Arminen et al. (2017), which shows that ESG scores are positively influenced by the degree of economic development, firm

size, and financial performance. Branco & Rodrigues (2008) investigate whether the degree of international activity, firm size, consumer proximity, environmental sensitivity, and media exposure is effective in social responsibility disclosure of Portuguese firms. They find that firm size and media exposure positively affect social responsibility disclosure. Jennifer Ho & Taylor (2007) examine the triple-bottom-line (TBL) reporting practices of 50 major companies from the U.S. and Japan. They find that overall TBL disclosures, which include economic, social, and environmental aspects, are more extensive among larger firms, those with lower profitability and liquidity, and companies within the manufacturing sector. Al Amosh & Khatib (2022) examine how ownership structure might influence the disclosure of environmental, social, and governance performance within Jordan. The findings indicate that both foreign and state ownership significantly impact the level of ESG performance disclosure. Foreign ownership is also accepted as an important dimension for emerging markets by Alkhalaf (2012). It is found to be an important factor affecting credit ratings of Jordan firms. Khoury et al. (2023) aim to examine the factors influencing ESG scores in the banking sector across Middle Eastern and North African countries. Findings show that banks with lower performance tend to have lower ESG scores, while larger banks generally have higher ESG scores.

The other part of the literature uses ESG scores as independent variables and investigates whether they are effective on firm performance. One of the studies that ESG scores have been positively related to firm value and/or profitability is evidenced in Velte (2017) by stating that ESG scores had a positive effect on profitability for German firms and governance is also strongly related to financial performance. For instance, this is the case in the study by Baldini et al. (2018) where the authors found firm-level variables (leverage, firm size) to be positively related to ESG scores in a study ranging over the years 2005-2012 and conducted on a multinational basis. Because, as Yoon et al. (2018) find that Corporate Social Responsibility initiatives did affect market value, but the effect is dependent on characteristics of the firm. They study the effect of ESG scores on financial performance for Indian firms over a period of two years by studying another set of US company between 2006-2011, just like Dalal & Thaker (2019) had done. A similar effect has been confirmed for recent US firms by a very intensive emphasis on ESG activities and reporting, as is done by Fatemi et al. (2018). Another research by Bhaskaran et al. (2020) follows on from a study aimed at re-examining the Tobin's Q, ROE and ROA ratios and ESG scores interrelation at the level of their effects on financial performance. The result of their analysis shows, indeed, that firms excelling in environmental, governance and social aspects are inclined to generate more value at the market level. Likewise, De Lucia et al. (2020) analysed 22 European countries on a sample of 1038 public firms. Their findings show a positive association between ESG scores and financial returns. Chairani & Siregar (2021) conducted an analysis of firms listed on the stock exchanges of Indonesia, Malaysia, the Philippines, Singapore and Thailand over the period 2014-2018. They find ESG scores which tend to magnify the impact of corporate risk management to have positive relation with firm value and profitability. In another

related development, Naeem et al. (2022) address how ESG performance influences financial performance. According to their findings, both individual ESG and combined scores are positively associated with Tobin's Q and ROA. For instance, at the industrial level, one study by Zhao et al. (2018) dwelt on the ESG performance of Chinese energy firms based on financial metrics and find out that higher ESG scores could drive a company to better financial performance. Likewise, using 2010-2020 data for companies in the Shanghai A Share index, Chen et al. (2023) prove in their study that ESG performance has a risk-lowering impact by increasing the cost of equity. Abdi et al. (2022) evaluate ESG scores' impact on firm value and profitability in the airline industry by conducting a study on 38 airline firms from 2009 to 2019 and found that ESG scores hiked the market to book value. For instance, for the London Stock Exchange companies between 2004 and 2013, Li et al. (2018) have hinted that ESG reporting might enhance firm value by building trust and responsiveness to stakeholders. Over the period 2002–2018, D'Amato et al. (2023) claim that ESG scores outperform traditional accounting variables in relation to explaining EBIT and that corporate social responsibility actions were a driver of firm performance. For the FTSE350 London Stock Exchange, Ahmad et al. (2021) argue that ESG scores provide a significant improvement in companies' financial performance. Parikh et al. (2023) aims to explore how ESG scores relate to shareholder wealth and to identify potential criteria for future investment choices. The findings reveal that the governance factor has a positive effect on stock returns, while the environmental factor has a negative effect. Additionally, the social factor appears to have no significant impact on equity returns.

One of the studies finding the ESG scores to be negatively related to firm value and/or profitability, Brammer et al. (2006) researched the effect of corporate social performance on market returns of UK firms and found that low social scores are associated with better-than-average market returns. Recent research by Landi & Sciarelli (2019) shows a negative correlation between ESG scores and financial performance for Italian companies. Folger-Laronde et al. (2020) recently compare Canadian exchange-traded funds with respect to their ESG scores and financial returns during the Covid-19. They communicate that hence positive ESG scores, such exchange-traded funds do not give shelter during a period of severe market decline. Using accounting as well as market-based variables, the relation between social performance and financial performance is analysed for S&P500 firms by Nollet et al. (2016). Based on the results of the study, it can be affirmed that via linear models, the relation between the variables is negative. Another study by Marsat & Williams (2011) through MSCI ESG scores reflected that a negative relation persisted between Corporate Social Responsibility rating and firm value. Likewise did Garcia & Orsato (2020) compare the developing and developed countries, where data is collected from 2165 companies during 2007-2014. Results indicate that in the emerging markets, ESG scores are negatively related to financial performance. Duque-Grisales & Aguilera-Caracue (2021) conduct research on Latin America firms during 2011-2015. They show a negative relation of ESG scores with financial performance.

Han et al. (2016) argue that the relation between ESG scores and firm value and profitability is contingent on the basic features of the metrics of ESG scores. They find no relation

between the social scores and financial returns of Korean Stock Exchange-traded firms over the period 2008-2014. Further, they find a positive relation with the governance score and a negative relation with the environmental score. Atan et al. (2018) find that there is not any relation between ESG scores of Malaysian Stock Exchange firms and firm value or profitability. Referring to Lopez-de-Silanes et al. (2020), they mention that ESG scores do not really have an impact on firm financial performance. In their research, Şişman & Çankaya (2021) consider twenty-six publicly traded airlines and the effect of ESG scores on financial performance (ROA, ROE, Tobin's Q) during the period 2010-2017. They do not find any relation between ESG basic metrics and financial performance. Examining publicly held banks in G8 countries, Şimşek & Çankaya (2021) determine the relation between ESG scores and financial performances (ROA, ROE, debt/equity) to find that the environmental score has negative, while the social metric score has a positive relation with ROA and ROE, respectively, but governance does not show significant such. Saygili et al. (2022) find a negative relation between environmental reporting and the financial performance of companies in BIST ESG scores for the period 2007 to 2017, stakeholder engagement with management having a positive relation with the social dimension and governance having a positive relation with financial performance. Giannopoulos et al. (2022) find that for Norwegian publicly traded firms during the period 2010-2019 Tobin's Q is positively related to ESG scores while ROA has a negative dependency with ESG scores. According to Aydoğmuş et al. (2022), who examine this issue with data from 1720 companies from the stock exchanges of different countries, firm value is positively linked with ESG scores. On the other hand, they state that ESG environmental, social and governance scores are all positively and significantly related to firm profitability. Parikh et al. (2023) find that the governance factor has a positive effect on the ESG score of 225 Indian companies in 20 different sectors, and it has no significant effect on ROA. The study does not find any sign supportive to the notion that the social, economic, demographic, and environmental factors of ESG contribute to a salutary change in profitability via ROA. Karyağdı & Şit (2023) find the relation between ESG scores and ROA and financial performance to be positive using the capital cost variables based on the data obtained from BIST Sustainability 25 index.

The general consensus derived from research results in relation to the connection between ESG scores, and firm value plus financial performance is still debatable. ESG literature reviews as a whole report the findings. According to Friede et al. (2015), about 90% of ESG studies showed a positive relationship between ESG scores and the financial performance of firms. Alshehhi et al. (2018) state that 78% of these articles show a positive relationship between sustainability and the financial performance of firms. Whelan et al. (2021) report that generally corporate studies had 58% positivity of finding operational metrics such as ROE, ROA or stock price along with them and ESG scores having a positive relation with financial performance, 13% neutrality and 21% mixed results (positive, neutral or negative) and only 8% negativity.

Material and Method

This study investigates the level of ESG performance with available ESG data spanning 2018 to 2022 for 34 non-financial companies listed in the BIST All Shares index (XUTUM). Data is

obtained from the Refinitiv Eikon database; company-specific financial data is collected using the Finnet Stock Expert application. Companies lacking ESG data or independent variable data from the other sources were excluded from the analyses focused on 34 non-financial companies, as presented in Table 1.

Analyses were conducted using the following equations:

$$\text{ESG} = \text{ROA} + \text{LEV} + \text{SIZE} + \text{ROIC} + \text{ROCE} + \text{MB} + \text{YS} \quad (1)$$

$$\text{ENV} = \text{ROA} + \text{LEV} + \text{SIZE} + \text{ROIC} + \text{ROCE} + \text{MB} + \text{YS} \quad (2)$$

$$\text{SOC} = \text{ROA} + \text{LEV} + \text{SIZE} + \text{ROIC} + \text{ROCE} + \text{MB} + \text{YS} \quad (3)$$

$$\text{GOV} = \text{ROA} + \text{LEV} + \text{SIZE} + \text{ROIC} + \text{ROCE} + \text{MB} + \text{YS} \quad (4)$$

The ESG score created by Refinitiv assesses a company's ESG performance and efficacy based on self-reported data. The ESG score further includes those variables that reflect the company's social, environmental, and corporate governance. These scores are on a scale of 0 to 100. This score comprises 3 distinct core metrics: ENV, SOC and GOV. The environmental metric (ENV) is all about how the activities of a company impact air, land, and water, and total ecosystems. This core metric has to do with the usage of resources; reductions in emissions and waste; and innovations from an environmental standpoint. The social metric (SOC) is all about how well a company can build trust and loyalty with the workforce, customers and greater society. This core metric takes four dimensions into account: workforce, community, human rights and product responsibility. The governance metric (GOV) involves the systems and processes of a firm to ensure that the board's behaviour is in the shareholders' best interest. This fundamental metric has three dimensions: management and control, shareholder rights, and corporate social responsibility strategy (Khoury et al., 2023).

LEV is the leverage ratio, SIZE is the natural logarithm of total assets, MB is market to book value, and YS is foreign equity net transaction/total volume. ROIC, the firm's operative return on invested capital, is a measurement of how effectively this capital is used to create profitability. ROIC is a further measure of an organization's operational performance in relation to its capacity for sustained growth. In plain words, ROIC is an additional profitability measure of a firm's operational efficiency

in generating revenues with its deployed capital. The higher the ROIC, the more robustly the company turns a profit from the funds invested in it by its financiers. It is specified as follows:

$$\text{ROIC} = \frac{\text{Net Operating Profit} (1 - \text{Tax Rate})}{\text{Net Working Capital} + \text{Net Tangible Assets}}$$

ROCE, return on capital employed, is a financial ratio measuring the efficiency of the utilization of a company's capital and profitability. It is the ratio of net operating income to capital employed. The higher a firm's ROCE, the better it is in the utilization of its capital. This is because a high ROCE reflects that the firm is using its capital very efficiently in its business.

In this paper, fixed effects panel data analysis is used after which the F test is done to choose between the fixed effects model and Pooled Least Squares (OLS) model. The fixed effects model is preferred to OLS due to the results of F test. Second, Breusch Pagan Lagrange Multiplier test is used to opt out of random effects and OLS models. In this case, random effects model is chosen. Finally, fixed effects model is preferable to random effects model as a result of Hausman test. Cross-sectional dependency, heteroskedasticity and autocorrelation problems are reduced using Driscoll and Kraay (1998) estimator. The primary reason outlined in this paper is its broad recommendations for fixed effects models, particularly in cases where the number of units (N) in the panel dataset significantly exceeds the number of time periods (T).

Empirical Results

Table 2 reports the summary statistics of the variables used in the analyses. The average graded basic metric ESG score is 60,34 out of 100. When the average basic metrics of the three different sustainability criteria are considered separately, the GOV variable turns out to have the lowest value, and the SOC variable turns out to have the highest value. Therefore, BIST companies represent a sustainability performance at a medium level, the criterion they are best at is the social criterion, and the criterion wherein they have the lowest score is the corporate governance criterion. Companies have an average leverage ratio of 60,34. The variables ROIC and ROCE have an average value of 19,37 and 0,26, whereas that of MB and SIZE is 4,16 and 23,85, respectively.

Table 1. Firms in the Analysis

No	Code	No	Code	No	Code
1	AEFES	13	FROTO	24	TAVHL
2	AKSA	14	KORDS	25	TCELL
3	AKSEN	15	KOZAA	26	THYAO
4	ARCLK	16	KRDMA	27	TKFEN
5	ASELS	17	MGROS	28	TOASO
6	AYGAZ	18	OTKAR	29	TTKOM
7	BIMAS	19	PETKM	30	TTRAK
8	CCOLA	20	PGSUS	31	TUPRS
9	DOAS	21	SASA	32	ULKER
10	ENJSA	22	SISE	33	VERUS
11	ENKAI	23	SOKM	34	VESTL
12	EREGL				

Table 2. Descriptive Statistics

Variable	N	mean	sd	p25	p50	p75
LEV	170	60,34	19,69	50,53	64,19	73,15
ROIC	170	19,37	20,29	7,99	14,33	23,33
ROCE	170	0,26	0,20	0,13	0,21	0,36
MB	170	4,16	19,28	1,04	1,54	2,73
YS	170	-1,12	7,87	-3,89	-0,66	1,72
ENV	170	61,21	24,17	45,49	66,70	79,47
SOC	170	68,43	24,74	55,54	74,09	88,38
GOV	170	56,16	23,25	43,87	60,78	74,01
ESG	170	62,43	22,18	53,26	67,62	77,19
SIZE	170	23,85	1,32	22,97	23,90	24,66

Table 3. Pearson Correlation Matrix

	ESG	LEV	ROIC	ROCE	MB	YS	SIZE
ESG	1						
LEV	0,1661	1					
ROIC	-0,0152	0,1977*	1				
ROCE	-0,3199*	0,3368*	0,5826*	1			
MB	-0,0038	0,2172*	0,0868	0,1863	1		
YS	-0,0002	0,1138	-0,0364	-0,0188	0,0190	1	
SIZE	0,5080*	0,0405	-0,0015	-0,1681	-0,0738	0,1413	1

Note: '**' shows 10% significance level.

Table 4. Pesaran CD Cross Sectional Dependence Test

Variable	CD-test	p-value
LEV	7,569	0
ROIC	2,933	0,003
ROCE	0,39	0,696
MB	7,338	0
YS	0,45	0,653
ENG	28,68	0
SOC	30,376	0
GOV	-1,503	0,133
ESG	24,518	0
ASSETS	51,397	0

Table 5. Heteroscedasticity, Autocorrelation and Inter-Unit Correlation Tests

	Modified Wald Test Chi2(39)	Durbin-Watson Test	Baltagi-Wu LBI	Pesaran
1. Model	(7319,25)***	1,23	1,75	(9,301)***
2. Model	(3180,15)***	1,13	1,63	(8,990)***
3. Model	(9275,35)***	1,19	1,72	(8,848)***
4. Model	(17500,73)***	1,36	1,79	-0,138

Note: '***', shows 1% significance level.

Table 3 presents Pearson Correlation coefficients. We concluded that there is not any multicollinearity problem among the variables. ESG is negatively correlated with ROCE and positively correlated with SIZE. ROIC, ROCE and MB variables have positive effects on LEV. ROCE is positively correlated with ROIC.

Table 4 presents Pesaran CD cross-sectional dependence test results. According to the table, all variables except the ROCE, YS and GOV variables reflect cross-sectional dependence. In other words, the null hypothesis could not be rejected for ROCE, YS and GOV variables.

The F test, Breusch Pagan LM test and Hausman test are done to identify the method to be used in the analyses. The F test is used to choose between fixed effects and pooled

OLS. In this test, the null is rejected and in this case, it is concluded that the fixed effects model should be used. Secondly, the Breusch Pagan LM test is used to do a selection between random effects and the pooled model. In this test the null is rejected and, in this claim, random effects are to be used. Finally, the Hausman test is done to decide between random effects and fixed effects. As a result of this test, fixed effect model is preferred. It is found that these results are valid for all 4 models in this paper.

In the next stage, the model is tested for heteroscedasticity, autocorrelation and inter-unit correlation assumptions. The results of these tests for all models are shown in Table 5.

Table 6. Driscoll Kraay Test Results

	ESG	ENV	SOC	GOV
LEV	0,14** [0,046]	0,087* [0,046]	0,372*** [0,089]	-0,066 [0,054]
ROIC	-0,023 [0,019]	0,022 [0,036]	-0,073*** [0,016]	0,014 [0,011]
ROCE	16,687*** [2,493]	16,759*** [3,497]	17,322*** [2,460]	10,369*** [3,146]
MB	0,0006 [0,0158]	0,021** [0,010]	0,038** [0,018]	-0,0810** [0,034]
YS	0,059** [0,022]	-0,007 [0,0597]	0,002 [0,026]	0,201*** [0,070]
SIZE	9,342*** [1,488]	10,845*** [2,058]	12,288*** [1,923]	2,668*** [0,270]
constant	-172,661*** [32,857]	-207,510*** [51,090]	-255,088*** [51,683]	-5,909 [7,363]

Note: '***', '**', '*' show 1%, 5% and 10% significance levels, respectively. Values in parentheses are standard errors.

First, the Modified Wald test is used in order to check for heteroskedasticity in the model. The null hypothesis of homoscedasticity is rejected in all four models. Second, Durbin-Watson and Baltagi-Wu LBI tests are conducted to evidence auto-correlation. According to Table 5, test values are below 2 in both Durbin-Watson and Baltagi-Wu LBI tests. This value indicates that the data has auto-correlation. Finally, Pesaran test is used to test for a cross-sectional dependence between units and it rejects the hypothesis of no cross-sectional dependence between units in three models.

After revealing heteroskedasticity, autocorrelation, and cross-section dependency, Driscoll Kraay test are used in regression analysis.

Model 1 results are given in Table 6, first column. According to the analysis results, LEV, ROCE, YS and SIZE variables have positive effects on ESG. Firms with high return on capital employed, companies with high foreign shareholding, firms with high leverage ratio and large companies have high sustainability performance. When we examine separately in three dimensions the sustainability performance, changes are observed in the results. Dependent variable in column 2 of Table 6 is ENV variable. Unlike Model 1, the YS ratio does not affect the environmental criterion. In addition, it can be concluded that companies with high MB values have high sustainability performance. On the other hand, in Model 3, the leverage ratio has a positive effect on the social criterion and the ROIC variable has a negative effect on the social criterion. ROCE, MB and SIZE variables have positive impacts on social criterion. In the last column (Model 4), the factors affecting the governance criterion are examined. It is found that ROCE, MB, YS and SIZE variables have effects on sustainability performance. While MB variable has a negative effect on the governance measure, the other variables have positive effects.

Conclusions

This study aims to reveal the firm-specific financial variables that influence sustainability performance among corporations belonging to the XUTUM index. The analyses are conducted separately, setting the three different dimensions of the corporate sustainability criteria that are: environmental, social, and governance. The

determinants of ESG performance are taken individually from these metrics. Large-sized firms exhibit a high level of sustainability performance. The size variable has a positive effect on all three sustainability criteria. These results are in line with the results of Arminen et al. (2017), Dremptec et al. (2020), and Crespi & Migliavacca (2020). The literature finds an explanation for the positive relation between ESG score and firm size in legitimacy theory and agency theory. Because these are heavily scrutinized in terms of the general public and are bound to disclose much more information in exchange for legitimacy (Branco & Rodrigues, 2008). Moreover, for larger firms, due to the scale economies, ESG adoption and disclosure have relatively lower costs because such firms have higher financial resources (Jennifer Ho & Taylor, 2007; Khoury et al., 2023). On the contrary, larger firms specifically bear higher degrees of information asymmetry, hence leading to higher agency costs (Jensen and Meckling, 1976), and would thus be expected to prefer more disclosure.

It is concluded that firms with high financial leverage also have high sustainability scores and that this variable is only effective on all the ESG criteria except governance criterion score. This positive relation is attributed to the possibility of high-leverage firms being audited more by their creditors. Therefore, to diminish agency costs, these firms tend to release more ESG information as collateral to their creditors (Jennifer Ho & Taylor, 2007).

According to agency theory, managers in highly profitable companies use the available evidence to their benefit. Thus, they are likely to reveal detailed information to support the continuity of their positions and reward contracts (Sharma, et al., 2020). Hence, we expect the firm's profitability to be positively related to the ESG score. ROCE variable has a positive relation with ESG score and also with all the indicators of ESG. Among the studies related to other measures of profitability, such as ROA and ROE, Zhao et al. (2018), Kayağdı & Şit (2023), Zhao and Murrell (2022), Naeem et al. (2022), Şişman & Çankaya (2021), Crespi & Migliavacca (2020) find similar results. Furthermore, the ROIC variable has a negative impact on the social criterion and a positive impact on the

governance criterion. Parikh et al. (2023) similarly find profitability has a positive relation with the governance factor.

Sharma et al. (2020) in their study argue that market performance has an effect on ESG and accepts MB ratio as a measure of market performance. According to the analysis results in this study, it is seen that the MB ratio has a positive effect on the environmental, social and governance criteria of ESG criteria.

For the ESG score as well as governance measure, foreign ownership has positive impacts. The proactive role that foreign shareholders play in initiating transparency and trust between firms and their stakeholders is the reason for this positive impact. This allows the company to benefit from increased expectations from stakeholders due to foreign ownership specificity. As a result, it undermines some legitimacy for their activities, since they are forced to undertake certain nonmarket-oriented practices to compete (Alkhalwaldeh, 2012). Proactive foreign expertise can direct corporate policy towards a specific agenda, for instance sustainability (Al Amosh & Khatib, 2022: 51). Therefore, foreign ownership being expected to have a positive effect on sustainability scores is reasonable.

Just as important as financial information, environmental, social and governance skills have been

noted to be the aspects that are kept under warning to the community and the governance of company strategies by different stakeholders eager to enhance communication with the companies they work with. Which itself is considering this positional state from any existing or potential investors and the company management is expected to take any compulsory steps for disclosure and development of its ESG scores given strong financial performance. From the standpoint of the existing and potential investors and portfolio managers, when the positive influence of LEV, ROCE, YS, and SIZE variables on ESG is analysed, this data can be valued enough to launch a long position in the Borsa Istanbul equity market. High return on capital employed selected companies, high leveraged firms, high foreign shareholding companies, and large companies will have high sustainability performance hence high ESG scores as well as high stock returns. Revealing their ESG scores by BIST listed companies is limited in number so it is expected to be beneficial to replicate this study in future with same and/or different variables for comparability of results and monitoring the development of ESG scores. Furthermore, one of the separate research questions that need to be dealt with in the future is how in forthcoming studies these variables that boast such a positive report card for ESG scores shall come to influence stock returns.

Katkı Oranları ve Çıkar Çatışması / Contribution Rates and Conflicts of Interest

Etik Beyan	Bu çalışmanın hazırlanma sürecinde bilimsel ve etik ilkelere uyulduğu ve yararlanılan tüm çalışmaların kaynakçada belirtildiği beyan olunur.	Ethical Statement	It is declared that scientific and ethical principles have been followed while carrying out and writing this study and that all the sources used have been properly cited
Yazar Katkıları	Çalışmanın Tasarlanması: SA (%40) NA(%60) Veri Toplanması: SA (%60) NA (%40) Veri Analizi: NA (%60) SA (%40) Makalenin Yazımı: SA (%60) NA (%40) Makale Gönderimi ve Revizyonu: NA (%60) SA (%40)	Author Contributions	Research Design: SA (%40) NA(%60) Data Collection: SA (%60) NA (%40) Data Analysis: NA (%60) SA (%40) Writing the Article: SA (%60) NA (%40) Article Submission and Revision: NA (%60) SA (%40)
Etik Bildirim	iibfdergi@cumhuriyet.edu.tr	Complaints	iibfdergi@cumhuriyet.edu.tr
Çıkar Çatışması	Çıkar çatışması beyan edilmemiştir.	Conflicts of Interest	The author(s) has no conflict of interest to declare.
Finansman	Bu araştırmayı desteklemek için dış fon kullanılmamıştır.	Grant Support	The author(s) acknowledge that they received no external funding in support of this research.
Telif Hakkı & Lisans	Yazarlar dergide yayınlanan çalışmalarının telif hakkına sahiptirler ve çalışmaları CC BY-NC 4.0 lisansı altında yayımlanmaktadır.	Copyright & License	Authors publishing with the journal retain the copyright to their work licensed under the CC BY-NC 4.0
Etik Kurul	Etik kurul iznine ihtiyaç bulunmamaktadır	Ethics Committee	Ethics committee approval is not required.

References

Abdi, Y., Li, X., & Camara-Turull, X. (2022). Exploring the impact of sustainability (ESG) disclosure on firm value and financial performance (FP) in airline industry: The moderating role of size and age. *Environment, Development and Sustainability*, 24, 5052-5079.

Ahmad, N., Mobarek, A., Roni, N. N., & Tan, A. W. K. (2021). Revisiting the impact of ESG on financial performance of FTSE350 UK firms: Static and dynamic panel data analysis. *Cogent Business & Management*, 8(1), 1-18.

Al Amosh, H. & Khatib, S. F. A. (2022). Ownership structure and environmental, social and governance performance disclosure: the moderating role of the board independence.

- Journal of Business and Socio Economic Development*, 2(1), 49-66
- Alkhalaf, A. A. (2012). Effects of family and foreign ownership structure on Jordanian credit risk assessment. *International Research Journal of Finance and Economics*, 90, 92-113.
- Alshehhi, A., Nobanee, H., & Khare, N. (2018). The impact of sustainability practices on corporate financial performance: Literature trends and future research potential. *Sustainability*, 10(2), 494.
- Ansoff, H. I. (1965). *Corporate strategy*. McGraw-Hill, New York.
- Arminen, H., Puumalainen, K., Pätäri, S., & Fellnhofer, K. (2017). Corporate social performance: Inter-industry and international differences. *Journal of Cleaner Production*, 177(3), 426-437.
- Atan, R., Alam, M. M., Said, J., & Zamri, M. (2018). The Impacts of environmental, social, and governance factors on firm performance: Panel study of Malaysian companies. *Management of Environmental Quality*, 29(2), 182-194.
- Aydoğmuş, M., Gülay, G., & Ergun, K. (2022). Impact of ESG performance on firm value and profitability. *Borsa Istanbul Review*, 22(S2), S119-S127.
- Baldini, M., Maso, L. D., Liberatore, G., Mazzi, F., & Terzani, S. (2018). Role of country and firm level determinants in environmental, social, and governance disclosure. *Journal of Business Ethics*, 150, 79-98.
- Bhaskaran, R. K., Ting, I. W. K., Sukumaran, S. K., & Sumod, S. D. (2020). Environmental, social and governance initiatives and wealth creation for firms: An empirical examination. *Managerial and Decision Economics*, 41(5), 710-729.
- Brammer, S., Brooks, C., & Pavelin, S. (2006). Corporate social performance and stock returns: U.K. Evidence from disaggregate measures. *Financial Management*, 35(3), 97-116.
- Branco, M. C., & Rodrigues, L. L. (2008). Factors influencing social responsibility disclosure by Portuguese companies. *Journal of Business Ethics*, 83(4), 685-701.
- Cai, Y., Pan, C. H., & Statman, M. (2016). Why do countries matter so much in corporate social performance? *Journal of Corporate Finance*, 41(C), 591-609.
- Carter, D. A., Simkins, B. J., & Simpson, W. G. (2003). Corporate governance, board diversity, and firm value. *The Financial Review*, 38(1), 33-53.
- Chairani, C., & Siregar, S. V. (2021). The effect of enterprise risk management on financial performance and firm value: The role of environmental, social and governance performance. *Meditari Accountancy Research*, 29(3), 647-670.
- Chen, Y., Li, T., Zeng, Q., & Zhu, B. (2023). Effect of ESG performance on the cost of equity capital: Evidence from China. *International Review of Economics & Finance*, 83, 348-364.
- Choi, S., & Lee, S. (2018). Revisiting the financial performance–corporate social performance link. *International Journal of Contemporary Hospitality Management*, 30(7), 2586-2602.
- Crespi, F., & Migliavacca, M. (2020). The determinants of ESG rating in the financial industry: The same old story or a different tale? *Sustainability*, 12(16), 6398.
- D'Amato, V., D'Ecclesia, R., & Levantesi, S. (2023). Firms' profitability and ESG score: A machine learning approach. *Applied Stochastic Models in Business and Industry*, 40, 243-261.
- Dalal, K. K., & Thaker, N. (2019). ESG and corporate financial performance: A panel study of Indian companies. *Journal of Corporate Governance*, 18, 44-59.
- DasGupta, R. (2021). Financial performance shortfall, ESG controversies, and ESG performance: Evidence from firms around the world. *Finance Research Letters*, 46(B), 102487.
- De Lucia, C., Paziienza, P., & Bartlett, M. (2020). Does good ESG lead to better financial performances by firms? Machine learning and logistic regression models of public enterprises in Europe. *Sustainability*, 12(13), 5317.
- DiMaggio, P. J. & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48, 147-160.
- Driscoll, J. C., & Kraay, A. C. (1998). Consistent covariance matrix estimation with spatially dependent panel data. *The Review of Economics and Statistics*, 80(4), 549-560.
- Drempetic, S., Klein, C., & Zwergel, B. (2020). The influence of firm size on the ESG score: Corporate sustainability ratings under review. *Journal of Business Ethics*, 167, 333-360.
- Duque-Grisales, E., & Aguilera-Caracuel, J. (2021). Environmental, social and governance (ESG) scores and financial performance of multinationals: Moderating effects of geographic international diversification and financial slack. *Journal of Business Ethics*, 168, 315-334.
- Fatemi, A., Glaum, M., & Kaiser, S. (2018). ESG performance and firm value: The moderating role of disclosure. *Global Finance Journal*, 38, 45–64.
- Fatima, N., Li, Y., Ahmad, M., Jabeen, G., & Li, X. (2021). Factors influencing renewable energy generation development: a way to environmental sustainability. *Environmental Science and Pollution Research*, 28, 51714–51732.
- Folger-Laronde, Z., Pashang, S., Feor, L., & ElAlfy, A. (2020). ESG ratings and financial performance of exchange-traded funds during the COVID-19 pandemic. *Journal of Sustainable Finance & Investment*, 12(2), 490-496.
- Friede, G., Busch, T., & Bassen, A. (2015). ESG and financial performance: Aggregated evidence from more than 2000 empirical studies. *Journal of Sustainable Finance & Investment*, 5(4), 210-233.
- Garcia, A. S., & Orsato, R. J. (2020). Testing the institutional difference hypothesis: A study about environmental, social, governance, and financial performance. *Business Strategy and the Environment*, 29(8), 3261-3272.
- Garcia, A. S., Mendes-Da-Silva, W., & Orsato, R. J. (2017). Sensitive industries produce better ESG performance: evidence from emerging markets. *Journal of Cleaner Production*, 150, 135-147.
- Garcia-Blandon, J., Argilés-Bosch, J. M., & Ravenda, D. (2019). Exploring the relationship between CEO characteristics and performance. *Journal of Business Economics and Management*, 20(6), 1064-1082.
- Giannopoulos, G., Fagernes, R. V. K., Elmarzouky, M., & Hossain, K. A. B. M. A. (2022). The ESG disclosure and the financial performance of Norwegian listed firms. *Journal of Risk and Financial Management*, 15(6), 237.
- Han, J. J., Kim, H. J., & Yu, J. (2016). Empirical study on relationship between corporate social responsibility and financial performance in Korea. *Asian Journal of Sustainability and Social Responsibility*, 1, 61-76.
- Jennifer Ho, L.-C. & Taylor, M.E. (2007). An empirical analysis of triple bottom-line reporting and its determinants: evidence from the United States and Japan. *Journal of International Financial Management and Accounting*, 18 (2), 123-150.
- Jensen, M. C. & Meckling, W. H. (1976). Theory of the firm: managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360.
- Karyağdı, N. G., & Şit, A. (2023). İşletmelerin ESG performanslarının sermaye maliyeti ve finansal

- performansına etkisi: BİST Sürdürülebilirlik-25 Endeksi üzerine bir uygulama. *Bucak İşletme Fakültesi Dergisi*, 6(2), 277-292.
- Khaled, R., Ali, H., & Mohamed, E. K. A. (2021). The sustainable development goals and corporate sustainability performance: mapping, extent and determinants. *Journal of Cleaner Production*, 311, 127599.
- Khoury, E. E., Nasrallah, N. & Alareeni, B. (2023). The Determinants of ESG in the banking sector of MENA Region: A Trend or Necessity? *Competitiveness Review*, 33(1), 7-29.
- Kiradoo, G. (2022). Diversity, equity, and inclusion in the workplace: Strategies for achieving and sustaining a diverse workforce. *Advance Research in Social Science and Management*, Edition 01, 139-151.
- Landi, G., & Sciarelli, M. (2019). Towards a more ethical market: The impact of ESG rating on corporate financial performance. *Social Responsibility Journal*, 15(1), 11-27.
- Li, Y., Gong, M., Zhang, X., & Koh, L. (2018). The impact of environmental, social, and governance disclosure on firm value: The role of CEO power. *The British Accounting Review*, 50(1), 60-75.
- Lopez-de-Silanes, F., McCahery, J. A., & Pudschedl, P. C. (2020). ESG performance and disclosure: A cross-country analysis. *Singapore Journal of Legal Studies*, March, 217-241.
- Mahapatra, S. K., Schoenherr, T., & Jayaram, J. (2021). An assessment of factors contributing to firms' carbon footprint reduction efforts. *International Journal of Production Economics*, 235, 108073, 1-11.
- Marsat, S., & Williams, B. (2011). CSR and market valuation: International evidence. International Conference of the French Finance Association (AFFI). May 11-13 2011.
- Naeem, M., Ullah, H., Shahid, J., & Kakakhel, S. J. (2022). The impact of ESG practices on firm performance: Evidence from emerging countries. *Indian Journal of Economics and Business*, 20(1), 731-750.
- Nollet, J., Filis, G., & Mitrokostas, E. (2016). Corporate social responsibility and financial performance: A non-linear and disaggregated approach. *Economic Modelling*, 52(PB), 400-407.
- Parikh, A., Kumari, D., Johann, M., & Mladenović, D. (2023). The impact of environmental, social and governance score on shareholder wealth: A new dimension in investment philosophy. *Cleaner and Responsible Consumption*, 8, 100101, 1-11.
- Perrow, C. (1970). Departmental power and perspectives in industrial firms. *Power in Organizations*, 7, 59-89.
- Pfeiffer, I. & Jarchow, S. (2024). The determinants of compensation report transparency: manager incentives and firm characteristics. *Journal of Business Economics*, 94, 659-691.
- Saygili, E., Arslan, S., & Birkan, A. O. (2022). ESG practices and corporate financial performance: Evidence from Borsa Istanbul. *Borsa Istanbul Review*, 22(3), 525-533.
- Shahbaz, M., Karaman, A. S., Kilic, M., & Uyar, A. (2020). Board attributes, CSR engagement, and corporate performance: What is the nexus in the energy sector? *Energy Policy*, 143, 111582.
- Sharma, P., Panday, P., & Dangwal, R. C. (2020). Determinants of environmental, social and corporate governance (ESG) disclosure: A study of Indian companies. *International Journal of Disclosure and Governance*, 17, 208-217.
- Spence, M. (1973). Job Market Signaling. *The Quarterly Journal of Economics*, 87(3), 355-374.
- Şimşek, O., & Çankaya, S. (2021). Bankalarda ESG skorları ile finansal performans arasındaki ilişkinin incelenmesi: G8 ülkeleri örneği. *PressAcademia Procedia*, 14(1), 169-170.
- Şişman, M. E., & Çankaya, S. (2021). Çevresel, sosyal ve kurumsal yönetim (ESG) verilerinin firmaların finansal performansına etkisi: Hava yolu sektörü üzerine bir çalışma. *Çukurova Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 25(1), 73-91.
- Velte, P. (2017). Does ESG Performance have an impact on financial performance? Evidence from Germany. *Journal of Global Responsibility*, 8, 169-178.
- Wang, Q., & Wang, S. (2022). The impact of environmental regulation on water resources utilization efficiency. *Frontiers in Environmental Science*, 10, 1022929, 1-16.
- Warouw, F. F., Mashudi, Arafah, M., Noviany, H., & Hendarto, T. (2024). The rise of environmental, social, and governance (ESG): Assessing the impact and implications for global business practices and policy formulation. *International Journal of Science and Society*, 6(1), 810-821.
- Whelan, T., Atz, U., Holt, T. V., & Clark, C. (2021). ESG and financial performance: Uncovering the relationship by aggregating evidence from 1,000 plus studies published between 2015-2020. NYU Stern Center for Sustainable Business, Rockefeller Asset Management.
- Yoon, B., Lee, J., & Byun, R. (2018). Does ESG performance enhance firm value? Evidence from Korea. *Sustainability*, 10(10), 3635.
- Zhao, C., Yu, G., Jiahai, Y., Mengya, W., Daiyu, L., Yiou, Z., & Jiangang, K. (2018). ESG and corporate financial performance: Empirical evidence from China's listed power generation companies. *Sustainability*, 10(8), 2607.
- Zhao, X., & Murrell, A. (2022). Does a virtuous circle really exist? Revisiting the causal between CSP and CFP. *Journal of Business Ethics*, 177, 173-192.



Stakeholder Theory in Action: The Impact of Environmental, Social, and Governance (ESG) Practices on Financial Performance in SADC Region Food Producers

Arzu Şahin^{1,a,*}, Walid Khalid Mitawa^{2,b}

¹ Department of International Trade and Finance, Faculty of Economics, Administrative and Social Sciences, Adana Alparslan Türkeş Science and Technology University, Adana, Türkiye

² Graduated from the Department of International Trade and Finance, Master's Program in International Business with Thesis, Adana Alparslan Türkeş Science and Technology University, Adana, Turkey

*Corresponding author

Research Article

History

Received: 17/09/2024

Accepted: 11/11/2024

JEL Codes: G30, M14, Q01

Acknowledgment:

This work is derived from the unpublished Master's thesis of the second author, supervised by the first author.

ABSTRACT

In recent years, there has been a notable shift towards incorporating non-financial metrics, particularly environmental, social, and governance (ESG) factors, into the corporate financial performance (CFP) evaluation framework. The primary aim of this research is to explore the impact of ESG practices on corporate financial performance, with a particular focus on the Southern African Development Community (SADC) region, which is frequently underrepresented in global ESG debates. The study concentrates on the food production sector, a key industry for this region. To achieve this aim, after the theoretical background on the subject, the empirical section examines whether engagement in ESG practices contributes to financial performance, measured primarily by Tobin's Q and alternatively by the market-to-book value ratio. The panel data models are employed for 8-year panel data of 32 publicly traded food producer companies of the SADC region between 2015 and 2022. Additionally, for the robustness test, the analysis is also repeated on a subset of 14 food producers listed in South Africa. According to the analysis results, companies disclosing ESG practices and so having an ESG score operate with higher Tobin Q and market-to-book value ratio, across both the SADC and South Africa samples. The findings suggest that companies actively involved in social, environmental, and governance initiatives, alongside transparent disclosure of their responsible practices, tend to exhibit superior financial performance. This finding is consistent with stakeholder theory, suggesting that firms can only enhance their long-term financial performance by fulfilling their responsibilities to all stakeholders and, ultimately, to society.

Keywords: Corporate Social Responsibility (CSR), Environmental, Social, Governance (ESG) Practices, Corporate Financial Performance (CFP), Tobin Q, Food Producers, Southern African Development Community (SADC)

Stakeholder Teorisi Uygulamada: SADC Bölgesindeki Gıda Üreticilerinde ESG Uygulamalarının Finansal Performansa Etkisi

Süreç

Geliş: 17/09/2024

Kabul: 11/11/2024

Jel Kodları: G30, M14, Q01

Bilgi:

Bu çalışma, birinci yazarın danışmanlığında, ikinci yazarın yayımlanmamış Yüksek Lisans tezinden türetilmiştir.

Copyright

This work is licensed under Creative Commons Attribution-NonCommercial 4.0 International License International License

ÖZ

Son yıllarda, özellikle çevresel, sosyal ve yönetim (ÇSY) faktörleri olmak üzere finansal olmayan ölçütlerin kurumsal finansal performans (KFP) değerlendirme çerçevesine dahil edilmesine yönelik belirgin bir yönelim yaşanmaktadır. Bu araştırmanın temel amacı, ÇYS uygulamalarının kurumsal finansal performans üzerindeki etkisini, özellikle küresel ÇYS tartışmalarında sıklıkla yeterince temsil edilmeyen Güney Afrika Kalkınma Topluluğu (SADC) bölgesine odaklanarak araştırmaktır. Çalışma, bu bölge için önemli bir sektör olan gıda üretim sektörüne odaklanmaktadır. Bu amaca ulaşmak için, konuyla ilgili teorik arka planın ardından ampirik bölümde, ESG uygulamalarına katılımın temel olarak Tobin Q ve alternatif olarak piyasa-defter değeri ile ölçülen finansal performansa katkıda bulunup bulunmadığı incelenmiştir. SADC bölgesinde halka açık 32 gıda üreticisi şirketin 2015 ve 2022 yılları arasındaki 8 yıllık panel verilerine panel veri modelleri, uygulanmıştır. Ayrıca sağlık testi için analiz, Güney Afrika'da listelenen 14 gıda üreticisinden oluşan bir alt örneklem üzerinde tekrarlanmıştır. Analiz sonuçlarına göre, SADC ve Güney Afrika örneklemelerinin her ikisinde de, ESG uygulamalarını açıklayan ve dolayısıyla bir ESG puanına sahip olan şirketler daha yüksek Tobin Q ve piyasa defter değeri oranı ile faaliyet göstermektedir. Bulgular, sosyal, çevresel ve yönetim girişimlerine aktif olarak katılan ve sorumlu uygulamalarını şeffaf bir şekilde açıklayan şirketlerin üstün finansal performans sergileme eğiliminde olduklarını öne sürmektedir. Bu bulgu, firmaların uzun vadeli finansal performanslarını ancak tüm paydaşlara ve nihayetinde topluma karşı sorumluluklarını yerine getirerek artırabileceklerine öne süren paydaş teorisi ile tutarlıdır.

Anahtar Kelimeler: Kurumsal Sosyal Sorumluluk (CSR), Çevresel, Sosyal, Yönetim (ESG) Uygulamaları, Kurumsal Finansal Performans (CFP), Tobin Q, Gıda Üreticileri, Güney Afrika Kalkınma Topluluğu (SADC).

^a asahin@atu.edu.tr

^b [0000-0002-9944-1791](https://orcid.org/0000-0002-9944-1791)

^b walidmitawa@gmail.com

^b [0000-0002-8488-6413](https://orcid.org/0000-0002-8488-6413)

How to Cite: Şahin A, Mitawa WK, (2025) Stakeholder Theory in Action: The Impact of Environmental, Social, and Governance (ESG) Practices on Financial Performance in SADC Region Food Producers, Journal of Economics and Administrative Sciences, 26(1): 105-118, DOI: [10.37880/cumuiibf.1550589](https://doi.org/10.37880/cumuiibf.1550589)

Introduction

The corporate financial performance (CFP) evaluation framework has seen a noticeable shift in recent years toward the inclusion of non-financial metrics known as corporate social responsibility (CSR), corporate social (or sustainability) performance (CSP), and environmental, social, and governance (ESG) factors. CSR, CSP, and ESG all serve as measures of a company's sustainability and responsibility practices.

The relationship between financial performance, Corporate Social Performance (CSP) initiatives, and broader ESG strategies has been widely explored in both business and academic circles. These studies emphasize that effective management of ESG issues results in tangible strategic outcomes such as risk mitigation, cost reduction, market expansion, and brand enhancement. The research findings often argue that successful ESG strategies are crucial to support socio-environmental objectives as well as to ensure financial stability and sustainability (Clarkson, 1995; Barnea & Rubin, 2010; Branco & Rodrigues, 2006; Fatemi *et al.*, 2018). ESG practices are increasingly becoming an integral part of how businesses create value and gain a competitive advantage (Gołębiewski, 2023). While studies often highlight the critical role of ESG activities in enhancing financial resilience, the varying relationships across different corporate, regional, and industrial contexts (Barnea & Rubin, 2010) necessitate more localized and sector-specific analysis.

Studies on the impact of ESG on corporate financial performance (CFP) have primarily focused on developed economies and, more recently, on developing economies (Chininga *et al.*, 2024). However, the literature analyzing ESG criteria in Africa remains underexplored (Agnese *et al.*, 2024). Despite the region's abundance of natural resources, Africa faces significant socio-economic challenges, such as poverty, gender inequality, and environmental issues like climate change, compounded by weak governance practices (Agnese *et al.*, 2024). This combination of factors presents a unique context for ESG research in Africa. Most of the existing literature on the relationship between CSR or ESG and corporate financial performance in Africa is concentrated on South Africa (Balls, 2021; Chetty *et al.*, 2015; Chininga *et al.*, 2024; Mans-Kemp & Van der Lugt, 2020; Mouton *et al.*, 2024; Naik & Ward, 2017). A limited number of studies have also examined other African countries, such as Mozambique (Siueia *et al.*, 2019), and a sample including Kenya, Nigeria, Morocco, Egypt, and Mauritius (Mansaray *et al.*, 2017). The geographic focus of current research highlights the need for further studies that explore how the integration of ESG factors can impact financial performance in African countries beyond the South African context (Chininga *et al.*, 2024).

The Southern African Development Community (SADC), a regional economic community comprising 16 member states, has not been sufficiently examined in terms of the relationship between ESG practices and

financial performance. Ensuring the sustainable use of resources and protecting the environment are among SADC's primary objectives, which align with its core goals of poverty reduction, improving quality of life, and supporting socially disadvantaged populations in the region (SADC, 2024). SADC's regional integration reflects both significant successes and ongoing challenges. It has made notable progress in fostering economic cooperation, political stability, and social development among its member states, promoting trade, infrastructure, industrialization, and political collaboration. However, issues common to Sub-Saharan Africa—such as poverty, inequality, food insecurity, and capacity limitations (World Bank, 2024)—have slowed the deepening of regional integration (Mambo, 2023). By adhering to strategic frameworks such as the SADC Regional Indicative Strategic Development Plan 2020-2030, SADC can continue to play a vital role in advancing economic prosperity, political stability, and social welfare in Southern Africa, leveraging collective strengths and pursuing sustainable development (PESA, 2023). The region's recovery from the COVID-19 pandemic, adverse climate conditions, and complex socio-political landscape, alongside recent efforts to drive economic growth, resilience, and industrialization, creates a unique and relevant context to explore the impact of ESG practices on the region's economic well-being and financial performance (Gatune & Cloete, 2022; PESA, 2023; Mambo, 2023).

The food industry in the SADC region, known for its vulnerability, remains underexplored in ESG literature. The food industry, an economically and politically significant sector (Gega *et al.*, 2024), plays a crucial role in achieving sustainable development goals (Luque *et al.*, 2023). It contributes to sustainability by addressing the interrelated challenges of food insecurity and climate change while also meeting the needs of a growing global population (Gołębiewski, 2023). However, despite its potential to drive sustainability, the food industry faces a range of inherent challenges that complicate its efforts. These challenges stem from its dependency on seasonality, natural and political conditions, adverse price fluctuations over time, and relatively low investment profitability (Franc-Dąbrowska *et al.*, 2020). These structural issues, when compounded by climate conditions, changing consumer behavior, and shifting regulatory pressures, are expected to make sustainable business strategies even more critical for the future of the food industry (Gołębiewski, 2023).

As sustainability concerns intensify, food industries are facing mounting pressure from stakeholders to improve their ESG performance (Gega *et al.*, 2024). Due to CSR's multifaceted impacts—ranging from ethical business practices and consumer perception to crisis management and financial performance—CSR has become an increasingly important area of research within the food industry. However, of the studies reviewed, only four have directly or indirectly linked CSR initiatives in the food sector to financial performance (Brunella *et al.*, 2024;

Gołębiewski, 2023; Hung *et al.*, 2019; Mądra-Sawicka & Paliszkiwicz, 2020). Of these four studies, only Mądra-Sawicka & Paliszkiwicz (2020) included a company from a SADC country (South Africa) within their sample of 50 firms. Furthermore, none of the 14 other studies reviewed on ESG in the food industry included the SADC region or its countries in their samples.

The 2022 SADC Regional Vulnerability Assessment report highlights severe food and nutrition insecurity, affecting an estimated 55.7 million people across 12 member states. Key issues include widespread child malnutrition, structural challenges, and the impacts of environmental and socio-economic shocks. The report advocates for a comprehensive approach to address these challenges, combining immediate relief with long-term strategies aimed at resilience and sustainable development. This context presents a valuable opportunity to explore the role and impact of ESG and CSR initiatives in the region (SADC, 2022).

To be able to contribute to the current literature by emphasizing a sample that has not been adequately studied both in terms of region and sector, this study aims to explore a region often underrepresented in global ESG discussions and focus on critical industry for this region. To achieve this objective, 32 food producers listed in 6 SADC countries in the 2015-2022 period are specified as the analysis sample, and 256-panel data observations ($32 \times 8 = 256$) of 32 companies during the 8-year period between 2015 and 2022 are analyzed with the panel data model. On the analysis date, six SADC countries (Botswana, Malawi, Mauritius, South Africa, Zambia, and Zimbabwe) have publicly held food producer companies, and among them, the only country that includes firms with ESG scores is South Africa. Therefore, we repeated the panel model estimations for the South Africa sub-sample of 14 companies too.

The findings of this study are expected to provide insights for companies and organizations carrying out business activities within the SADC, guiding them toward practices that are both sustainable and profitable. Furthermore, the study seeks to influence policymaking by providing insights for the development of effective ESG standards and regulations.

Theoretical Grounding and Literature Review

Two common and opposing theories that explain the relationship between CSP (or ESG) and CFP are stakeholder theory and shareholder theory. The shareholder theory (also called as trade-off theory), emphasized by Friedman (1970) and elaborated by Pava and Krausz (1997), prioritizes profit generation and shareholder wealth maximization. Friedman (1970) strongly opposed CSR, insisting that businesses exist solely for shareholders, not to tackle societal ills. He believed individuals, not corporations, should bear the weight of social responsibility. This stark delineation sparked a fiery debate that still rages within the CSR discourse, pitting the relentless pursuit of profit against the widening demand

for corporations to act as good citizens of the world. Milton Friedman's theory of profits above all else became a cornerstone of corporate philosophy and as a champion of free markets, did well in the 1980s, 1990s, and 2000s. However, in the aftermath of the global financial crisis, things changed drastically. The disastrous collapse of the US real estate market, and its global ripple effect, exposed the dangers of unchecked profit-seeking without ethical and risk-conscious boundaries (Özelli, 2021).

In opposition to shareholder theory, the stakeholder theory (Freeman & Sonnenfeld, 1984) advocates for considering the interests of all stakeholders. This theory argues for a broader view where corporations are seen as responsible also to other stakeholders, including society and the environment, not only to shareholders. Contrasting with Friedman's perspective, Stakeholder Theory proposes that the achievements of a business are accomplished by balancing the interests of all stakeholders and creating value for them. Freeman and McVea (2001) further elaborate on Stakeholder Theory within strategic management, highlighting its critical role in ensuring firms' long-term sustainability. This approach advocates for managing relationships with all relevant stakeholders, signaling a move towards more ethical and responsible business practices that resonate with ESG principles.

The relationship between ESG and CFP is shaped by various factors, including company size, industry, geographic location, and the financial and corporate structure of the economy (Barnea & Rubin, 2010). The level of economic, institutional, and legal development within countries has a substantial impact on the financial outcomes of ESG practices (Bhatia & Makkar, 2019; Garcia & Orsato, 2020; Linnenluecke, 2022). Research examining the relationship between a company's ESG practices and its financial performance has yielded mixed and sometimes contradictory findings.

Drawing from a comprehensive second-level review analysis of sixty review studies and synthesizing the results of approximately 2,200 individual company-focused (not portfolio-focused) studies on the connection between ESG and CFP since the early 1970s, Friede *et al.* (2015) highlight the favorable influence of ESG on CFP over time. Their findings reveal that about 90% of the studies identified a non-negative correlation between ESG and CFP, with the vast majority reporting positive outcomes (Friede *et al.*, 2015). Studies built on companies from different economies such as New Zealand (Orlitzky, 2005), Spain (Moneva *et al.*, 2007; Reverte, 2016; Charlo *et al.*, 2017), Australia (Balatbat *et al.*, 2012), UK (De Klerk *et al.*, 2015), Malaysia (Mohammad & Wasiuzzaman, 2021), Europe (Engelhardt *et al.*, 2021) and Canada (Abukari *et al.*, 2023) generally suggest positive relations among financial performance and CSR or ESG.

Several studies show insights describing the complex interrelationship between financial performance and ESG, showing how CSR or ESG disclosures or their components can have contrasting impacts on financial metrics. For example, Lima Crisóstomo *et al.* (2011) present a mixed

effect of CSR on various financial performance for Brazil. Similarly, Rahi *et al.* (2022), using a sample from the Nordic financial industry, identify both negative and positive relationships between ESG practices and financial performance. Amin and Tauseef (2022) emphasize the varying impact of combined ESG factors and individual ESG pillars, with distinct effects on the non-financial and financial sectors. Dorfleitner *et al.* (2015) focus the lack of uniformity in the ESG measurement. Fatemi *et al.* (2018) and Albitar *et al.* (2020) indicate dynamic interplays between ESG and firm performance. Buallay (2019) for European Union countries, Alareeni and Hamdan (2020) for the USA, Saygili *et al.* (2022) for Turkey, and Zehir and Aybars (2020) for portfolios from Turkish and European companies, all reveal the sophisticated dynamics between individual ESG components and various metrics for performance. Hasan *et al.* (2022) directly identify a negative relationship between the environmental performance of Gulf Cooperation Council (GCC) banks and their accounting performance.

Sahut and Pasquini-Descomps (2015) in Switzerland, the US, and the UK, Lundin and Olandersson (2019) within Swedish firms, Ahlklo and Lind (2019) and Afrooz and Kruusman (2019) among Nordic stocks report no direct linkage between ESG scores and financial metrics or stock performance. La Torre *et al.* (2020) find that ESG has an insignificant impact on the performance of Eurostoxx50 companies.

Studies conducted using data from the African region, primarily from the Johannesburg Stock Exchange (JSE) in South Africa, have also yielded mixed results. Among the research focused on JSE-listed firms, Mans-Kemp and Van der Lugt (2020) find a strong positive relationship between high-quality integrated reporting and ESG performance, as well as indicators such as earnings per share and leverage. Similarly, Chininga *et al.* (2024) observe a positive effect of ESG ratings on financial performance. Mouton *et al.* (2024) find a positive relationship between share buybacks and ESG scores, particularly the social score, supporting stakeholder theory. In contrast, Chetty *et al.* (2015) suggest that inclusion in the JSE's socially responsible investment index did not consistently improve share prices, and they also identify a decline in ROA associated with increased CSR activities. Balls (2021) reports no significant link between ESG engagement and financial performance. Masongweni and Simo-Kengne (2024) document that while composite ESG scores do not significantly influence financial performance, social and governance scores have a positive impact. Naik and Ward (2017) identify a negative relationship between ESG practices, ESG disclosure, and financial performance.

Among studies that include other African countries in their samples in addition to South Africa, Siueia *et al.* (2019) find a positive association between CSR disclosures and financial performance in the South African and Mozambican banking sectors. In a study covering six African countries (South Africa, Kenya, Nigeria, Morocco, Egypt, and Mauritius), Mansaray *et al.* (2017) reveal that

while CSR disclosures are negatively associated with short-term financial performance in certain sectors, the long-term effects vary across industries.

In addition to studies focusing on the ESG-financial performance relationship, recent research in the African region has also examined the link between ESG performance and factors such as board characteristics (Agnese *et al.*, 2024; Al-Hiyari *et al.*, 2022) and investor sentiment (Aboluwodi *et al.*, 2024; Nyakurukwa & Seetharam, 2023), among others. The samples for these studies are primarily drawn from South Africa too (Al-Hiyari *et al.*, 2022; Nyakurukwa & Seetharam, 2023) or samples that include South Africa like African Stock Exchanges (Agnese *et al.*, 2024) and BRICS nations (Aboluwodi *et al.*, 2024). Marais *et al.* (2022) investigate the barriers faced by local asset managers in South Africa in integrating material ESG information into their investment strategies.

The role of CSR within the food industry has increasingly become a focal point of research due to its multifaceted implications on crisis management, consumer perception, financial performance, and ethical business practices. Literature on CSR in the food industry is presented in chronological order. Maloni and Brown (2006) propose an outline for CSR within the food industry supply chain, emphasizing animal welfare, environmental issues, and labour rights. Kong (2012) uses the 2008 melamine contamination crisis in China to show how CSR activities by listed food industry firms significantly influence investor and consumer concerns. Assiouras *et al.* (2013) highlight CSR's crucial role in the food industry, particularly during crises, by demonstrating its significant influence on consumer perceptions and brand evaluation. Kurilets (2014) examines how CSR announcements impacted the stock market performance of three major USA fast food companies from 2001 to 2013, highlighting diverse investor responses. Shnyder *et al.* (2016) analyze CSR motivations in the packaged food industry using sustainability reports from sixteen multinational companies, categorizing motivations into profit, people, and the planet under the Triple Bottom Line (3BL) framework.

Costopoulou *et al.* (2018) examine CSR reporting among Greek food companies, highlighting disparities between large firms and SMEs. Lerro-Vecchio *et al.* (2018) and Del Giudice *et al.* (2018) examine Italian consumers' preferences and market effects of CSR within the food industry, emphasizing the need to align CSR strategies with consumer demands. Hung *et al.* (2019) analyze CSR's impact on firm growth in Taiwan's food industry, finding that CSR initiatives mitigate business risks and contribute to growth. Wiśniewska-Paluszak and Paluszak (2019) investigate CSR's shift to creating shared value in agribusiness, analyzing CSR reports from four major food producer companies in Poland and documenting the strategic importance of embedding societal and environmental challenges within business models.

Goncharov *et al.* (2020) approach CSR from the perspective of social responsibility and competence of

workers within the food processing industry. Their survey-based research among food industry specialists in the Stavropol Territory emphasizes the increasing necessity of maintaining food quality and safety amidst technological advancements. Mađra-Sawicka and Paliszkiwicz (2020) study CSR reporting in the food industry, linking it to improved financial performance indicators like profitability and market capitalization across 448 companies in 50 countries. Danila and Nancu (2023) analyze the commitment of medium and large enterprises to ESG practices in the Romanian food sector. Their survey-based study reveals that larger companies are increasingly adopting ESG practices, though improvements are still needed. Luque *et al.* (2023), who developed an ESG approach that takes into greater account the sustainability preferences of stakeholders, apply this measurement to European food companies and argue that ESG indicators should be reassessed to enhance their value and reliability for stakeholders. Gega *et al.* (2024) examine the impact of corporate ownership structure on ESG performance in European agri-food companies, showing that investor-owned companies outperform family businesses and cooperatives in terms of ESG performance. Investigating the ESG level of small Italian agri-food enterprises and its relationship with profitability and cost of debt, Brunella *et al.* (2024) note that the ability of ESG disclosures to predict corporate profitability and access to credit is limited. Boiral *et al.* (2024) examine the key ESG challenges encountered by 135 agri-food firms, along with the strategies they have adopted to address these risks. Gołębiewski (2023) evaluates the legal regulations governing the use of ESG in the Polish food sector, as well as the role of ESG factors in enhancing the financial performance and value of agri-food sector enterprises.

Methodology

The Methodology section outlines the econometric framework of the analysis, detailing the research hypotheses, sample, variables, and methods employed.

Hypothesis Development

Based on a comprehensive second-level analysis of 60 review studies, evaluating around 2,200 studies on the relationship between ESG and CFP, Friede *et al.* (2015) conclude that many studies since the 1970s have found positive relationships between financial performance and ESG practices. Among the related and reviewed studies conducted in Africa, Sinueia *et al.* (2019) and Mans-Kemp and Van der Lugt (2020) discovered a positive CSP-CFP link. Additionally, among the examined research focused on the food industry, Mađra-Sawicka, and Paliszkiwicz (2020) document that CSR practices raise financial performance indicators among 448 food industry firms from 50 countries. Hung *et al.* (2019) present evidence linking the risk-mitigating effect of CSR initiatives with firm growth in Taiwan's food industry.

There has been a noticeable increase in interest in socially conscious investments around the world in recent years prompting companies to integrate corporate sustainability and ESG practices into their business operations both voluntarily and in response to mounting regulatory pressures. This transformative shift challenges the conventional profit-maximization paradigm, highlighting the growing significance of stakeholder considerations in shaping strategic financial decisions. Stakeholder Theory advocates that cultivating strong relationships with key stakeholders can enhance a company's reputation, mitigate risks, and contribute to improved financial performance. It also argues that companies carry broader social responsibilities beyond merely maximizing profits, endorsing practices that are sustainable and responsible while addressing CSR and ESG concerns. With this philosophy, Stakeholder Theory assumes that complying with ESG practices directly, rather than conditionally like other theories, improves corporate financial performance.

Following the majority of the related literature on the topic of connection between ESG activities (or CSR initiatives) and corporate financial performance metrics and adhering to the Stakeholder Theory with increased acceptance visibility, we mainly hypothesize that engaging in ESG activities improves the financial performance (H). The basic hypothesis is supported by Ha, which posits that companies disclosing ESG practices are more likely to have a higher Tobin Q ratio, indicating improved market value relative to their asset value. Additionally, Hb suggests that companies with ESG ratings are expected to have a higher Market Value to Book Value (MVBV) ratio, indicating potentially greater investor confidence and valuation. By testing the research hypothesis, the stakeholder theory is also inherently tested. The theory that forms the basis for the H hypothesis is the stakeholder theory.

H: Companies that take part in ESG activities tend to experience higher financial performance.

Ha: Companies that have ESG scores tend to have an enhanced Tobin Q ratio.

Hb: Companies having ESG scores tend to have a higher MVBV ratio.

Research Sample and Variables

The SADC is a regional economic community comprising 16 Member States and among them, 6 SADC countries (Botswana, Malawi, Mauritius, South Africa, Zambia, and Zimbabwe) have publicly held food producer companies. The UK Food Standards Agency defines the food industry as a broad variety of operations that include farming, food production, and distribution, as well as retail and catering (Food Standards Agency, 2012). With a particular emphasis on food manufacturing, in this study, we focus on food production and manufacturing, ignoring farming and food services such as retail and catering, to better understand the details and dynamics of this important sector. The significance of ESG reporting has increased since the United Nations adopted the Sustainable Development Goals in 2015 as a global call to action.

Based on data availability and suitability for analysis, we are limited to study 32 food producers listed in 6 SADC countries in the 2015-2022 period are specified as the analysis sample. 256-panel data observations ($32 \times 8 = 256$) of 32 companies during the 8-year period between 2015 and 2022 are analyzed with a panel data model. Among this sample, since the only country that includes firms with ESG scores (5 companies have ESG ratings) is South Africa, we repeat the panel model estimations on the sub-sample consisting of 14 listed food producers from South Africa.

The primary dependent variable used to proxy financial performance is the Tobin's Q ratio. A secondary and alternative dependent variable is the market-to-book value (MVBV), which divides market capitalization by total capital. The main explanatory variable examined in this research is ESG. Two firm-specific control variables and one country-specific control variable are included in the regression analysis. The leverage as the ratio of total debt to total assets (DEBT) and size, measured either in terms of assets (SIZE_A) or alternatively in terms of employee numbers (SIZE_E) are firm-specific control variables. The annual gross domestic product (GDP) of the analyzed economies is used for controlling country-level economic disparities. Annual data of all variables are accessed from the Refinitiv database. The analysis variables are presented in Table 1 and Table 2, respectively.

The main dependent variable, Tobin's Q Ratio: Tobin's Q ratio serves as a critical measure to evaluate a company's valuation by comparing the market's perception of its financial assets' worth against the actual cost of its physical assets. This ratio, representing the firm's market value relative to the replacement cost of its assets, is an invaluable metric for gauging company valuation and investment potential. When the ratio exceeds one, it suggests the market values the company more than the cost of replacing its assets, hinting at potential undervaluation. Owing to its straightforwardness and the depth of insight it offers into a firm's valuation, Tobin's Q is extensively utilized in investment analysis and finance, encompassing a range of calculation methods. (Ersoy *et al.*, 2011).

Tobin Q = (Total Assets – Total Capital + Market Capitalization) / Total Assets

Tobin's Q ratio emerges not just as a financial metric but as a broader tool for assessing a firm's general performance, including its commitment to corporate social responsibilities. By employing methodologies that simplify its calculation, like the one put forward by Chung and Pruitt (1994), alongside evaluating a firm's engagement in CSR activities as explored by Lin, Lee and Lee (2011), stakeholders gain a multifaceted view of a company's value that incorporates both financial performance and social impact. Tobin Q is extensively used in this study and generally in ESG-performance literature as a significant indicator of profitability potential and is preferred over accounting-based metrics of ROA and ROE because earnings management is less reflected in the Tobin Q ratio (Azmi *et al.*, 2021; Hasan *et al.*, 2022; Bennouri *et al.*, 2018). Buallay (2019), Azmi *et al.* (2021), Amin and Tauseef (2022) and Chininga *et al.* (2024) used Tobin Q as a measure of bank performance. Following the literature this study used the Tobin Q ratio as a primary dependent variable.

Main independent variable, ESG: The main independent variable is ESG which is a dummy variable that takes "1" when the company has an ESG score, or "0" in case of not having an ESG rating. The presence of an ESG score means that the related company has engaged in ESG activities and disclosed information about ESG-related operations.

Leading ESG metrics providers like LSEG, Thomson Reuters, MSCI, Sustainalytics, Bloomberg, and S&P Global offer diverse coverage, methodologies, and integration capabilities to assess companies' ESG practices. The transition of Refinitiv from Thomson Reuters to LSEG indicates the growing importance and complexity of assessing corporate sustainability. LSEG's extensive ESG coverage spans over 15,500 public and private companies globally, providing a comprehensive dataset that tracks ESG performance across ten key themes since 2002. This robust database offers both consolidated and contentious ESG scores, culminating in an overarching sustainability score crucial for stakeholders in making well-informed decisions (LSEG Data & Analytics, 2023).

The tripartite structure of ESG emphasizes distinct yet interconnected avenues through which corporate practices influence financial performance. The environmental pillar, heightened by concerns over climate change, plays a critical role in financial evaluation by addressing systemic risks and opportunities related to environmental stewardship. Similarly, the social pillar evaluates a company's connections with stakeholders like employees, suppliers, consumers, and communities, which is crucial in customer-oriented sectors where brand reputation and social credibility directly impact financial outcomes. Lastly, the governance pillar emphasizes leadership strength, transparency, executive compensation, and shareholder rights, which can either enhance or detract from financial performance depending on the integrity and effectiveness of corporate governance practices (Collin, 2009).

Table 1 which presents descriptive statistics summarizes the key statistics for understanding each variable within the dataset. A typical company in the sample consisting of 32 listed food producers from SADC countries have an average Tobin Q ratio of 0.92. The highest Tobin Q ratio (2.3) is held by RFG Holdings Ltd. in South Africa, while the lowest Tobin Q ratio (0.28) belongs to ZAMBEEF Products PLC in Zambia. RFG Holdings Ltd. holds the highest MVBV ratio among the sampled companies. All 5 food manufacturers with ESG scores (Astral Foods Ltd., RCL Foods Ltd., Oceana Group Ltd., Tiger Brands Ltd., Avi Ltd.) are South African companies. The sample asset size ranges from 4.79 (Illovo Sugar PLC. in Malawi) to 8.30 (AH-Vest Ltd. in South Africa). Listed food industry companies in the SADC region operate with an average of 7,595 (log value is 3.69) employees with a wide range of 381 (log value is 2.58) employees (Premier Fishing and Brands Ltd.) and 21,046 (log value is 4.32) employees (RCL Foods Ltd.). The mean debt ratio is 44.8%, ranging from 19.8% (Premier Fishing) to 80.7% (Mauritius Oil Refineries Ltd.). GDP of 256 observations ranges from 9.90 (Malawi in 2016) to 11.62 (South Africa in 2021).

Table 2 presents the correlation coefficients between the independent variables used in the analysis. There is no correlation between the independent variables that would cause multicollinearity problems.

Table 1. Descriptive statistics of the analysis variables

Variable	Variable Explanation	Obs.	Mean	St.Dv.	Min.	Max.
Tobin Q	(Assets-Capital+Market Cap.)/Assets	170	0,92	0,47	0,28	2,31
MVBV	Market Value to Book Value	169	0,89	0,73	0,00	3,09
ESG	Dummy_ESG	256	0,14	0,35	0,00	1,00
SIZE_A	Log_Assets	185	6,58	0,65	4,79	8,30
SIZE_E	Log_Employees Number	77	3,69	0,46	2,58	4,32
DEBT	Debt Ratio	184	44,77	13,74	19,75	80,70
GDP	Log_Gross Domestic Product	256	10,82	0,68	9,90	11,62

Note: Outliers in data are eliminated using the quartile method. Tobin Q ratio: (Total Assets – Total Capital + Market Capitalization) / Total Assets. MVBV ratio: Market Capitalization / Total Capital. Log: natural logarithm. Obs.: observation. St. Dv.: standard deviation. Min. Minimum. Max. Maximum.

Table 2. Correlation coefficient of the independent variables

	ESG	SIZE_A	SIZE_E	DEBT	GDP
ESG	1				
SIZE_A	0,39**	1			
SIZE_E	0,59**	0,36**	1		
DEBT	0,07	-0,08	0,34**	1	
GDP	0,46**	-0,05	0,31**	0,22**	1

Note: ESG: ESG considerations, coded as a dummy variable. SIZE_A: natural logarithm of total assets. SIZE_E: natural logarithm of number of employees. DEBT: ratio of debt relative to total assets. GDP: natural logarithm of GDP. **: significant at 5%.

Method, Empirical Results and Discussions

The model construction process begins with the settings of panel model equations for the SADC sample. To estimate the cross-country effect of ESG on two dependent variables, the first two equations (equation 1 and equation 2) are set as the basic models. Equation 1 with Tobin Q dependent variable and equation 2 with MVBV dependent are main panel model equations. A change in asset size variable (employee number rather than asset size) adds two alternative models (as presented in equations 3. and 4) to the base models and the first 4-panel model equations (equation 1 to equation 4) are set for the SADC sample.

However, the analysis is aimed to investigate the cross-country effect of ESG activities on financial performance, the analyzed geographical region includes only one country (South Africa) that provides data for the main independent variable, ESG disclosure. As a robustness check, 4 more models (equations 5. to 8) with the same variables except for the country-specific control variable, GDP, are repeated for the South Africa (SA) sub-sample and are shown with equations from 5. equation to 8. equation.

$$\text{Tobin } Q_{it} = \alpha + \beta_1\text{ESG}_{it} + \beta_2\text{DEBT}_{it} + \beta_3\text{SIZE_A}_{it} + \beta_4\text{GDP}_{it} + \varepsilon_{it} \quad (1. \text{ equation})$$

$$\text{MVBV}_{it} = \alpha + \beta_1\text{ESG}_{it} + \beta_2\text{DEBT}_{it} + \beta_3\text{SIZE_A}_{it} + \beta_4\text{GDP}_{it} + \varepsilon_{it} \quad (2. \text{ equation})$$

$$\text{Tobin } Q_{it} = \alpha + \beta_1\text{ESG}_{it} + \beta_2\text{DEBT}_{it} + \beta_3\text{SIZE_E}_{it} + \beta_4\text{GDP}_{it} + \varepsilon_{it} \quad (3. \text{ equation})$$

$$\text{MVBV}_{it} = \alpha + \beta_1\text{ESG}_{it} + \beta_2\text{DEBT}_{it} + \beta_3\text{SIZE_E}_{it} + \beta_4\text{GDP}_{it} + \varepsilon_{it} \quad (4. \text{ equation})$$

$$\text{Tobin } Q_{it_SA} = \alpha + \beta_1\text{ESG}_{it} + \beta_2\text{DEBT}_{it} + \beta_3\text{SIZE_A}_{it} + \varepsilon_{it} \quad (5. \text{ equation})$$

$$\text{MVBV}_{it_SA} = \alpha + \beta_1\text{ESG}_{it} + \beta_2\text{DEBT}_{it} + \beta_3\text{SIZE_A}_{it} + \varepsilon_{it} \quad (6. \text{ equation})$$

$$\text{Tobin } Q_{it_SA} = \alpha + \beta_1\text{ESG}_{it} + \beta_2\text{DEBT}_{it} + \beta_3\text{SIZE_E}_{it} + \varepsilon_{it} \quad (7. \text{ equation})$$

$$\text{MVBV}_{it_SA} = \alpha + \beta_1\text{ESG}_{it} + \beta_2\text{DEBT}_{it} + \beta_3\text{SIZE_E}_{it} + \varepsilon_{it} \quad (8. \text{ equation})$$

ESG, which is the main independent variable in all equations, is a dummy variable that takes the value of "1" if the company i has an ESG score in period t, and "0" if it does not have an ESG score. Control variables are DEBT, SIZE, and GDP and, α : constant term, β : slope parameter, ε : error term, i: company, t: year.

The statistics of panel data estimations are presented in the following four separate tables from Table 3 to Table 6. Observation numbers vary among estimations because of the different available data numbers of each variable. Outliers in data are eliminated by the quartile method.

In all regression specifications of Table 3, ESG shows a significant positive effect on Tobin Q and MVBV. The coefficients for SIZE_A, DEBT, and GDP are not statistically significant for both Tobin Q and MVBV. The difference between the regressions in Table 4 and from ones in Table 3 is to use SIZE_E control variable instead of SIZE_A. According to the parameters of Table 4, ESG remains significantly positively associated with Tobin Q and MVBV. But SIZE_E enters the estimations with negative and significant coefficients for Tobin Q and MVBV.

Table 5 and Table 6 presents the statistics of panel estimations repeated for the South African sample. In the South African sample, ESG continues to maintain its positive effect on the dependent variables in all regressions. SIZE_A, DEBT, and GDP control variables are not statistically significant in all estimation models, however, in Table 6, SIZE_E has a negative effect on the dependent variables at the 1% and 10% significance levels.

The analysis reveals that companies with higher ESG scores demonstrate positive associations with financial performance indicators, including higher Tobin's Q and MVBV ratios, across both the SADC and South Africa samples. A high number of employees, one of the control variables, has a decreasing effect on Tobin Q and MVBV in most, but not all, of the regressions it is included in.

Table 3. SADC, statistics of panel model, with SIZE_A variable

	1 (RE)		1 (FE)		2 (RE)		2 (FE)	
Dependent Var.	Tobin Q		Tobin Q		MVBV		MVBV	
Independent Var.	coef.	z-stat.	coef.	t-stat.	coef.	z-stat.	coef.	t-stat.
ESG	0,41***	3,35	0,28***	2,91	0,60***	3,63	0,36***	3,07
SIZE_A	-0,07	-0,35	-0,59	-1,3	-0,13	-0,46	-0,91	-1,20
DEBT	0,00	0,01	-0,00	-0,03	0,00	-0,06	-0,00	-0,25
GDP	-0,02	-0,22	0,23	0,5	-0,08	-0,39	-0,22	-0,25
Observation	169		169		168		168	
F / X ²	11,98**		3,63**		13,62***		5,89***	
Score	1797***		1797***		1839***		1839***	
Hausman	10,2**		10,2**		11,48**		11,48**	

Note: Table 3 represent the statistics of panel data estimations with random effects (RE) and fixed effects (FE) with the SADC sample. Tobin Q is the primary dependent variable and MVBV is the second dependent variable. ESG: basic independent variable and a dummy variable that takes "1" if the company i has an ESG score in period t. SIZE_A: logarithm of total assets. DEBT: (total liabilities/total assets) *100. GDP: logarithm of GDP. RE: random effects. FE: fixed effects. Var.: variable. coef.: coefficient. Stat.: statistics. Ho hypothesis of Score Test: no random unit effect. Ho hypothesis of the Hausman Test: the difference between parameters is not systematic. ***: 1% significance level. **: 5% significance level. *: 10% significance level.

Table 4. SADC, statistics of panel model, with SIZE_E variable

	3 (RE)		3 (FE)		4 (RE)		4 (FE)	
Dependent Var.	Tobin Q		Tobin Q		MVBV		MVBV	
Independent Var.	coef.	z-stat.	coef.	t-stat.	coef.	z-stat.	coef.	t-stat.
ESG	0,63***	4,35	0,52***	13,35	0,86**	3,62	0,67***	10,33
SIZE_E	-0,62*	-1,88	-0,34**	-2,45	-0,67	-1,32	-1,88*	-2,12
DEBT	0,00	1,07	0,01	1,01	0,01	1,38	0,01	1,09
GDP	-0,12	-0,46	0,13	0,21	-0,33	-0,82	-0,15	-0,15
Observation	65		65		64		64	
F / X ²	26,29***		-		22,28***		-	
Score	6625***		6625***		3177***		3177***	
Hausman	15		15		11,76		11,7611	

Note: Table 4 presents parameters of panel regressions including the SIZE_E control variable instead of SIZE_A, with random effects (RE) and fixed effects (FE) in the SADC sample. SIZE_E: logarithm of the number of employees***: 1% significance level. **: 5% significance level. *: 10% significance level.

Table 5. South Africa, statistics of panel model, with SIZE_A variable

	5 (RE)		5 (FE)		6 (RE)		6 (FE)	
Dependent Var.	Tobin Q ^{SA}		Tobin Q ^{SA}		MVBV ^{SA}		MVBV ^{SA}	
Independent Var.	coef.	z-stat.	coef.	t-stat.	coef.	z-stat.	coef.	t-stat.
ESG	0,42***	3,42	0,28**	2,73	0,63***	3,48	0,39**	3,01
SIZE_A	-0,05	-0,38	-0,46	-0,38	-0,09	-0,41	-0,75	-0,89
DEBT	-0,00	-0,14	-0,00	-0,20	-0,00	-0,23	-0,00	-0,24
Observation	95		95		95		95	
F / X ²	12,05***		4,43***		12,21***		6,72	
Score	390***		390***		342***		342***	
Hausman	3,88		3,88		4,30		4,30	

Note: Table 5 includes the statistics of panel data estimations with random effects (RE) and fixed effects (FE) with the South African sample. ***: 1% significance level. **: 5% significance level. *: 10% significance level.

Table 6. South Africa, statistics of panel model, with SIZE_E variable

	7 (RE)		7 (FE)		8 (RE)		8 (FE)	
Dependent Var.	Tobin Q ^{SA}		Tobin Q ^{SA}		MVBV ^{SA}		MVBV ^{SA}	
Independent Var.	coef.	z-stat.	coef.	t-stat.	coef.	z-stat.	coef.	t-stat.
ESG	0,59***	3,62	0,52***	7,47	0,85***	2,94	0,71***	8,27
SIZE_E	-0,33	-1,02	-0,05	-1,47	-0,48	-1,03	-1,72**	-1,81
DEBT	0,00	0,15	0,01	0,65	0,00	0,19	0,02	1,10
Observation	38		38		38		38	
F / X ²	34,34***		-		20,6***		-	
Score	342***		342***		250***		250***	
Hausman	6,27		6,27		7,75*		7,75*	

The key findings and significance of the coefficients and additional statistics are provided in Table 3, Table 4, Table 5, and Table 6, suggesting that having an ESG score is associated with higher corporate financial performance, as indicated by Tobin Q and MVBV. The underlying hypothesis (H) of this study posits that companies actively involved in ESG initiatives are expected to witness enhancements in their financial performance. In accordance with Stakeholder Theory, adherence to ESG standards is deemed conducive to corporate financial outcomes. As seen, analysis results support the research hypothesis and are consistent with the principles of Stakeholder Theory.

Overall, the findings from the regression analyses provide evidence supporting both the research hypothesis and Stakeholder Theory. The analysis results indicate that companies embracing social, environmental, and governance initiatives, alongside transparent disclosure of their responsible practices, tend to exhibit superior financial performance. These results are consistent with the broader literature on ESG-CFP relationships.

As noted by Friede *et al.* (2015), a comprehensive review of ESG studies indicates a general positive relationship between ESG practices and CFP. Our findings extend this understanding by providing evidence specific to the SADC region, a context that has been underexplored in the existing body of research. The results align with several studies (Orlitzky, 2005; Moneva *et al.*, 2007; Balatbat *et al.*, 2012; De Klerk *et al.*, 2015; Reverte, 2016; Charlo *et al.*, 2017; Mohammad & Wasiuzzaman, 2021; Engelhardt *et al.*, 2021; Abukari *et al.*, 2023) conducted across both developed and developing economies, supporting the notion that responsible corporate practices, particularly those related to ESG, are beneficial for financial stability.

Notably, studies on South African firms, such as those by Mans-Kemp & Van der Lugt (2020), Chininga *et al.* (2024), and Mouton *et al.* (2024), show similar findings regarding ESG-CFP relationships. This is particularly relevant because South Africa, as the only country in the SADC region with a significant number of companies providing ESG data, offers valuable insight into the regional dynamics. In fact, Chininga *et al.* (2024) utilized the Tobin Q ratio, a performance measure employed in our study, which further supports the validity of our results. Additionally, the study by Siueia *et al.* (2019), which identified a positive ESG-CFP relationship in the banking sectors of South Africa and Mozambique, reinforces the significance of these findings within the broader SADC context.

In the food sector, studies like those of Hung *et al.* (2019) and Mądra-Sawicka & Paliszkievicz (2020), which emphasize the positive impact of CSR practices on various financial performance indicators, align closely with the results observed in our study. Mądra-Sawicka & Paliszkievicz (2020) is especially relevant as it also includes South Africa as part of their sample, providing a strong comparison point in terms of both sector and geographical region.

When considering the specific characteristics of the SADC region, several unique factors come into play that distinguish it from other regions. The SADC region, heavily dependent on agriculture and food production, faces particular challenges, including economic vulnerability, poverty, and food insecurity. These challenges make the role of ESG practices even more critical. Unlike developed and emerging markets, the drivers of ESG practices in the SADC region are more likely to be related to long-term sustainability goals, including food security, climate resilience, and social stability. These region-specific drivers help explain the strong alignment between ESG practices and financial performance observed in this study. By embracing ESG principles, food-producing companies in the region can not only improve their financial performance but also contribute to the broader economic and social stability of the region.

Furthermore, the regional context of the SADC, marked by 15 underdeveloped and an emerging adds complexity to the ESG-CFP relationship. Companies operating in this region may face barriers to implementing ESG practices, such as limited access to capital, weak regulatory frameworks, and inconsistent ESG reporting standards. However, this study indicates that, despite these challenges, ESG-engaged companies in the food sector are still able to achieve superior financial performance. This suggests that even in resource-constrained settings, the adoption of ESG practices can be a key driver of financial success, particularly in sectors critical to regional development, such as agriculture and food production.

Conclusion

Transparency and reporting practices around ESG initiatives and their influence on financial outcomes have been a focal point in recent research. Existing literature reveals that companies effectively integrating ESG principles into their operations not only foster sustainable growth and competitiveness but also can enhance their corporate financial performance (Clarkson, 1995; Barnea & Rubin, 2010; Branco & Rodrigues, 2006; Fatemi *et al.*, 2018; Gatune & Cloete, 2022). However, the ESG-CFP relationship can vary across different corporate, sectoral, economic, and regional contexts (Barnea & Rubin, 2010).

Studies on ESG and CFP relationships across Africa are mainly available for South Africa, but the other African countries and the Southern African Development Community region have inadequate literature availability on this topic. Additionally, the food industry is known as one of the most vulnerable sectors in the SADC region. With this study, we aimed to contribute to the existing academic literature by examining the relationship between ESG practices and corporate financial performance within the food industry of the SADC region, thereby enhancing the understanding of ESG's role in financial stability.

This research examines the impacts of corporate sustainability practices on the financial performance of the food producer companies listed in SADC countries. The analysis employs panel data models applied to an 8-year panel dataset spanning from 2015 to 2022, comprising 32 publicly held food producer companies in the SADC region. Within this sample, as South Africa is the only country where firms with ESG scores are included, panel model estimation is repeated on a sub-sample consisting of 14 listed food producers from South Africa. In the regressions, financial performance was primarily proxied by the Tobin Q ratio, with the market-to-book value ratio used alternatively. Control variables such as company size and leverage were implemented, and GDP was utilized to control economic disparities within the sample. According to the analysis findings, companies engaging in ESG practices tend to have stronger Tobin Q and market-to-book value.

The findings of this study reveal that food producer companies in the SADC region that engage in ESG practices demonstrate stronger financial performance. These ESG efforts have the potential to contribute to the long-term sustainability and prosperity of the SADC region, given its heavy reliance on agriculture and food production, as well as its vulnerability to food insecurity. Considering the high and expected rise in poverty levels in Sub-Saharan Africa (World Bank, 2024), the significance of ESG activities in SADC food producers becomes even more pronounced, as they directly influence financial performance.

The results underscore the importance of integrating ESG factors into business strategies to enhance financial performance, in vulnerable industries and regions like Southern Africa. We can generalize these results to suggest that advancing corporate sustainability initiatives or ensuring compliance with ESG criteria has the potential to strengthen financial performance. These results align with Stakeholder Theory, which advocates a connection between ESG compliance and financial soundness. As a result, this research suggests that companies must continue fulfilling their responsibilities to all stakeholders and ultimately society, in order to sustain financial success in the future.

In conclusion, the findings from this study not only contribute to the academic literature on ESG and CFP but also offer practical implications for businesses and policymakers in the SADC region. By demonstrating that ESG engagement leads to improved financial performance, this research highlights the potential for sustainable corporate practices to foster both financial and social outcomes in vulnerable regions. The results reinforce the importance of integrating ESG factors into business strategies, particularly in sectors like food production that are central to the region's economic and social stability. For policymakers, the study suggests that creating incentives for ESG compliance could play a significant role in promoting long-term regional development.

To be able to fully realize the benefits of ESG practices, policymakers in the region are expected to take proactive steps to encourage companies to adopt responsible business practices that integrate ESG factors. Firstly, given the low number of companies (and countries) in the SADC region with established ESG scores, it is crucial for regional policymakers to introduce tax incentives or subsidies for companies that voluntarily disclose their ESG practices. Secondly, regional or national regulatory bodies could provide funding incentives or technical support to companies implementing or improving their ESG practices. Furthermore, considering the high levels of food insecurity in the SADC region, governments should integrate ESG considerations into national food security strategies to ensure that food production is not only efficient but also sustainable in the long term. These strategies could promote practices that reduce food waste and enhance the sustainability of food systems across the region. Since the SADC region plays a critical role in fostering regional collaboration on ESG practices, the actions taken by policymakers in this region could contribute to improving ESG practices across Africa, ultimately supporting more sustainable economic growth.

Limitation and Future Studies

This study focuses on a relatively less explored region, which presents a limitation in terms of data availability. Firstly, the number of publicly traded companies among SADC members is low. Additionally, the number of companies with ESG scores among these publicly traded firms is also quite low. This situation has reduced the amount of observations for analysis. Furthermore, the concentration of analysis variables within a single country in the region has led the study to be examined at the country level rather than at the regional level, reducing sample representativeness. This limitation has been attempted to be addressed through additional estimations specifically for South Africa, where the ESG variable is present in the analysis. Other factors that reduce the ability to generalize the analysis results include focusing on a single region and sector, not analyzing ESG factors separately, and relying on a single CSP measure as ESG ratings.

The results are expected to lay a foundation for future research, encouraging continued investigation into the long-term effects of ESG initiatives within SADC countries. The small dataset, which was presented as a limitation, lays the groundwork for a more detailed examination at the firm level. Food-producing companies in the SADC region may be subject to more detailed company-level evaluation and in this detailed examination, the sustainability reports of the firms can be reviewed as well as ESG scores. The exploration of geographical and sector-specific nuances in ESG practices highlights the importance of considering local market conditions, cultural norms, regulatory environments, and industry-specific challenges when evaluating the efficacy of ESG initiatives. Additionally, further research could benefit from exploring the ESG components separately to facilitate a more thorough discussion of CSR and its connection with financial performance.

Contribution Rates and Conflicts of Interest

Etik Beyan	Bu çalışmanın hazırlanma sürecinde bilimsel ve etik ilkelere uyulduğu ve yararlanılan tüm çalışmaların kaynakçada belirtildiği beyan olunur.	Ethical Statement	It is declared that scientific and ethical principles have been followed while carrying out and writing this study and that all the sources used have been properly cited
Yazar Katkıları	Çalışmanın Tasarlanması: AŞ (%80) WKM (%20) Veri Toplanması: AŞ (%30) WKM (%70) Veri Analizi: AŞ (%30) WKM (%70) Makalenin Yazımı: AŞ (%80) WKM (%20) Makale Gönderimi ve Revizyonu: AŞ (%80) WKM (%20)	Author Contributions	Research Design: AŞ (%80) WKM (%20) Data Collection: AŞ (%30) WKM (%70) Data Analysis: AŞ (%30) WKM (%70) Writing the Article: AŞ (%80) WKM (%20) Article Submission and Revision: AŞ (%80) WKM (%20)
Etik Bildirim	iibfdergi@cumhuriyet.edu.tr	Complaints	iibfdergi@cumhuriyet.edu.tr
Çıkar Çatışması	Çıkar çatışması beyan edilmemiştir.	Conflicts of Interest	The author(s) has no conflict of interest to declare.
Finansman	Bu araştırmayı desteklemek için dış fon kullanılmamıştır.	Grant Support	The author(s) acknowledge that they received no external funding in support of this research.
Telif Hakkı & Lisans	Yazarlar dergide yayınlanan çalışmalarının telif hakkına sahiptirler ve çalışmaları CC BY-NC 4.0 lisansı altında yayımlanmaktadır.	Copyright & License	Authors publishing with the journal retain the copyright to their work licensed under the CC BY-NC 4.0
Etik Kurul	Etik kurul iznine ihtiyaç bulunmamaktadır.	Ethics Committee	Ethics committee approval is not required.

References

- Aboluwodi, D., Muzindutsi, P.-F., & Nomlala, B. (2024). Investor sentiments and performance of selected ESG indices in BRICS markets during bull and bear conditions. *Investment Analysts Journal*, 1–18. <https://doi.org/10.1080/10293523.2024.2397889>
- Abukari, K., Musah, A., & Assaidi, A. (2023). The role of corporate sustainability and its consistency on firm financial performance: Canadian evidence*. *Accounting Perspectives*, 22(1): 55-86, <https://doi.org/10.1111/1911-3838.12309>
- Afroz, Z., & Kruusman, A. (2019). The effect of the ESG Score on stock price jumps A quantitative study on Nordic Countries (Unpublished Master's Thesis), Umeå University, Business Administration. Master's Program in Finance. <https://umu.diva-portal.org/smash/get/diva2:1325390/FULLTEXT01.pdf>
- Agnese, P., Arduino, F. R., Bruno, E., & Vento, G. A. (2024). On the road to sustainability: The role of board characteristics in driving ESG performance in Africa. *Socio-Economic Planning Sciences*, 95, 101994. <https://doi.org/10.1016/j.seps.2024.101994>
- Ahiklo, Y., & Lind, C. (2019). E, S or G? A study of ESG score and financial performance (Unpublished Master's thesis). KTH, Industrial Engineering and Management. Master of Science Thesis TRITA-ITM-EX 2019:12 <https://www.diva-portal.org/smash/get/diva2:1295223/FULLTEXT01.pdf>
- Alareeni, B. A., & Hamdan, A. (2020). ESG impact on performance of US S&P 500-listed firms. *Corporate Governance: The International Journal of Business in Society*, 20(7), 1409–1428. <https://doi.org/10.1108/CG-06-2020-0258>
- Albitar, K., Hussainey, K., Kolade, N., & Gerged, A. M. (2020). ESG disclosure and firm performance before and after IR: The moderating role of governance mechanisms. *International Journal of Accounting & Information Management*, 28(3), 429–444. <https://doi.org/10.1108/IJAIM-09-2019-0108>
- Al-Hiyari, A., Mas'ud, A., & Kolsi M. C. (2022). Environmental, social and governance (ESG) activity and corporate controversies in South Africa: The interacting role of a skillful board. In Allam Hamdan, Haneen Mohammad Shoaib, Bahaaeddin Alareeni, and Reem Hamdan (Eds.), *The Implementation of Smart Technologies for Business Success and Sustainability: During COVID-19 Crises in Developing Countries* (pp. 335–346). Cham: Springer.
- Amin, N., & Tauseef, S. (2022). Does an optimal ESG score exist? Evidence from China. *Macroeconomics and Finance in Emerging Market Economies*, 1–19. <https://doi.org/10.1080/17520843.2022.2034280>
- Assiouras, I., Ozgen, O., & Skourtis, G. (2013). The impact of corporate social responsibility in food industry in product-harm crises. *British Food Journal*, 115(1), 108–123. <https://doi.org/10.1108/00070701311289902>
- Azmi, W., Hassan, M. K., Houston, R., & Karim, M. S. (2021). ESG activities and banking performance: International evidence from emerging economies. *Journal of International Financial Markets, Institutions and Money*, 70, 101277. <https://doi.org/10.1016/j.intfin.2020.101277>
- Balatbat, M., Siew, R., & Carmichael, D. (2012). ESG scores and its influence on firm performance: Australian evidence. *Australian School of Business School of Accounting, School of Accounting Seminar Series Semester, 2*, 1–30.
- Ball, R. (2021). Examining the relationship between ESG performance and financial performance of firms listed on the JSE. (Unpublished Master's thesis). University of Cape Town. OpenUCT. [open.uct.ac.za. http://hdl.handle.net/11427/33634](http://hdl.handle.net/11427/33634)

- Barnea, A., & Rubin, A. (2010). Corporate social responsibility as a conflict between shareholders. *Journal of Business Ethics*, 97(1), 71–86. <https://doi.org/10.1007/s10551-010-0496-z>
- Bennouri, M., Chtioui, T., Nagati, H., & Nekhili, M. (2018). Female board directorship and firm performance: What really matters? *Journal of Banking & Finance*, 88, 267–291. <https://doi.org/10.1016/j.jbankfin.2017.12.010>
- Bhatia, A., & Makkar, B. (2019). CSR disclosure in developing and developed countries: A comparative study. *Journal of Global Responsibility*, 11(1), 1–26. <https://doi.org/10.1108/JGR-04-2019-0043>
- Boiral, O., Brotherton, M., Talbot, D., & Guillaumie, L. (2024). Assessing and managing environmental, social, and governance risks in agri-food companies. *Corporate Social Responsibility & Environmental Management*, 1-19. <https://doi.org/10.1002/csr.2884>
- Branco, M. C., & Rodrigues, L. L. (2006). Corporate social responsibility and resource-based perspectives. *Journal of Business Ethics*, 69(2), 111–132. <https://doi.org/10.1007/s10551-006-9071-z>
- Brunella, A., Federico, D., Roberto, F., Pietro, P., & Madau, F. A. (2024). Role of environmental, social and governance disclosure in business profitability and cost of debt: An analysis of small Southern Italian agri-food businesses. *Agribusiness*. <https://doi.org/10.1002/agr.21933>
- Buallay, A. (2019). Is sustainability reporting (ESG) associated with performance? Evidence from the European banking sector. *Management of Environmental Quality: An International Journal*, 30(1), 98–115. <https://doi.org/10.1108/MEQ-12-2017-0149>
- Charlo, M., Moya, I., & Muñoz, A. (2017). Financial performance of socially responsible firms: The short- and long-term impact. *Sustainability*, 9(9), 1622. <https://doi.org/10.3390/su9091622>
- Chetty, S., Naidoo, R., & Seetharam, Y. (2015). The impact of corporate social responsibility on firms' financial performance in South Africa. *Contemporary Economics*, 9(2), 193–214. <https://doi.org/10.5709/ce.1897-9254.167>
- Chininga, E., Alhassan, A. L., & Zeka, B. (2024). ESG ratings and corporate financial performance in South Africa. *Journal of Accounting in Emerging Economies*, 14(3):692–713. <https://doi.org/10.1108/JAEE-03-2023-0072>
- Chung, K. H., & Pruitt, S. W. (1994). A simple approximation of Tobin's q. *Financial Management*, 23(3), 70. <https://doi.org/10.2307/3665623>
- Clarkson, M. B. E. (1995). A stakeholder framework for analysing and evaluating corporate social performance. *The Academy of Management Review*, 20 (10), 92-117. <https://doi.org/10.2307/258888>
- Collin, S. (2009). The value of environmental, social and governance factors for foundation investments. EIRIS Foundation Charity Project. <https://community-wealth.org/sites/clone.community-wealth.org/files/downloads/report-collin.pdf>
- Danila, A., & Nancu, D. (2023). Study on ESG practices in Romanian food sector. *Ovidius University Annals, Series Economic Sciences*, 23(1), 337–343.
- Costopoulou, C., Ntaliani, M., & Ntalianis, F. (2018). CSR in Food and Beverage Industry: The Greek Case. 2018 9th International Conference on Information, Intelligence, Systems and Applications (IISA), Zakynthos, Greece, 1–4. <https://doi.org/10.1109/IISA.2018.8633591>
- De Klerk, M., De Villiers, C., & Van Staden, C. (2015). The influence of corporate social responsibility disclosure on share prices: Evidence from the United Kingdom. *Pacific Accounting Review*, 27(2), 208–228. <https://doi.org/10.1108/PAR-05-2013-0047>
- Del Giudice, T., Stranieri, S., Caracciolo, F., Ricci, E. C., Cembalo, L., Banterle, A., & Cicia, G. (2018). Corporate Social Responsibility certifications influence consumer preferences and seafood market price. *Journal of Cleaner Production*, 178, 526–533. <https://doi.org/10.1016/j.jclepro.2017.12.276>
- Dorfleitner, G., Halbritter, G., & Nguyen, M. (2015). Measuring the level and risk of corporate responsibility – An empirical comparison of different ESG rating approaches. *Journal of Asset Management*, 16(7), Article 7. <https://doi.org/10.1057/jam.2015.31>
- Engelhardt, N., Ekkenga, J., & Posch, P. (2021). ESG ratings and stock performance during the COVID-19 crisis. *Sustainability*, 13(13), 7133. <https://doi.org/10.3390/su13137133>
- Ersoy, E., Bayraktaroglu, A., & Şamiloğlu, F. (2011). Türkiye'de kurumsal yönetim ve firma performansı (Tobin-q ve anormal getiri) arasındaki ilişkinin analizi. *Finans Politik & Ekonomik Yorumlar Dergisi*, 48, 71–83.
- Fatemi, A., Glaum, M., & Kaiser, S. (2018). ESG performance and firm value: The moderating role of disclosure. *Global Finance Journal*, 38, 45–64. <https://doi.org/10.1016/j.gfj.2017.03.001>
- Food Standards Agency. (2012). Food industry. Retrieved June 8, 2024, from the Internet Archive: Wayback Machine: <https://web.archive.org/web/20120605160537/http://www.food.gov.uk/foodindustry/>
- Franc-Dąbrowska, J., Mađra-Sawicka, M., & Ulrichs, M. (2020). Determinants of dividend payout decisions – the case of publicly quoted food industry enterprises operating in emerging markets. *Economic Research-Ekonomska Istraživanja*, 33(1), 1108–1129. <https://doi.org/10.1080/1331677X.2019.1631201>
- Freeman, R. E., & McVea, J. (2001). A Stakeholder Approach to Strategic Management. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.263511>
- Freeman, R. E., & Sonnenfeld, J. A. (1984). Corporate views of the public interest. *The Academy of Management Review*, 9(2), 366. <https://doi.org/10.2307/258453>
- Friede, G., Busch, T., & Bassen, A. (2015). ESG and financial performance: aggregated evidence from more than 2000 empirical studies. *Journal of Sustainable Finance & Investment*, 5(4), 210–233. <https://doi.org/10.1080/20430795.2015.1118917>
- Friedman, M. (1970). The social responsibility of a business is to increase its profits. *New York Times Magazine*, September, 13, 122–126.
- Garcia, A. S., & Orsato, R. J. (2020). Testing the institutional difference hypothesis: A study about environmental, social, governance, and financial performance. *Business Strategy and the Environment*, 29(8), 3261–3272. <https://doi.org/10.1002/bse.2570>
- Gatune, J., & Cloete, D. (2022). SADC Industrialisation Futures: Towards Economic Wellbeing. (South African Institute of International Affairs, SAIIA Policy Insights No 123, February, 2022). <https://saiia.org.za/research/sadc-industrialisation-futures-towards-economic-wellbeing/>
- Gega, M., Höhler, J., Bijman, J., & Oude Lansink, A. (2024). Firm ownership and ESG performance in European agri-food companies: The mediating effect of risk-taking and time horizon. *Corporate Social Responsibility & Environmental Management*, 1-21. <https://doi.org/10.1002/csr.3008>
- Gołębiewski, J. (2023). The significance and essence of ESG in the food sector in Poland. *Annals of the Polish Association of*

- Agricultural and Agribusiness Economists*, XXV(1), 75–90. <https://doi.org/10.5604/01.3001.0016.2825>
- Goncharov, V. N., Erokhin, A. M., Ivashova, V. A., Kolosova, O. U., Tronina, L. A., & Kamalova, O. N. (2020). Social responsibility and professional competence of safeguard specialists for the quality and safety of food products. *IOP Conference Series: Earth and Environmental Science*, 422(1), 012124. <https://doi.org/10.1088/1755-1315/422/1/012124>
- Hasan, R., Miah, M.D., & Hassan, M.K. (2022). The nexus between environmental and financial performance: Evidence from Gulf Cooperative Council banks. *Business Strategy and the Environment*, 31 (7), 2882-2907. doi: 10.1002/bse.3053.
- Hung, S.W., Li, C.M., & Lee, J.M. (2019). Firm growth, business risk, and corporate social responsibility in Taiwan's food industry. *Agricultural Economics (Zemědělská Ekonomika)*, 65(8), 366–374. <https://doi.org/10.17221/339/2018-AGRICECON>
- Kong, D. (2012). Does corporate social responsibility matter in the food industry? Evidence from a nature experiment in China. *Food Policy*, 37(3), 323–334. <https://doi.org/10.1016/j.foodpol.2012.03.003>
- Kurilets, N. (2014). Stock Market reaction to the CSR announcements of American fast food companies. (Unpublished Master's Thesis). Lappeenranta University of Technology. LUT School of Business. Strategic Finance / International Masters of Science Program in Strategic Finance. A220A9000 Master's Thesis. <https://lutpub.lut.fi/handle/10024/98562>
- La Torre, M., Mango, F., Cafaro, A., & Leo, S. (2020). Does the ESG Index affect stock return? Evidence from the Eurostoxx50. *Sustainability*, 12(16), 6387. <https://doi.org/10.3390/su12166387>
- Lerro, M., Vecchio, R., Caracciolo, F., Pascucci, S., & Cembalo, L. (2018). Consumers' heterogeneous preferences for corporate social responsibility in the food industry. *Corporate Social Responsibility and Environmental Management*, 25(6), 1050–1061. <https://doi.org/10.1002/csr.1519>
- Lima Crisóstomo, V., De Souza Freire, F., & Cortes De Vasconcellos, F. (2011). Corporate social responsibility, firm value and financial performance in Brazil. *Social Responsibility Journal*, 7(2), 295–309. <https://doi.org/10.1108/174711111111141549>
- Lin, M. J., Lee, D. C., & Lee, L. T. (2011). Using Tobin's Q ratio to testing the stakeholder theory applied to the corporate social performance. *African Journal of Business Management*, 5(34), 12951. <https://doi.org/10.5897/AJBM11.706>
- Linnenluecke, M. K. (2022). Environmental, social and governance (ESG) performance in the context of multinational business research. *Multinational Business Review*, 30(1), 1–16. <https://doi.org/10.1108/MBR-11-2021-0148>
- LSEG Data & Analytics (2023). Environmental, social and governance scores from LSEG Dec 2023. https://www.lseg.com/content/dam/data-analytics/en_us/documents/methodology/lseg-esg-scores-methodology.pdf
- Luque, V. M., Gómez, L. J. A., Guerrero, B. M. D., & Rodríguez, G. P. (2023). Deconstructing corporate environmental, social, and governance performance: Heterogeneous stakeholder preferences in the food industry. *Sustainable Development*, 31(3), 1845–1860. <https://doi.org/10.1002/sd.2488>
- Lundin, F., & Olandersson, M. (2019). Sustainability and profitability in Sweden: A quantitative study of Swedish firms (Degree Project). Umeå University, Umeå School of Business, Economics and Statistics. <http://www.diva-portal.org/smash/get/diva2:1326475/FULLTEXT01.pdf>
- Mądra-Sawicka, M., & Paliszkievicz, J. (2020). Information sharing strategies in the social media era: The perspective of financial performance and CSR in the food industry. *Information*, 11(10), 463. <https://doi.org/10.3390/info11100463>
- Maloni, M. J., & Brown, M. E. (2006). Corporate social responsibility in the supply chain: An Application in the food industry. *Journal of Business Ethics*, 68(1), 35–52. <https://doi.org/10.1007/s10551-006-9038-0>
- Mambo, C. (2023, January 19). SADC 2023: The year for economic growth, resilience and value addition. Southern African Research and Documentation Centre. SANF23,1 <https://www.sardc.net/en/southern-african-news-features/sadc-2023-the-year-for-economic-growth-resilience-and-value-addition/>
- Mansaray, A. P., Yuanyuan, L., & Brima, S. (2017). The impact of corporate social responsibility disclosure on financial performance of firms in Africa. *International Journal of Economics and Financial Issues, Econjournals*, 7(5), 137-146.
- Mans-Kemp, N., & Van Der Lugt, C. T. (2020). Linking integrated reporting quality with sustainability performance and financial performance in South Africa. *South African Journal of Economic and Management Sciences*, 23(1). <https://doi.org/10.4102/sajems.v23i1.3572>
- Marais, F., Van der Lugt, C. T., & Mans-Kemp, N. (2022). Mainstreaming environmental, social and governance integration in investment practices in South Africa: A proposed framework. *Journal of Economic & Financial Sciences*, 15(1), 1–13. <https://doi.org/10.4102/jef.v15i1.787>
- Masongweni, V. V., & Simo-Kengne, B. D. (2024). The impact of sustainable investment on firm performance in South Africa. *South African Journal of Accounting Research*, 38(2), 146-173. <https://doi.org/10.1080/10291954.2024.2306701>
- Mouton, F., Londt, C., Cloete, G., Hattingh, W., & Steenkamp, G. (2024). Share repurchases and corporate sustainability: Evidence from South Africa. *International Journal of Financial Studies*, 12(2), 57. <https://doi.org/10.3390/ijfs12020057>
- Mohammad, W.M.W. & Wasizzaman, S. (2021). Environmental, Social and Governance (ESG) disclosure, competitive advantage and performance of firms in Malaysia. *Cleaner Environmental Systems*, 2, 100015, doi: 10.1016/j.cesys.2021.100015.
- Moneva, J. M., Rivera-Lirio, J. M., & Muñoz-Torres, M. J. (2007). The corporate stakeholder commitment and social and financial performance. *Industrial Management & Data Systems*, 107(1), 84–102. <https://doi.org/10.1108/02635570710719070>
- Naik, D., & Ward, M. (2017). The relationship between Environmental Social and Governance (ESG) disclosure and financial performance of South African listed equities. (Unpublished MBA thesis). University of Pretoria. Gordon Institute of Business Science. <http://hdl.handle.net/2263/64895>
- Nyakurukwa, K., & Seetharam, Y. (2023). Investor reaction to ESG news sentiment: Evidence from South Africa. *Economía*, 24, 68–85. <https://doi.org/10.1108/ECON-09-2022-0126>
- Orlitzky, M. (2005). Social responsibility and financial performance: Trade-off or virtuous circle. *University of Auckland Business Review*, 7(1), 37-43.
- Özelli, T. (2021). The financial and conceptual foundations of intangible asset manager capitalism. *Journal of Ekonomi*, 3(1), 29–100.
- Pava, M. L., & Krausz, J. (1997). Criteria for evaluating the legitimacy of corporate social responsibility. *Journal of Business Ethics*, 16(3), 337–347. <https://doi.org/10.1023/A:1017920217290>

- PESA (2023). PESA Regional Integration Monitor: Sep 2023, Political Economy Southern Africa NPC: Pretoria. Available at: <https://politicaleconomy.org.za/>
- Rahi, A.F., Akter, R., & Johansson, J. (2022). Do sustainability practices influence financial performance? Evidence from the Nordic financial industry. *Accounting Research Journal*, 35 (2), 292-314, doi: 10.1108/ARJ-12-2020-0373.
- Reverte, C. (2016). Corporate social responsibility disclosure and market valuation: Evidence from Spanish listed firms. *Review of Managerial Science*, 10(2), 411–435. <https://doi.org/10.1007/s11846-014-0151-7>
- Sahut, J.-M., & Pasquini-Descomps, H. (2015). ESG impact on market performance of firms: International evidence. *Management International*, 19(2), 40–63. <https://doi.org/10.7202/1030386ar>
- Saygili, E., Arslan, S., & Birkan, A. O. (2022). ESG practices and corporate financial performance: Evidence from Borsa Istanbul. *Borsa Istanbul Review*, 22(3), 525–533. <https://doi.org/10.1016/j.bir.2021.07.001>
- Shnayder, L., Van Rijnsoever, F. J., & Hekkert, M. P. (2016). Motivations for corporate social responsibility in the packaged food industry: An institutional and stakeholder management perspective. *Journal of Cleaner Production*, 122, 212–227. <https://doi.org/10.1016/j.jclepro.2016.02.030>
- Siueia, T. T., Wang, J., & Deladem, T. G. (2019). Corporate Social Responsibility and financial performance: A comparative study in the Sub-Saharan Africa banking sector. *Journal of Cleaner Production*, 226, 658–668. <https://doi.org/10.1016/j.jclepro.2019.04.027>
- Southern African Development Community [SADC] (2022). Southern African Development Community (SADC) Regional Vulnerability Assessment and Analysis (RVAA) Synthesis Report 2022. <https://www.sadc.int/document/sadc-rvaa-synthesis-report-2022-eng>
- Southern African Development Community [SADC] (2024). <https://www.sadc.int/member-states> or <https://www.sadc.int>
- Wiśniewska-Paluszak, J., & Paluszak, G. (2019). Examples of creating shared value (CSV) in agribusiness in Poland. *Annals of the Polish Association of Agricultural and Agribusiness Economists*, XXI (2), 297–306. <https://doi.org/10.5604/01.3001.0013.2198>
- World Bank (2024). Poverty, Prosperity, and Planet Report 2024: Pathways Out of the Polycrisis. Washington, DC: World Bank. doi:10.1596/978-1-4648-2123-3. License: Creative Commons Attribution CC BY 3.0 IGO
- Zehir, E., & Aybars, A. (2020). Is there any effect of ESG scores on portfolio performance? Evidence from Europe and Turkey. *Journal of Capital Markets Studies*, 4(2), 129–143. <https://doi.org/10.1108/JCMS-09-2020-0034>



The Mediating Role of Job Embeddedness and Regulating Role of Workplace Incivility in the Relationship of Perceived Supervisor Support with Job Satisfaction

Emre Seyrek^{1,a,*}, Nurdan Gürkan^{2,b}

¹ Agri Ibrahim Cecen University, Vocational School, Department of Property Protection and Security, Agri/Turkey

² Zonguldak Bülent Ecevit University, Faculty of Economics and Administrative Sciences, Department of Business Administration, Zonguldak/Türkiye

*Corresponding author

Research Article

History

Received: 16/09/2024

Accepted: 24/11/2024

JEL Codes: D23, M12, M14, M19

Acknowledgment: This study was produced by utilizing the doctoral thesis titled "The Role of Workplace Incivility and Job Embeddedness in the Relationship of Perceived Supervisor Support with Job Satisfaction" completed by Emre SEYREK in 2024 at the Department of Business Administration at the ZBEU Institute of Social Sciences, under the supervision of Assist. Prof. Nurdan GÜRKAN.

ABSTRACT

There are many factors that may affect the job satisfaction of blue-collar textile employees. Accordingly, this study aims to determine the relationships between perceived supervisor support, job satisfaction, employees' job embeddedness and workplace incivility behaviors. Within the framework of this purpose, a model was created based on the literature in the research conducted on 427 blue-collar textile employees. This research model corresponds to Hayes model 14. The data obtained were analyzed with the help of IBM SPSS 22.0, AMOS 24.0 and PROCESS-Macro v4.1, an IBM SPSS plug-in. When the relationships in the study are analyzed; it is seen that perceived supervisor support has a positive total effect on the job satisfaction of blue-collar textile employees. Perceived supervisor support has a positive effect on blue-collar textile employees' job embeddedness. Blue-collar textile employees' job embeddedness has a positive effect on their job satisfaction. It has been concluded that workplace incivility behavior has a negative effect the on job satisfaction of blue-collar textile employees. It has been observed that workplace incivility behavior has a moderating effect on the effect of blue-collar textile employees' job embeddedness on their job satisfaction. In the study, it was determined that job embeddedness has a mediating effect on the effect of perceived supervisor support on job satisfaction of blue-collar textile employees. In addition, when the research model is considered as a whole, it is concluded that workplace incivility regulates the mediating role of job embeddedness in the effect of perceived supervisor support on job satisfaction.

Keywords: Perceived Supervisor Support, Job Embeddedness, Workplace Incivility, Job Satisfaction

Algılanan Yönetici Desteğinin İş Tatmini İle İlişkinde İşe Gömülmüşlüğü Aracı, İşyeri Nezaketsizliğinin Düzenleyici Rolü

Süreç

Geliş: 16/09/2024

Kabul: 24/11/2024

Jel Kodları: D23, M12, M14, M19

Bilgi: Bu çalışma danışmanlığını Dr. Öğr. Üyesi Nurdan GÜRKAN'ın yürüttüğü ZBEÜ Sosyal Bilimler Enstitüsü İşletme Anabilim Dalı'nda Emre SEYREK tarafından 2024 yılında tamamlanan "Algılanan Yönetici Desteğinin İş Tatmini ile İlişkinde İşyeri Nezaketsizliği ve İşe Gömülmüşlüğü Rolü" adlı doktora tezinden yararlanılarak üretilmiştir.

License



This work is licensed under Creative Commons Attribution-NonCommercial 4.0 International License International License

Öz

Mavi yakalı tekstil çalışanlarının iş tatminlerini etkileyebilecek birçok etmen söz konusudur. Bu doğrultuda araştırmada, algılanan yönetici desteği, iş tatmini, çalışanların işe gömülmüşlükleri ile işyeri nezaketsizliği davranışları arasındaki ilişkilerin belirlenmesi amaçlanmıştır. Bu amaç çerçevesinde, 427 mavi yakalı tekstil çalışanı üzerinde gerçekleştirilen araştırmada, literatüre dayanılarak bir model oluşturulmuştur. Oluşturulan bu araştırma modeli Hayes model 14'e karşılık gelmektedir. Elde edilen veriler IBM SPSS 22.0, AMOS 24.0 ve bir IBM SPSS eklentisi olan PROCESS-Macro v4.1 versiyonu yardımı ile analiz edilmiştir. Araştırmadaki ilişkiler incelendiğinde; algılanan yönetici desteğinin mavi yakalı tekstil çalışanlarının iş tatminleri üzerinde olumlu bir toplam etkiye sahip olduğu görülmüştür. Algılanan yönetici desteğinin mavi yakalı tekstil çalışanlarının işe gömülmüşlüklerine olumlu bir etkisi olduğu gözlemlenmiştir. Mavi yakalı tekstil çalışanlarının işe gömülmüşlüklerinin iş tatminleri üzerinde olumlu etkisinin olduğu saptanmıştır. İşyeri nezaketsizliği davranışının mavi yakalı tekstil çalışanlarının iş tatminleri üzerindeki etkisinde işe gömülmüşlüğü aracı etkiye sahip olduğu tespit edilmiştir. Ayrıca araştırma modeli bir bütün olarak ele alındığında, algılanan yönetici desteğinin iş tatminine etkisinde işe gömülmüşlüğü aracı rolünü işyeri nezaketsizliğinin düzenlediği sonuçlarına ulaşılmıştır.

Anahtar Kelimeler: Algılanan Yönetici Desteği, İşe Gömülmüşlük, İşyeri Nezaketsizliği, İş Tatmini

^a eseyrek@agri.edu.tr

^b [0000-0002-6561-8739](tel:0000-0002-6561-8739)

nurdan_clk@hotmail.com

[0000-0002-2220-769X](tel:0000-0002-2220-769X)

How to Cite: Seyrek E, Gürkan N (2025) The Mediating Role of Job Embeddedness and Regulating Role of Workplace Incivility in the Relationship of Perceived Supervisor Support with Job Satisfaction, Journal of Economics and Administrative Sciences, 26(1): 119-142, DOI: [10.37880/cumuiibf.1551071](https://doi.org/10.37880/cumuiibf.1551071)

Giriş

Örgütler kurulduğu andan itibaren çeşitli amaçlar doğrultusunda hareket etmekte ve bu amaçlara ulaşarak varlıklarını korumaya çalışmaktadır. Bir örgütün korunması ve geliştirilmesi, örgüt içindeki insan unsuruyla ilgilidir. Örgütlerde insan unsuru, bir örgütü diğer örgütten ayıran, daha başarılı ve güçlü kılan, sürekliliğini sağlayan önemli bileşenlerden biridir. İnsan faktörünün örgüte katkı sunmasının bir yolu da yaptığı işten memnun olmasıdır. Özellikle iş tatmini, örgütlerin başarısında kritik bir rol oynar. Bu perspektiften bakıldığında, tekstil sektöründe faaliyette bulunan mavi yakalı çalışanların iş tatminlerine etki edebilecek faktörlerin ortaya koyulması hem ulusal hem de uluslararası büyüme ve gelişim açısından oldukça önemli sonuçlar doğurabilir. Zira tekstil sektörünün büyüme ve gelişimi için mavi yakalı çalışanların hem bugünkü faaliyetleri hem de geleceğe yönelik amaçları dikkate alındığında iş tatmini kavramı oldukça önemlidir.

İş tatmini konusunda geçmişte yapılan farklı türdeki incelemeler, sonraki araştırmalara yol gösterici olmanın yanı sıra çeşitli deneyim ve davranışların açığa çıkmasını sağlamıştır. Örneğin, zorlayıcı görevlerde başarı sağlamak genellikle hedeflere ulaşmak için birden fazla yol geliştirmeyi gerektirmektedir (Snyder vd., 2002: 820). Ayrıca buna benzer durumlarda özellikle tekstil sektöründe çalışanların tatminleri daha iyi performans göstermelerine katkıda bulunurken (Ashraf vd., 2013: 131) tatminsizlikleri ise daha olumsuz performans sergilemelerine yol açabilmektedir (Shaikh vd., 2019: 9). O halde tatminin performans ile olan bu doğrusal ilişkisi tekstil fabrikalarındaki çalışma ortamında çalışanların iş tatminlerinin bütünselliğine katkı sağlayabilir.

Mavi yakalı tekstil çalışanlarının performansları açısından işlerinden tatmin olmaları dikkate alındığında, onların daha çok tatmin olabilmeleri ve çalışma ortamlarında bu tatminlerine etki edebilecek değişkenlerin neler olabileceğini belirleyebilmek, araştırmanın temel sorusunu oluşturmaktadır. Mavi yakalı çalışanların faaliyet gösterdikleri fabrikalara yönelik yaklaşımları, yöneticilerinin rolü ve çalışma arkadaşları (diğer mavi yakalı çalışanlar) ile olan etkileşimleri, araştırma sorusunun açıklanmasına kaynaklık etmektedir. Alan yazında, mavi yakalı tekstil çalışanlarının özellikle fabrikalardaki performansları açısından iş tatmini çabalarına yönelik fazla araştırma yapılmadığı gözlemlenmiştir. Ayrıca, mavi yakalı tekstil çalışanlarının iş tatminlerinin belirleyicisi olabilecek algılanan yönetici desteği, işe gömülmüslük ve işyeri nezaketsizliği değişkenlerinin birlikte ele alındığı bütünsel bir araştırmaya rastlanmamış olması, bu çalışmanın önemini daha da artırmaktadır. Bu faktörler, literatürdeki boşluklar ve her birinin iş tatminini nasıl etkilediği göz önünde bulundurularak seçilmiştir. Örneğin, algılanan yönetici desteği çalışanların örgüte bağlılıklarını güçlendirirken, işe gömülmüslük, çalışanların işlerine olan duygusal bağlarını ve motivasyonlarını artırır. Diğer yandan, işyeri nezaketsizliği iş tatminini olumsuz etkileyebilecek bir unsur olarak değerlendirilmiştir. Bu değişkenlerin iş tatmini açısından önemi, sonraki paragraflarda ayrıntılı olarak ele alınacaktır. Literatürdeki bu boşluk dikkate alınarak, araştırmada mavi

yakalı çalışanların iş başarılarında önemli bir yer tutan iş tatminine etki edebilecek temel faktörlerin algılanan yönetici desteği, işe gömülmüslük ve işyeri nezaketsizliği değişkenlerinin olup olmadığı araştırılmaktadır.

Araştırma modelinin dayandığı temel kuramlar Kaynakların Korunması Teorisi (Hobfoll, 1988) ve Alan Teorisi (Lewin, 1951) dir. Kaynakların korunması teorisinin ana kavramı, bireylerin mevcut kaynaklarını korumaya ve yeni kaynaklar elde etmeye teşvik edilmesidir. Mavi yakalı tekstil çalışanları aşırı iş yükü, fazla mesai ve nezaketsiz davranışlara maruz kalma gibi durumlardan dolayı kronik olarak stres altındaysa, hayal kırıklığına uğrayabilir, hoşnutsuz olabilir, taciz edilebilir ve işlerinde zorbalığa uğradıklarını hissedebilirler (Mujtaba ve Senathip, 2020). Bu nedenle her organizasyonda insan kaynakları sermayesini korumak için ilgili yönetim, eğitim ve başarı stratejilerine ihtiyaç vardır (Mujtaba vd., 2020).

Koruma görüşünün ikinci ilkesi kaynak yatırımdır. Hobfoll (2001)'a göre, bireyler genellikle kaynakları artırmak için kaynaklara yatırım yapar, kaynak kaybını önlemek için onları korur ve kaybını telafi etmeye çalışır. Mavi yakalı çalışanları ve çevreleri arasındaki ilişkiyi anlamının teorik temeli psikolog Kurt Lewin'in alan teorisinde bulunabilir. Bu teoriye göre, bir kişinin davranışının gerçekleştiği alan, davranışını güçlendirebilecek ya da değiştirebilecek bir dizi ilişki ve güçtür (Lewin, 1947). Bu açıdan tekstil fabrikalarında faaliyette bulunan ve kendilerine uygun çalışma ortamını yakalayan mavi yakalı çalışanların iş tatminleri için ortaya koydukları psikolojik ve fizyolojik duygu durumları yöneticilerinden gördükleri destek algısından etkilenebilir. Mavi yakalı çalışanların iş tatminleri açısından işe gömülmüslükleri ise iş ortamı ve çevresel faktörlerinde etkisi ile işyeri nezaketsizliği davranışlarını şekillendirebilir.

Günümüzde tekstil işletmeleri üretim kapasitesini artırmak ve daha fazla kar elde etmek için çalışanları üzerinden bazı amaçlar belirleyebilmektedirler. Bu amaçların gerçekleştirilmesi için tekstil işletmeleri çalışanlarına kariyer basamakları oluşturmada, çalışma ortamının kalitesini artırabilmekte ve onların başarıları için çalışanlarına yöneticileri üzerinden destekler verebilmektedirler. Bu olanakların varlığı çalışanların işlerine karşı gömülü olmalarını sağlayabilir. Ayrıca çalışanlar çalışma ortamlarında diğer çalışma arkadaşları ve yöneticileri tarafından nezaketsiz davranışlara da maruz kalabilirler. Bu davranışların etkileri iş tatmini için önemli olabilir.

İş tatmin seviyesi, çevresel, örgütsel, kültürel, sosyal ve kişisel faktörler gibi pek çok çeşitli değişken tarafından etkilenmektedir (Mullins, 2002: 646–647). Bilim insanları aracılığıyla iş tatmininin birçok belirleyicisinin olduğu ortaya konmuştur. Bu belirleyiciler arasında, iş arkadaşları ile ilişkiler, yöneticiden görülen destek ve adil davranma sayılabilir (Fisher, 2001: 143). Bu açıdan tekstil işletmelerinde mavi yakalı çalışanların iş tatminleri, algılanan yönetici desteği, çalışanların işe gömülmüslükleri ve işyerindeki nezaketsiz davranışların etkilerini anlamlı hale getirmek için aşağıda bu değişkenler literatür eşliğinde ifade edilmeye çalışılmıştır.

Kavramsal Çerçeve

Algılanan Yönetici Desteği

Örgütlerde yöneticiler, çalışanların ihtiyaç ve beklentilerini belirlemek için görevlendirilen ve hiyerarşik olarak birincil iletişim kanalı konumunda olan önemli unsurlardır. Yöneticiler, örgütün sahip olduğu kaynakları etkili ve verimli bir şekilde dağıtarak örgüt politikaları çerçevesinde çalışanlar ile örgüt arasındaki ilişkide belirleyici bir rol üstlenmektedirler (Muse ve Pichler, 2011). Çalışanlara işlerini daha iyi yapmaları için sağlanan destekler, örgüt ya da yöneticiler tarafından işlerini kolaylaştırıcı faaliyetler olarak tanımlanır (Matthews vd., 2010: 78). Çalışanların örgütün kendilerine ne kadar değer verdiğini ve katkılarının ne kadar önemli olduğunu algıladıkları süreç, destek algısı olarak adlandırılır (Rhoades ve Eisenberger, 2002: 698).

Algılanan yönetici desteği literatürde ilk olarak Eisenberger vd. (1986) tarafından örgütsel destek kavramından türetilmiş ve çalışanların örgüt içindeki katılımlarına verilen önem ile ilgilidir. Rhoades vd. (2001) bu kavramı, çalışanların mutluluğunu gözeterek onların hedef ve değerlerine önem verme olarak tanımlarken, Bhanthumnavin (2003: 79) ise daha basit bir şekilde yönetici ile çalışan arasındaki pozitif iş ilişkileri olarak ifade etmektedir. Algılanan yönetici desteği, yöneticilerin çalışanlara gösterdiği ilgi, teşvik ve desteğin ne kadar hissedildiği şeklinde de tanımlanabilir (Babin ve Boles, 1996: 60).

İşe Gömülmüslük

Çalışanların işletmeye bağlılığını ifade eden kavramlardan biri olan işe gömülmüslük, son zamanlarda yapılan akademik araştırmalarda ön plana çıkmaktadır. İşe gömülmüslük kavramı, Kurt Lewin'in alan kuramı, gömülü figürler kuramı ve kaynakların korunumu kuramına dayanmaktadır. Alan kuramı, bireylerin diğer bireylerle olan ilişkilerine karşı davranışlarını düzenlemesiyle ilgilidir ve işe gömülmek, bireylerin kendilerini ait hissettikleri bir sistem veya ağa bağlı olmalarıyla açıklanabilir (Mitchell vd., 2001: 1104). Gömülü figürler kuramı ise bireyin geçmişleriyle alakalı olan gömülü figürlere dayandığını ve bu figürlerden uzaklaşmanın zor olduğunu savunmaktadır. Kaynakların korunumu kuramı ise bireylerin kaynak kaybını önlemek ve gelecekteki kaynak kayıplarını engellemek için işe gömülü olma nedenlerini açıklamaktadır (Alici, 2017: 81).

İşe gömülmüslük kavramı, çalışanların işlerinden neden ayrılmadıkları veya neden işlerinde kaldıklarını açıklayan bir olgu olarak Mitchell vd. (2001) tarafından kavramsal anlamda ilk kez kullanılmıştır. İşe gömülmüslük, çalışanların işyerinde kalmalarını sağlayan tüm faktörleri kapsamakta ve bu durum onların ilişkilerine, sorumluluklarına ve rollerine odaklanmaktadır (Tabak ve Hendy, 2016: 24). Çalışanların örgütle olan bağlarının artması, onların işyerinde kalıcı olmasını sağlamaktadır (Bambacas ve Kulik, 2013: 1934). Bu bağlamda, işe gömülmüslük, çalışanların neden işlerinde kalmaya devam ettiklerini açıklayan bir kavram olarak literatürde yer almaktadır (Karatepe, 2012: 497). İşe gömülmüslük, çalışanların organizasyonda kalma nedenlerini hem içsel hem de dışsal unsurlar çerçevesinde

değerlendirmektedir. Bu kavram, çalışanların organizasyona bağlılığını arttıran faktörleri tespit etmeyi amaçlamakta ve çalışanların işyerinde neden kalmaya devam ettiklerini anlamaya yönelik araştırmaların konusu olmuştur (Candan, 2016: 70).

İşyeri Nezaketsizliği

Günümüzdeki teknolojik gelişmeler, kurumlar içinde rekabet duygusunun artmasına neden olmuş ve bunun sonucunda bireyler arasında anlaşmazlıklar ve hoşgörüsüzlükler yaşanmaya başlamıştır (Leiter, 2013: 20). İşyeri nezaketsizliği, niteliksel anlamda saygı çerçevesinin dışında kalan, kaba ve medeni olmayan tutumlar olarak tanımlanır (Reio Jr ve Ghosh, 2009). Örneğin, tehditkâr konuşmalar yapmak, çalışma arkadaşlarının fikirlerini dikkate almamak, bağırarak konuşmak gibi davranışlar medeni olmayan davranışlara örnek olarak gösterilebilir (Reich ve Hershcovis, 2015). Örgütsel anlamda işyeri nezaketsizliği, işgörenlerin birbirlerine karşı sergiledikleri incitici sözler ve medeni olmayan davranışları ifade etmektedir (Spence Laschinger vd., 2012).

Bir örgütte hangi davranışların nezaket kuralları içerisinde olduğu ve hangilerinin olmadığına dair farklı görüşler bulunmaktadır (Hoffman ve Chunta, 2015). Bu bağlamda, saygı kurallarının dışında kalan kaba ve medeni olmayan davranışlar işyeri nezaketsizliği olarak değerlendirilir (Bolat, 2018). Örneğin, çalışma arkadaşlarına dik dik bakmak, onları görmezden gelmek, dışlamak gibi fiziksel olmayan bazı tutumlar işyeri nezaketsizliğine örnektir (Lim vd., 2008). Ayrıca "iyi günler" veya "günaydın" dememek, diğer çalışanların araç gereçlerini izin almadan kullanmak ve teşekkür etmemek de işyeri nezaketsizliği kapsamında değerlendirilen davranışlardandır (Taştan, 2014).

İş yerlerinde yazılı ve yazılı olmayan nezaket kurallarına uyulması gerekmektedir (Martin ve Hine, 2005). Bu kurallar kültürden kültüre ve sektörden sektöre farklılık gösterse de her organizasyonda geçerlidir. Nezaketsiz davranışlar, iş ortamında kolayca fark edilirken, nezaket davranışları genelde zaten var olması gerektiği için fark edilmez (Kanten, 2014). İşyeri nezaketsizliği görece zararsız gibi görünse de uzun vadede şiddetini artırarak olumsuz çalışma koşullarına yol açabilir (Işıkay, 2018). Bazı çalışanlar bu olumsuz etkiyi kabul etmezken, bazıları nezaketsiz davranışları önemsemeyebilir veya nezaketsizlik olarak algılayabilir (Göktepe ve Keleş, 2019; Gültaş, 2019).

İş Tatmini

İş tatmini araştırmaları, hem örgütlerde çalışanlar hem de onları inceleyenler yani yöneticiler tarafından büyük ilgi görmektedir. İş tatmini, ahlak, çatışma, tutum, liderlik, performans ve motivasyon gibi pek çok örgütsel olguyla yakın ilişki içerisinde. Birçok bilim insanı tarafından, iş tatmini kavramının farklı öğelerini belirlemek, her bir öğesinin görece önemini ölçmek ve bu öğelerin çalışan performansı üzerindeki neticelerini incelemek için farklı tanımlar ortaya konulmuştur (Parvin ve Kabir, 2011: 113).

İş tatmini, 20. yüzyılın başlarında kavramsal olarak ifade edilmiş olsa da, gerçek etkileri 1930'larda ve 1940'larda ortaya çıkmaya başlamıştır. Örgütlerde insan faktörünün

artan önemi ile birlikte birçok araştırmacı ve bilim insanı, iş tatmini kavramını incelemeye başlamıştır. Kavramın öncüsü olan Hoppock, iş tatmini olgusunu, "genel olarak işimden memnunum" şeklinde ifade edilmesine yol açacak olan çevresel, psikolojik ve fizyolojik koşulların bütünü olarak tanımlamaktadır. Bu tanımlaya göre, iş tatminini etkileyen birçok dış faktör bulunmasına rağmen, iş tatmini çalışanların iyi olma hali ile ilgili içsel bir olgudur ve tatmini tetikleyen birçok faktörün sonucu olarak değerlendirilmektedir (Green, 2000: 6). Hackman ve Oldham (1975), iş tatminini, bir işten elde edilen memnuniyet şeklinde tarif etmiştir. Bir başka deyişle iş tatminini, kişilerin içinde buldukları örgütteki rollerinin, onların işlerine karşı genel bakışlarına etkisi şeklinde tanımlamışlardır. Bu tanımlamalara benzer bir şekilde iş tatmini, insanların hâlihazırda çalışmakta oldukları işlere karşı duygusal yönelimleri olarak belirtilmiştir. İş tatmini bireyin çalışma ortamında ödüle yönelik tercihi olarak ifade edilmiştir (Green, 2000: 6).

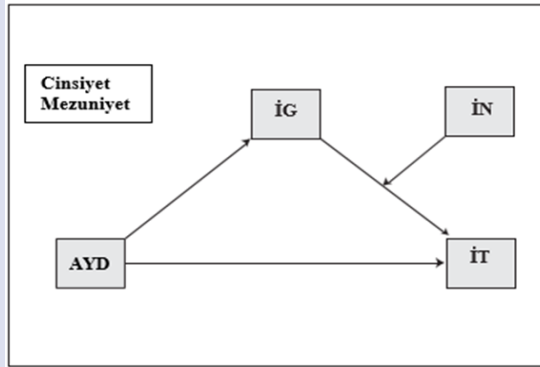
Locke (1976: 1300) iş tatmini kavramını "kişinin yaptığı işi değerlendirmesinden kaynaklanan zevkli ve olumlu bir duygusal durum" olarak tanımlanmaktadır. İş tatmini, bir çalışanın hak ettiği, arzuladığı veya beklediği çıktılar ile gerçek çıktıların karşılaştırılması neticesinde ortaya çıkan sonuca karşı gösterdiği duygusal tepkilerdir (Oshagbemi, 2000: 88). İş tatmini kavramı, bireylerin işleri hakkında sahip oldukları duygu, düşünce ve tutumları ifade etmektedir. Bu nedenle iş

hakkındaki olumsuz tutum ve düşünceler iş tatminsizliğini olumlu tutum ve düşünceler ise iş tatminini göstermektedir. İş tatmini algısı düşük bir çalışan, işiyle ilgili olumsuz hislere sahipken; iş tatmini algısı yüksek bir çalışan ise işi ile ilgili olumlu hislere sahiptir (Robbins ve Judge, 2017).

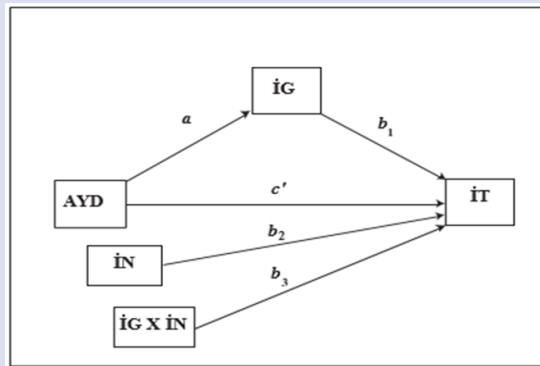
Araştırmanın Yöntem

Araştırmanın Modeli

Araştırmada, algılanan yönetici desteği ile iş tatmini arasındaki ilişkide işe gömülmüşlük ve işyeri nezaketsizliğinin üstlendiği rolleri tespit etmek amaçlanmaktadır. Araştırmanın amacı doğrultusunda ilgili literatür derinlemesine incelenmiş ve ulaşılan teorik bulgulara bağlı olarak Hayes (2018)'in ortaya koyduğu 92 modelden hareket edilerek bir araştırma modeli oluşturulmuştur. Oluşturulan bu araştırma modeli hem aracılık (mediation) hem de düzenleyici (moderated) etkinin yer aldığı bir durumsal aracılık (moderated mediation) modeline denk gelmektedir. Bu durumsal aracılık modeli Hayes (2018: 591)'in Model 14'üne karşılık gelmektedir. Modelde yer alan değişkenlerin ve okların yeri, alan yazındaki ampirik çalışmalar ve kuramsal açıklamaların sonuçları incelenerek oluşturulmuştur. Aşağıda Resim 1'de çalışmanın kavramsal modeline Resim 2'de ise çalışmanın istatistiksel gösterimine yer verilmiştir.



Resim 1. Araştırmanın Kuramsal Modeli
Figure 1. The Theoretical Model of the Research



Resim 2. Araştırmanın İstatistiksel Modeli
Figure 2. Statistical Model of the Research

Not: AYD= bağımsız değişken, İT= bağımlı değişken, İG= aracı değişken, İN= düzenleyici değişken; a= AYD'nin İG üzerindeki etkisi, b₁= İG'nin İT üzerindeki etkisi, b₂= İN'nin İT üzerindeki etkisi, b₃= İG ve İN'nin İT üzerindeki etkileşimsel etkisi, c' = AYD'nin İT üzerindeki doğrudan (diğer değişkenlerin etkisi olmaksızın) etkisi.

Araştırma Hipotezlerinin Oluşturulması

Bu bölümde araştırmanın konusunu oluşturan algılanan yönetici desteği, işe gömülmüşlük, işyeri nezaketsizliği ve iş tatmini değişkenleri arasındaki ilişkiler incelenmiş ve ilişkilerden esinlenerek araştırma hipotezleri sırasıyla oluşturulmuştur.

Algılanan Yönetici Desteği ile İş Tatmini Arasındaki İlişki

Yöneticiler, çalışanlarının tutumlarını, beklentilerini ve davranışlarını etkilemede hayati bir rol oynamaktadır (Griffin vd., 2001; Rathi ve Lee, 2017). Yöneticiler, çalışanlara rehberlik etmekten ve performanslarını yönlendirmekten sorumlu olarak kuruluşlarda var olan temsilcilerdir; bu nedenle çalışanlar, yöneticilerin kendilerine yönelik yönelimlerini, yönetici desteğinin bir göstergesi olarak algırlarlar (Shanock ve Eisenberger, 2006). Yönetici desteği, çalışanlar için önemli bir destek kaynağıdır, çünkü çalışanlar genellikle idari konular ve daha fazla beceri isteyen işlerde yardım almak için yöneticilerine başvururlar (Hughes, 2010; Lloyd vd., 2002). Çalışanlar, yöneticilerinin değer verdikleri kaynakları sağladığını gözlemledikten sonra, yöneticilerini destekleyicileri olarak algılayabilirler (Kalliath vd., 2020: 2059). Çalışanlar böylece yöneticilerine sıkı sıkıya bağlanmaya başlarlar. Yöneticisine sıkıca bağlı olan çalışanlar, işlerinden ayrılmayı düşünmez ve işlerini en iyi şekilde yapmaya meyilli olurlar (Becker vd., 1996).

Yönetici desteği ile çalışanların iş memnuniyetleri arasında kuvvetli bir ilişki olduğu bilinmektedir (Perrewe ve Carlson, 2002; Ceylan vd., 2015). İş ortamlarında yüksek düzeyde yönetici desteği algılandığında, çalışanların işlerinden memnun olduğu anlaşılmıştır (Baloyi vd., 2014). Spitzer (1986)'e göre yöneticiler, çalışan performansını etkileyen her faktör için farklı bir rol oynayarak çalışan performansını yükseltebilir. Performansı etkileyen kişisel faktörlerle ilgili olarak yöneticiler şu önlemleri alabilir: Yöneticiler, çalışan motivasyonunu artırmak için işleri mükemmel bir biçimde organize eder, iş ortamını uygun biçimde tasarlar ve performansı engelleyen faktörleri ortadan kaldırmaya çalışır.

Ulusal ve uluslararası literatür doğrultusunda bu çalışmada algılanan yönetici desteğinin, işe yönelik tutumun önemli bir göstergesi olan iş tatmininin farklı boyutlarıyla pozitif yönde ilişkili olması beklenmektedir. Oluşan bu beklenti genel anlamda Blau (1964)'nın sosyal etkileşim/değişim (mübadele) teorisi çerçevesinde açıklanabilir. Sosyal etkileşim/değişim (mübadele) teorisine göre, işgörenler organizasyonun yarar sağlayan davranış ve tutumlarına olumlu yönde karşılık verme meyilindedir. Dolayısıyla çalışanlar, örgütün sağladığı destek ve çalışanların katkılarını verilen önem nedeniyle işlerinden, yöneticilerinden ve çalışma ortamından memnuniyet duyarlar. Başka bir deyişle örgüt, çalışanların ihtiyaçlarını karşılar, çalışanların katkılarını önemser ve çalışanların çıkarlarını korursa, çalışanlar örgütün çıkarlarına iş tatmini ile karşılık verir. Bir kuruluşun çalışan katkılarını verdiği önem, çalışanların kuruluşta kabul edildiğini ve istendiğini gösterebilir. Bu durum, çalışanlara

işlerine karşı olumlu bir tutum ve örgütte kalma isteği vererek iş tatmini oluşmasına sebep olabilir ve örgüte karşı olumlu bir tutum oluşmasına katkıda bulunarak yüksek düzeyde performans göstermelerini sağlayabilir. Yukarıdaki bilgilerden hareketle araştırmanın birinci hipotezi aşağıda sunulmuştur.

H₁: Algılanan yönetici desteği iş tatminini pozitif yönde ve anlamlı olarak etkiler.

Algılanan Yönetici Desteği ile İşe Gömülmüşlük Arasındaki İlişki

Bandura (1977b)'nin sosyal öğrenme teorisine (social learning theory) göre bireyler davranışları başkalarını gözlemleyerek ve taklit ederek öğrenirler. Ancak öz-yeterlik kapasitesi olmadan çalışanların liderlerinin davranışlarını taklit etme ve yeniden üretme kapasitesi pek yoktur. Başka bir deyişle bireylerin belirli bir davranışı gerçekleştirebilme becerisine ilişkin inançlarını artırmaları gerekmektedir (O'Fallon ve Butterfield, 2012). Bu nedenle yöneticilerinden alınan doğrudan destek, çalışanların öz yeterliliğini artırmada ve örgüte daha fazla entegre olmalarına yardımcı olmada önemli bir rol oynayabilir. Buna göre yönetici desteği algısının, çalışanların işe gömülmüşlükleri üzerindeki etkisini anlamaya veya açıklamaya sosyal öğrenme kuramı yardımcı olabilir.

Yönetici desteği alan çalışanların, sıkıntı ve stresleri azalacağı için günlük görevlerini yerine getirmek adına daha fazla rehberlik ve geri bildirim almaya istekli olurlar (Eisenberger vd., 2002; Shanock ve Eisenberger, 2006). Örneğin, yöneticiler tarafından sağlanan bu algılanan sosyal desteğin, otel çalışanından oluşan bir örnekte işe gömülmeye ilişkili olduğu bulunmuştur (Karatepe, 2014). İş arkadaşlarından ve yöneticilerinden destek alabilen çalışanlar işlerine daha fazla bağlanmaktadır (Bergiel vd., 2009; Karatepe, 2016). Bu destek, çalışma arkadaşlarından ve amirlerden alınan ilgi ve alaka şeklinde olabilir (Karatepe, 2016). Singh vd. (2018)'in çalışmasında da çalışanların işe gömülmüşlüğü artırma iş arkadaşları ve yönetici desteğinin önemi vurgulanmıştır.

Genel olarak sosyal değişim/etkileşim teorisi, çalışanların ve kurumun uyması gereken belirli değişim kuralları olduğunu iddia eder (Cropanzano ve Mitchell, 2005). Eğer örgüt yönetimi, çalışanların iş arkadaşlarından ve yöneticilerinden destek almalarını sağlayacak bir ortam oluşturursa, çalışanlar da örgütte daha yüksek bir işe gömülmüşlük karşılık verirler. Bu doğrultuda Dechawatanapaisal (2021; 2022), çalışma arkadaşları desteği ile yönetici desteğinin işe gömülmüşlüğü etkilediğini ifade etmiştir.

Sosyal değişim/etkileşim teorisi tarafından sağlanan yönergelerle tutarlı olarak, yöneticileri ve iş arkadaşları ile güvene dayalı ve kaliteli ilişkileri olan çalışanlar, örgütün sosyal ağına gömülmüştür. Yöneticileri ve iş arkadaşlarıyla bu tür güvene dayalı ve kaliteli ilişkiler, çalışanların kurumdaki bireylerle iyi bağlantılara sahip olduğunu gösterir. Yeterli ve kaliteli iş sosyal desteğinin varlığı aynı zamanda kurumun öğrenme ve beceri kazanma açısından çalışanlara yeterli yatırım yaptığına işaret eder. Buna göre, işyerinde işler zorlaştığında yöneticilerinden ve çalışma arkadaşlarından duygusal destek ve araçsal

yardım alan çalışanlar, işe gömülmüşlük yoluyla karşılık vermektedir. Yönetici desteğinin işe gömülmüşlüğü tetiklediği belirtilmektedir (Bergiel vd., 2009). Bu bağlamda Karatepe (2011) Kamerun'daki otel çalışanları arasında yönetici desteğinin işe gömülmüşlüğü artırdığını göstermiştir. Tekstil sektörü çalışanlarının algılanan yönetici desteği ile işe gömülmüşlükleri arasındaki ilişki sınırlı ölçüde incelenmiştir (Malik vd., 2023). Algılanan yönetici desteğinin tekstil çalışanlarının işe gömülmüşlüğü üzerindeki etkisini belirlemek için aşağıdaki hipotezin geliştirilmesine ihtiyaç vardır. Bu nedenle, araştırmanın ikinci hipotezi aşağıdaki gibidir:

H₂: Algılanan yönetici desteği işe gömülmüşlüğü pozitif yönde ve anlamlı olarak etkiler.

İşe Gömülmüşlük İle İş Tatmini Arasındaki İlişki

İşe gömülmüşlük, çalışanların neden bir örgütte kaldıklarını açıklayan ve çalışanların örgüte olan yakınlıkları hakkında önemli değerlendirmeler sağlayan önemli bir faktördür (Yu, vd., 2020). İşe gömülmüşlük hem bireysel hem de örgütsel düzeyde faydalar sağlamaktadır (Hom vd., 2009; Mitchell vd., 2001; Potgieter ve Ferreira, 2018; Van Dyk vd., 2013). Bu durum, daha yüksek düzeyde işe gömülmüşlük deneyimi yaşayan çalışanların bir organizasyondan ayrılma olasılığının daha düşük olduğunu varsayan işe gömülmüşlük teorisinde açıkça görülmektedir (Mitchell vd., 2001). İşe gömülmüşlük teorisi, çalışanların daha yüksek düzeyde iş tatmini yaşamalarının, ayrılma niyetlerini olumsuz ve örgüte bağlılıklarını ise olumlu yönde etkilemesi olarak ifade edilebilir (Chetty vd., 2016; Potgieter ve Ferreira, 2018).

İşe gömülmüşlük ile iş tatmini arasındaki ilişkiyi Zhang vd., (2019) kaynakların korunması teorisine (Conservation of Resources Theory (COR)) dayandırmıştır. Zhang vd., (2019) kaynakların korunması teorisinden (Hobfoll, 1989; 2001) elde edilen bilgilerden yararlanarak, işe gömülmüşlüğü kaynak perspektifinden yaklaşmakta ve işe gömülmüşlüğü kişinin kaynak durumunu yansıttığını öne sürmektedir. Gerçekleşen kaynakların sayısı göz önüne alındığında, çalışanların kendilerini kuruluşa karşı olumlu tutumlar sergilemeye mecbur hissettikleri görülür. Bu nedenle işe gömülmüşlüğü, çalışanların iş tatmini ve işe bağlılıkları ile pozitif yönde ilişkili olduğu ifade edilebilir (Ampofo, 2020). Dolayısıyla da işe gömülmüşlüğü iş tatminine yol açtığı söylenebilir (Nalband ve Otaibi, 2022: 99). Griffeth vd. (2000) ve Lee vd. (2004), iş faaliyetlerine katılımda işe gömülmenin etkisinin, iş tutumları, iş tatmini ve bağlılık ile eş zamanlı olarak ortaya çıkabileceğini belirtmektedir. Bu bağlamda Kautsar vd. (2015), eczacılar üzerine yaptığı çalışmada, işe gömülmüşlüğü yüksek olan eczacıların bir hastanede eczacı olarak çalışırken işe gömülmüşlüklerinin yanında iş tatminine yönelik tutumları da sergileyebileceklerini belirtmiştir. Ayrıca Sari ve Anjaningrum, (2023: 53), yüksek işe gömülmüşlüğü, çalışanların işten daha fazla tatmin olmasını sağladığını ifade etmiştir.

İşe gömülmüşlük; aynı zamanda işten ayrılma niyeti, örgütsel bağlılık, iş tatmini, yeni bir iş bulma isteği vb. iş hayatı ile ilgili pek çok sonucu da etkilemektedir (Halbesleben ve Wheeler, 2008; Lee vd., 2004; Mitchell

vd., 2001). Ayrıca çalışanların işe gömülmüşlüğü aynı zamanda onların iş memnuniyetini de artırmaktadır (Andriani ve Sudibjo, 2022). Literatüre bakıldığında bir çok çalışmanın, işe gömülmüşlüğü iş tatmini üzerindeki olumlu etkisini ortaya koyduğu görülmektedir (Lee ve Mitchell, 1994; Mitchell, vd., 2001; Jiang, vd., 2012). Bu bilgilerin yanı sıra işe gömülmüşlük, literatürde algılanan iş performansı (Wheeler vd., 2012), iş tatmini, işten ayrılma niyeti ve fiili işten ayrılma vb. örgütsel sonuçların önemli bir öncülü olarak karşımıza çıkmaktadır (Collins vd., 2014; Harris vd., 2011). Bunlar göz önüne alınarak bu çalışmada aşağıdaki hipotez oluşturmuştur:

H₃: İşe gömülmüşlük iş tatminini pozitif yönde ve anlamlı olarak etkiler.

İşe Gömülmüşlüğü Aracı Rolü

İşe gömülmüşlük, işten ayrılma niyeti gibi olumsuz sonuçları azaltmada ve çalışanı tatmin etme gibi olumluluğu teşvik etmede etkilidir (Martadiani vd., 2022; Son ve Choi, 2015). İşe gömülmüşlük, çalışanların tutum ve davranışları arasında aracılık rolü oynayabilecek önemli bir elde tutma stratejisidir (Robinson vd., 2014; Wheeler vd., 2010). Ancak çok az sayıda çalışma, işe gömülmüşlüğü bir aracı olarak incelemiştir (Thakur ve Bhatnagar, 2017). Önceki araştırmalar daha çok işe gömülmüşlük ile organizasyondan ayrılma niyetleri arasındaki bağlantıyı araştırmıştır (Bergiel vd., 2009; Ferreira vd., 2017). Her tutumun bir uyararla başlatılması gerektiğinden işe gömülmüşlüğü aniden ortaya çıkması beklenmez (Aman-Ullah vd., 2021). Yönetici desteği, işe gömülmenin önemli bir başlatıcısı olabilir (Bergiel vd., 2009). İşe gömülmüşlük aynı zamanda algılanan yönetici desteği ile çalışanların iş tatminlerinin açıklanmasında ve ilişkilendirilmesinde önemli bir aracı rol oynayabilir (Wheeler vd., 2010; Stewart ve Wiener, 2021). Bu nedenle işe gömülmeyi etkileyen faktörlerin incelenmesi gerekmektedir (Ng ve Feldman, 2011; Holtom vd., 2012).

İşe gömülmüşlük araştırma modelinde aracı değişken olarak seçilmiştir, çünkü değerli kaynakların kaybı bireylerin davranışlarını harekete geçirmektedir. Çalışanlar muhtemelen iş tatminlerini artıran kaynakları değerli olarak algılayacaklardır. Literatüre bakıldığında zaman algılanan yönetici desteğinin (Gök vd., 2015) ve işe gömülmüşlüğü (Martadiani vd., 2022) iş tatminini yükselttiğini belirten araştırmalara rastlanmaktadır. Kaynakların korunması teorisine göre insanlar, farklı toplumlar içerisindeki yaşam tatminlerini ve gelecekte işe gömülmüşlük elde etmek için yaşadıkları toplumdaki mevcut kaynakları kaybedeceklerinden endişe duyabilirler (Hobfoll, 1989). Bu doğrultuda organizasyondaki kaynak bolluğu göz önüne alındığında, gömülü çalışanların önemli iş kaynaklarını kaybetmeyi göze almayacakları ve bu durumda onlarda iş tatmini artışına sebep olacağı düşünülmektedir (Hobfoll, 1989; Wheeler vd., 2012).

İşe gömülmüşlük kavramı daha çok batı ülkelerinde incelenmiştir (Karatepe, 2012). Bu nedenle, bu bölgedeki araştırmaların azlığı nedeniyle Asya ülkeleri bağlamında işe gömülmüşlüğü araştırılmasına ihtiyaç vardır (Thakur ve Bhatnagar, 2017; Ramesh ve Gelfand, 2010; Lee vd., 2014). Bu çalışmanın Türkiye'de yapılması ile Asya

bağlamındaki boşluğun doldurulmasına katkı sunması beklenmektedir. Ayrıca fabrikalar, çalışanların işyerindeki refahını artırmak için, onlara maksimum düzeyde yönetici desteği sağlayarak, onların yerleşikliğini artırma, böylelikle uzun vadede kuruluşlarda kalmalarını teşvik etmek için bu çalışmanın bulgularına başvurabilirler. Böylece, işe gömülmüşlük teorisine dayanarak, işe gömülmüşlük, yönetici desteği yoluyla çalışanlar ve örgüt arasında bir bağlantı oluşturacak ve çalışanların yaptıkları işten tatmin olmaları ile süreç sonuçlanacaktır. Bu nedenle araştırmanın dördüncü hipotezi aşağıdaki gibi oluşturulmuştur.

H₄: İşe gömülmüşlük, algılanan yönetici desteği ile iş tatmini arasındaki ilişkide aracı etkiye sahiptir.

İşyeri Nezaketsizliğin Düzenleyici Rolü

Stresörler genellikle açıkça olumlu veya olumsuz değildir ve bu nedenle kişisel değerlendirmeye tabidir (Hobfoll, 1989). Zararlı (zarara neden olan), tehdit edici (gelecekteki zararı düşündüren) ve zorlayıcı (büyüme veya öğrenme fırsatları sunan; Lazarus ve Folkman, 1984) olmak üzere çok sayıda değerlendirme türü mevcuttur. Ölümcül AIDS hastalarının eşleri (Moskowitz vd., 2003; Stein vd., 1997), öğrenci zorbalığına maruz kalanlar (Matsunaga, 2011) savaş, boşanma ve fiziksel hastalık mağdurları (Schaefer ve Moos, 1998) üzerine yapılan araştırmalarda, bireyler şaşırtıcı bir sıklıkta stresli deneyimlere ilişkin olumlu, zorlayıcı değerlendirmeler oluşturmuşlardır. Nezaketsizlik hem ince hem de belirsiz olduğundan (Andersson ve Pearson, 1999), nezaketsizliğe ilişkin değerlendirmelerin de değişebileceği düşünülebilir (Marchiondo vd., 2018: 371). Özellikle, nezaketsizlik genellikle olumsuz değerlendirmelere yol açarken, aynı zamanda bir büyüme fırsatı olarak da deneyimlenebilir.

Çalışanlar, çeşitli nedenlerle nezaketsizliğe ilişkin meydan okuma değerlendirmeleri oluşturabilir. Kaynakların korunması teorisine göre (Hobfoll, 1989), insanlar kaynaklarını (örneğin sosyal, psikolojik, fiziksel) biriktirmeye ve korumaya çalışırlar. Çalışanlar, nezaketsizliği yalnızca kaynaklarına yönelik bir tehdit olarak görmek yerine, hatalarından ders çıkararak ya da daha yüksek bir seviyede performans göstererek kaynakların kazanılabileceği bir meydan okuma olarak görebilir. Çalışanlar, geçmişte yaşadıkları nezaketsiz deneyimlerden gelecekteki davranışlarını yönlendirmek amacıyla yararlanabilirler. Bu tür olayları, benzer durumlarda ortaya çıkabilecek sonuçları tahmin etmek ve iyileştirmek için bir kaynak olarak kullanabilirler (Pillemer, 2003). Meydan okuma değerlendirmeleri, olumsuz düşünceleri engelleyip deneyimlere olumlu anlamlar yükleyerek, fizyolojik stres tepkilerini hafifleterek ve sonunda kaynakları yenileyerek, psikolojik rahatlama sağlayan daha geniş bir başa çıkma sürecinin parçası olabilir (Folkman ve Moskowitz, 2000a). Bu nedenle, nezaketsizlikle ilgili meydan okuma değerlendirmelerinin, hedeflenen kaynakların farklı yönlerini destekleme ve koruma potansiyeli vardır.

Çalışanlar nezaketsizlik davranışının zarar verme niyeti ile yapıldığını algıladıklarında bu durumun tutumlarını olumsuz etkileyeceği bilinen bir gerçektir. Çalışanların

zarar verme niyeti algılamadığında nezaketsizliği nasıl değerlendirecekleri asıl kritik sorudur. Çalışan kasıtlı olmayan nezaketsizliği göz ardı etmek yerine, durumu anlamlandırmanın ve altında yatan anlamı değerlendirmenin önemli olduğunu düşünenecektir, çünkü çalışanlar refahlarını etkileyebilecek olayların (özellikle de olumsuz olayların) hesabını sorma hakkına sahip olduklarını düşünmektedirler (Bohner vd., 1988; Miller, 2001). Bu hak sahipliği, çalışanların kasıtlı kaba davranışlara kıyasla kasıtsız kaba davranışları değerlendirirken daha titiz olmasını açıklayabilir (Vangelisti ve Young, 2000). Kasıtlı olmayan kaba davranışların değerlendirilmesinde meydan okuma değerlendirmeleri ve potansiyel faydaların dikkate alınması daha olasıdır (Vangelisti ve Young, 2000). Kaba ancak kasıtsız olaylara öğrenme fırsatı gibi olumlu anlamlar yüklenmesi, çalışanların kişisel kontrol, ustalık ve hatta öz saygı duygusu kazanmasına olanak tanıyabilir (Folkman ve Moskowitz, 2000a; Schaefer ve Moos, 1992).

Bu açıklamalar, kasıtlı olmadığı düşünülen olumsuz olayların neden empati (Betancourt ve Blair, 1992) ve yardım etme davranışı (Martinko vd., 2007) ortaya çıkardığını açıklamaktadır. Kasıtlı olmadığı düşünülen olumsuz olaylar değerlendirmeleri "yumuşatabilir" (Vangelisti ve Young, 2000: 396) ve hatta daha yakın ilişkileri teşvik edebilirler (Clark ve Grote, 1998). Kasıtlı olmayan olumsuz davranışlar prososyal, destekleyici, stratejik ve haklı olarak değerlendirilebilir ve bunların ilişkisel memnuniyeti artırdığı görülmektedir (Vangelisti ve Young, 2000). Bu çalışmalardan yola çıkılarak, kasıtsız olumsuz olayların meydan okuma değerlendirmelerini teşvik ederek potansiyel olarak çalışanlara fayda sağlayabileceği düşünülebilir. Örneğin, bir yönetici ekip üyelerinden daha fazlasını sert bir şekilde talep edebilir; çalışanlar durumu zarar verme niyeti olarak algılamazlarsa, davranışın iyi niyetli olduğu (örneğin performansı artırmayı amaçladığı) sonucunu çıkarma olasılıkları daha yüksektir. Çalışanlar bu durumu kendilerini zorlamak ve büyüme için bir fırsat olarak görürler (Marchiondo vd., 2018: 373).

Zorluk değerlendirmeleri sayesinde bireyler performanslarını geliştirmeyi, sorun çözmeyi, gelecekte benzer olayları ele almayı (Pillemer, 2003) ve daha etkili başa çıkma mekanizmaları benimsemeyi öğrenebilirler (Folkman ve Moskowitz, 2000a, 2000b). Gerçekten de, meydan okuma değerlendirmelerinin daha yüksek moral (Stein vd., 1997), yaratıcılık ve proaktif davranış (Ohly ve Fritz, 2010) ve performans (Tomaka vd., 1993) dahil olmak üzere bir dizi olumlu sonuca yol açtığı gösterilmiştir. Bu doğrultuda nezaketsizliği meydan okuma olarak değerlendirmek enerji ve gelişimi teşvik edecektir (olumsuz değerlendirme için tam tersi) (Marchiondo vd., 2018: 375).

Her ne kadar literatürde işyeri nezaketsizliği ile işe gömülmüşlüğü ve iş tatmininin negatif yönde ilişkili olduğu ifade edilse de sayısı sınırlı olmakla beraber bazı araştırmalarda ilişkinin bulunamaması (Cingöz ve Kaplan, 2015), Stockholm sendromu, işyeri nezaketsizliğinin Pazartes'i'den Cuma'ya azalması (Nicholson ve Griffin,

2017), çalışanın yöneticisinden gördüğü nezaketsiz davranışın etkisinin sadece 2 (iki) saat olması (Meier ve Gross, 2015), vb. etmenlerden dolayı işyeri nezaketsizliğinin etkilerinin literatürde beklenenin aksine çıkma olasılığı da bulunmaktadır. Ayrıca çalışanların işyeri nezaketsizliğini meydana okuma, büyüme ve öğrenme fırsatı olarak değerlendirerek işyeri nezaketsizliği durumunu olumlu algılayabilecekleri unutulmamalıdır (Marchiondo vd., 2018). Bu nedenle yukarıda verilen bilgiler neticesinde işyeri nezaketsizliği işe gömülmürlük ile iş tatmini arasındaki ilişkide pozitif veya negatif yönde bir düzenleyici değişken olabileceği varsayılmaktadır. Yani işyeri nezaketsizliğinin işe gömülmürlük ile iş tatmini arasındaki ilişkiyi yönetebileceği düşünülmektedir. Ayrıca algılanan yönetici desteğinin işe gömülmürlük yoluyla iş tatmini üzerindeki olası dolaylı etkisini işyeri nezaketsizliğinin yönetebileceği iddia edilmektedir. Bu varsayımdan hareketle aşağıdaki hipotezler oluşturulmuştur.

H₅: İşyeri nezaketsizliği işe gömülmürlük ile iş tatmini arasında düzenleyici etkiye sahiptir.

H₆: Algılanan yönetici desteğinin işe gömülmürlük vasıtasıyla iş tatminine etkisinde işyeri nezaketsizliğinin düzenleyici rolü vardır.

Araştırmanın Amacı, Önemi ve Sınırlılıkları

Araştırmanın temel amacı, işletmelerin yaşamlarını sürdürmeleri, rekabet avantajı sağlamaları ve bu avantajı devamlı hale getirebilmeleri için önem taşıyan algılanan yönetici desteği, işe gömülmürlük, işyeri nezaketsizliği ve iş tatmini düzeyi gibi değişkenlerin birbirleri ile olan ilişkilerini ortaya koymaktır.

Literatür incelendiğinde, iş tatmini dışında algılanan yönetici desteği özellikle işe gömülmürlük ve işyeri nezaketsizliği ile ilgili araştırmaların sayıca azlığı dikkat çekmektedir. Bu bilginin yanı sıra bu değişkenlerin birbirleri ile olan ilişkilerini inceleyen herhangi bir araştırmaya rastlanmamıştır. Bu anlamda algılanan yönetici desteğinin iş tatmini üzerinde bir etkisinin bulunup bulunmadığının işe gömülmürlük ve işyeri nezaketsizliği gibi durumların bu ilişkide herhangi bir rol üstlenip üstlenmediğini uygulamalı bir araştırma ile ortaya konulması literatürdeki bir boşluğu doldurması bakımından önemli kılmaktadır.

Bu çalışmanın gelecekteki araştırmaların dikkate alması gereken çeşitli sınırlamaları vardır. Bu çalışmanın ilk sınırlaması, ölçümlerin öz bildirim verilerine dayanması ve bu tür verilerin hatırlama ve sosyal istenirlik yanlılığından etkilenebilmesidir. Öz bildirim sonucu elde edilen veriler, katılımcıların yaşadıkları sorunları doğru hatırlamalarına ve dolayısıyla daha ideal yanıtlar vermelerine neden olabilir. İkinci olarak araştırmanın kesitsel bir çalışma olarak planlanmasıdır. Kesitsel veriler, sorunun kaynağına ilişkin nedensel ilişkilerin tam olarak ortaya konulamamasına neden olabilmektedir. Bu nedenle çalışmanın verilerinin güvenilirliği ankete katkı sunan iş görenleri değerlendirmeleri ile sınırlıdır.

Araştırmanın Evren(Ana Kütle) ve Örnekleme

Araştırmamızda genel evren belirlenirken ekip çalışmasına ve karşılıklı etkileşime değer veren bir işkolu seçilmesinin uygun olacağını öngörülmüş ve bu nedenle araştırmanın genel evreni olarak tekstil sektörü belirlenmiştir. Çalışmanın araştırma evreni olarakta gerek zaman gerekse kaynak tasarrufu sağlaması açısından Ağrı il sınırları içerisinde yer almakta olan ve 2018 Aralık ayında üretim yapmaya başlayan tekstilkent bölgesinde faaliyet yürüten tekstil fabrikalarındaki yaklaşık 3000'e yakın (İLKHA, 2022) mavi yakalı çalışan belirlenmiştir.

Evren seçildikten sonra örneklem sayısının belirlenmesi için literatüre bakıldığında Krejcie ve Morgan, (1970: 610) tarafından evren arttıkça örneklem büyüklüğünün azalan bir oranda arttığı ve 384 (üç yüz seksen dört) vaka civarında nispeten sabit kaldığı belirtilmiştir. Yapılan araştırmanın yöntemine göre değişmekle birlikte (nicel, nitel, deneysel tasarım) sosyal bilim alanındaki genel kanı 30 (otuz) ila 500 (beş yüz) arasındaki bir örneklem sayısının çoğu zaman yeterli olacağı yönündedir (Gürbüz ve Şahin, 2018: 128). Araştırmamızda seçilen örneklem büyüklüğü %95 güven düzeyi ve %5 hata payı varsayılarak 341 (üç yüz kırk bir) olarak hesaplanmıştır (<https://www.surveysystem.com/sscalc.htm>).

Katılımcıların yanı sıra veya eksik cevaplar verebileceği göz önünde bulundurularak 800 (sekiz yüz) adet anket formu oluşturulmuştur. Oluşturulan anket formu araştırmacı vasıtasıyla katılımcılara verilmiş ve cevaplamaları bittikten sonra geri alınmıştır. Örneklem seçiminde her bir iş görenin örnekleme dahil olma şansının eşit olması amacıyla basit tesadüfi örnekleme yöntemi benimsenmiştir. Toplanan verilerden bazılarının eksik bilgiler içermesi bazılarının yanı sıra cevaplar barındırması bazılarının ise katılımcılar tarafından kaybedilmesinden dolayı 427 (dört yüz yirmi yedi) adet anket formunun araştırmada kullanılabilir nitelikte olduğu tespit edilmiştir.

Veri Toplama Araçları

Demografik Bilgiler: Kurum çalışanlarına ait demografik bilgileri toplamaya yönelik olan bu ankette; cinsiyet, medeni durum, yaş, öğrenim durumu, aylık gelir, iş tecrübesi gibi özellikler yer almaktadır.

Algılanan Yönetici Desteği Ölçeği: Bu ölçek iş görenlerin yöneticilerinden gördükleri desteklerin seviyesini belirlemek için Karasek vd. (1982), Gant vd. (1993), Babin ve Boles (1996), Liden ve Maslyn (1998), Yoon ve Lim (1999), Jiang ve Klein (1999) ve Gillen vd. (2002) tarafından geliştirilen benzer ölçeklerden yararlanılarak birbirini tamamlayıcı ancak birbirinin aynısı olmayan maddeler seçilerek Giray ve Şahin (2012) tarafından geliştirilen ölçektir. Ölçeğin Türkçe'ye uyarlanması aynı yazarlar tarafından yapılmıştır. Yazarlarca geçerliliği ve güvenilirliği ($\alpha=0,94$) kanıtlanan bu ölçek 11 (on bir) ifade ve tek boyuttan oluşmaktadır. Ayrıca bu ölçekte ters puanlanan soru bulunmamaktadır.

İşyeri Nezaketsizliği Ölçeği: Çalışanın iş ortamında kendisine karşı yapılan nezaket dışı davranışların ne sıklıkla görüldüğünü değerlendirmek için Cortina vd.

(2001) tarafından geliştirilmiş işyeri nezaketsizliği ölçeğinden yararlanılmıştır. Ölçeğin Türkçe uyarlaması Gök vd., (2019) tarafından yapılmıştır. Ölçeğin orijinal formu son beş yıl içerisinde meydana gelen işyeri nezaketsizliğini ölçse de, bu çalışma ve diğer bazı çalışmalar (Trudel ve Reio Jr., 2011, Cortina vd., 2013; Schad vd., 2014), hatırlamama durumunu en aza indirmek için son bir yılda meydana gelen işyeri nezaketsizliğini ölçmektedir. İşyeri nezaketsizliği ölçeği 7 (yedi) ifade ve tek boyuttan oluşup içerisinde ters puanlanmış soru yer almamaktadır.

İşe Gömülmürlük Ölçeği: Bu ölçek çalışanların işe gömülmürlük seviyelerini ortaya çıkarmak için Crossley vd. (2007) tarafından geliştirilen ($\alpha=0,88$), ve Kesen ve Akyüz (2016) tarafından Türkçe'ye uyarlanan geçerliliği ve güvenilirliği ($\alpha=0,90$), kanıtlanmış 7 (yedi) madde ve tek boyuttan oluşan global işe gömülmürlük ölçeğinden yararlanılmıştır. Bu ölçekte "Bu kurumdan ayrılmak benim için kolay olurdu." şeklinde bir adet ters puanlanan soru bulunmaktadır.

İş Tatmini Ölçeği: Ölçek iş görenlerin iş tatmini seviyelerini ortaya çıkarmak için Spector (1985) tarafından geliştirilmiştir. İş tatmini ölçeği Spector tarafından hizmet sektörü organizasyonları için geliştirilmiş olsa da tüm organizasyonlar için uygun bir ölçek olarak değerlendirilmektedir. Ölçek iletişim, işin yapısı, çalışma koşulları, performans ödülleri, çalışma arkadaşları, yönetim, terfi, yan ödemeler ve ücret gibi iş tatmininin dokuz farklı yönünü içeren maddelerden meydana gelmektedir (Spector, 1985: 694). Diğer iş tatmini ölçekleriyle karşılaştırıldığında bu ölçeğin genel kabul görmüş 11 (onbir) iş tatmini ölçüsünden 9'unu (dokuzunu) ölçtüğü için yeterli olduğu düşünülebilir. Türkçe'ye Kula (2011) tarafından uyarlanan 9 (dokuz) ifade ve tek boyutlu bu ölçekte ters puanlanan soru bulunmamaktadır. Araştırmada kullanılan tüm ölçeklerin derecelendirilmesi beşli likert tipine göre hazırlanmış ve ölçekte yer alan maddelere verilen yanıtlar 1 ila 5 arasında değişen puanlarla değerlendirilmiştir.

Analiz Yöntemleri

Araştırma kapsamında toplanan verilerin analizi için AMOS, IBM SPSS ve IBM SPSS eklentisi olan PROCESS-Macro v4.1 paket programları kullanılmıştır. Öncelikle araştırma kapsamında kullanılan her ölçek için gerekli güvenilirlik ve geçerlik analizleri ayrı ayrı yapılmış olup, analizde kabul edilen anlamlılık seviyesi $p=0,05$ 'tir. Araştırmada da sürekli değişkenler kullanılması Cronbach's alpha yönteminin kullanılmasında etkili olmuştur. Sosyal bilim araştırmalarında genel kabul görmüş cronbach's alpha skoru 0,70'dir. Sosyal bilim araştırmaları arasında gittikçe yaygın kabul görmeye başlayan anlayış; daha önce çeşitli çalışmalar ile güvenilirliği ve geçerliliği ortaya konmuş ölçeklere doğrulayıcı faktör analizi (DFA) uygulanarak yapısal ve faktöriyel geçerliliğine dair kanıtların rapor edilmesi yönündedir (Gürbüz ve Şahin, 2018: 318). Bu araştırmada kullanılan ölçüm araçlarının daha önceki araştırmalarda

keşfedici faktör analizleri (KFA) yapılmış olmasından dolayı bu çalışmada tekrar keşfedici faktör analizi (KFA) uygulanmamış sadece doğrulayıcı faktör analizi yapılmıştır (Örneğin, Erkal, 2020: 113). Doğrulayıcı faktör analizi (DFA) yapılırken, verilerin normal yakın dağılım göstermesi sebebiyle "Maximum Likelihood" hesaplama yönteminden yararlanılmıştır (Gürbüz, 2019: 76).

Çalışmada SPSS eklentisi olan PROCESS-Macro ile hipotezler test edilmiştir. PROCESS-Macro eklentisi bizlere aracılık, düzenleyicilik ve durumsal aracılık gibi karmaşık modelleri değerlendirmemizde yardımcı olmaktadır. Ayrıca durumsal aracı etkinin Bootstrap yöntemi ile ortaya konulmasını ve durumsal aracı etkilerin öneminin düzenleyici değişkenin çeşitli düzeylerinde (düşük-orta-yüksek) irdelenmesini mümkün kılmaktadır (Hayes, 2013). Bu doğrultuda düzenleyici değişkenin düşük, orta ve yüksek değerleri belirlenirken ortalamanın bir standart hata eksiği "düşük" ortalama değer "orta" ve ortalamanın bir standart hata fazlası da "yüksek" düzenleyici etki düzeyini ifade eden seçenek işaretlenerek analizler gerçekleştirilmiştir. Bu düzeylerin hangisi veya hangilerinin istatistiksel olarak anlamlı olduğu ve bu sonuçların nasıl yorumlanması gerektiği iki yöntem yardımıyla ortaya konmaktadır. Bu yöntemlerden ilki Pick-a-Point yöntemidir. Bu yöntem basit eğim analizi veya spot ışığı (spotlight) analizi olarak adlandırılan ve etkileşimsel etkiyi irdellemek için kullanılan en popüler yöntem olduğu söylenebilir (Hayes, 2018; 2022). İkinci yöntem ise Johnson Neyman yöntemidir. Ancak bu yöntemin sadece basit düzenleyici etki modellerinde kullanılması gerektiği durumsal aracılık modelleri test edilirken Pick-a-Point yönteminin daha sağlıklı olacağı ifade edilmektedir (Bozkurt, 2023: 244).

Analiz ve Bulgular

Demografik Özelliklere İlişkin Bulgular

Araştırmanın yapıldığı Ağrı Tekstilcent Bölgesi'nde yer alan tekstil firmalarında görev yapan çalışanların demografik özelliklerine ilişkin bilgiler Çizelge 1'de sunulmuştur. Çizelge 1'e göre araştırmaya katılanların çoğunluğunu erkek çalışanlar oluşturmaktadır. Ancak erkek ve kadın çalışanlar arasında sayısal anlamda büyük bir farklılık olmadığı göze çarpmaktadır. Çizelgeye göre araştırmaya katılanların medeni durumları incelendiğinde; %33,7'sinin evli olduğu %66,3'ünün ise bekâr olduğu gözlemlenmiştir. Çizelgeye göre örneklemin büyük bir çoğunluğunu 30 yaş altı (%67,4) çalışanlar oluşturmaktadır. Dolayısıyla tekstilkente çalışanların büyük bölümünün genç veya orta yaş grubunda yer aldığı söylenebilir. Katılımcıların diğer bir demografik özelliği olan en son mezuniyetlerine bakıldığında; tekstilkente çalışmakta olan iş görenlerin eğitim seviyelerinin düşük olduğu ifade edilebilir. Son olarak çalışanların halen görev yapmakta oldukları iş yerindeki çalışma sürelerine bakıldığında; tekstilkente çalışan iş görenlerin büyük çoğunluğunun 1 yıl veya daha kısa süredir bu fabrikalarda çalıştığı belirlenmiştir.

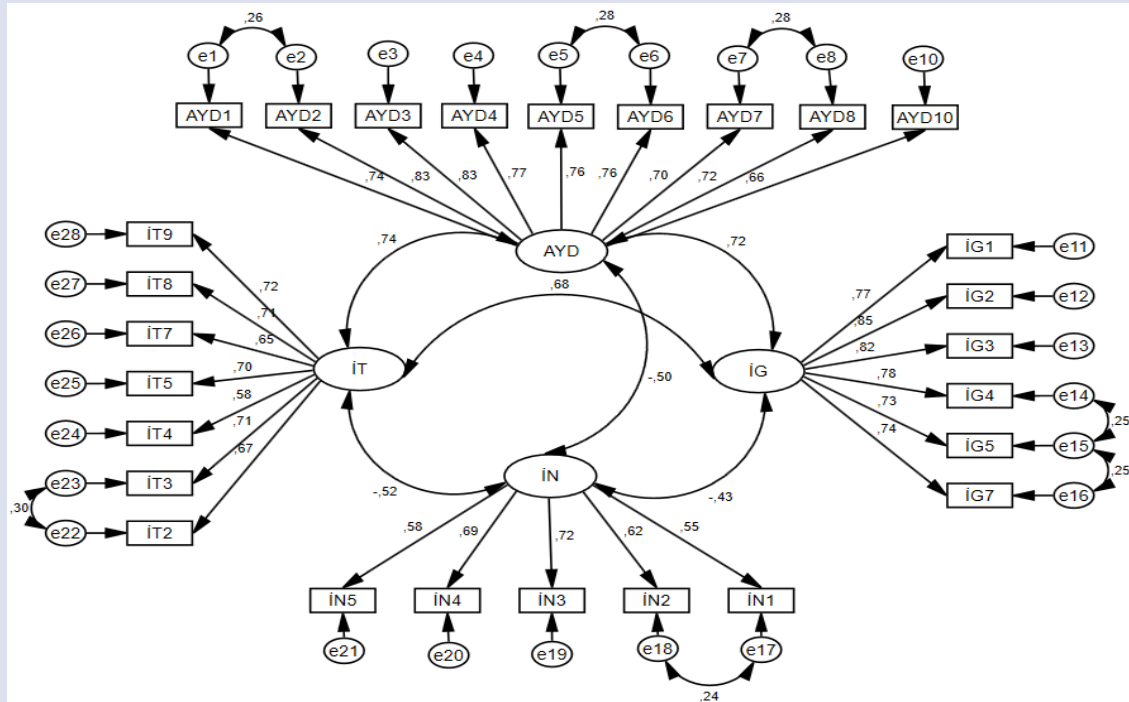
Çizelge 1. Katılımcılara İlişkin Demografik Bilgiler
Table 1. Demographic Information on Participants

Değişken	Kategori	Frekans	Yüzde(%)
Cinsiyetiniz	Kadın	196	45,9
	Erkek	231	54,1
Medeni durumunuz	Evli	144	33,7
	Bekâr	283	66,3
Yaşınız	24 ve altı	124	29,0
	25-30	164	38,4
	31-35	65	15,2
	36-40	48	11,2
	41 ve üzeri	26	6,1
En son mezuniyetiniz	İlkokul	77	18,0
	Ortaokul	124	29,0
	Lise	152	35,6
	Ön lisans	53	12,4
	Lisans	21	4,9
Bu iş yerindeki çalışma süreniz	1 yıldan az	247	57,8
	1 yıl	78	18,3
	2 yıl	62	14,5
	3 yıl ve üzeri	40	9,4

Çizelge 2. Ölçeklerinin Normallik Dağılımları ve Güvenirlilik Katsayıları
Table 2. Normality Distributions and Reliability Coefficients of the Scales

Değişkenler	Ortalama	Standart Sapma	Çarpıklık (Skewness)	Basıklık (Kurtosis)	Cronbach's Alpha
Algılanan Yönetici Desteği(Ort.)	3,57	1,03	-,576	,032	,921
İşe Gömülmüşlük(Ort.)	3,51	,98	-,569	,224	,907
İşyeri Nezaketsizliği(Ort.)	1,64	,86	1,316	1,764	,802
İş Tatmini(Ort.)	3,87	,90	-,761	1,498	,858

Doğrulamalı Faktör Analizi



Resim 3. Ölçüm Modeline İlişkin Faktör Yapısı
Figure 3. Factor Structure of the Measurement Model

Normallik Varsayımı ve Güvenilirlik Katsayıları

Bu araştırmada verinin normal dağılıp dağılmadığını belirlemek maksadıyla basıklık (kurtosis) ve çarpıklık (skewness) değerleri temel alınmıştır. Literatürde farklı yaklaşımlar bulunsu da Kline, (2011: 63)'in, çarpıklık değerinin ± 3 'ten, basıklık değerinin ± 10 'dan küçük olması normal dağılım varsayımının karşılanması için yeterli olduğunu ifade eden araştırması dikkate alınmıştır. Hesaplanan değerlerin belirtilen aralıkta yer aldığı, bundan dolayı verilerin normale yakın dağılım gösterdikleri gözlenmektedir. Ayrıca çalışmada cronbach's alpha güvenilirlik ölçütünün literatürde gelen kabul gördüğü gibi 0,70 veya daha yüksek olmasına dikkat edilmiştir (Field, 2018; Tavşanlı, 2014). Hesaplanan değerlerin belirtilen aralıkta yer aldığı, bundan dolayı güvenilir olduğu ifade edilebilir. İlgili hesaplamalar Çizelge 2'de sunulmuştur.

Ölçeklerin faktör yapısının uyumluluğu doğrulayıcı faktör analizi ile belirlenmeye çalışılmıştır. Öncelikle ölçeklerin ölçüm modellerinin kestirim sonuçları incelenmiştir. Öncelikli amaç ölçekten madde silmek olmadığından AMOS program çıktısında gösterilen öneriler doğrultusunda değişiklikler yapılması kararlaştırılmıştır. Ancak yapılan modifikasyonlar sonucu literatürde kabul gören değerlere ulaşamamıştır. Bu doğrultuda standardize edilmiş regresyon yükleri 0,50'den küçük olan maddeler ölçekten çıkarılmıştır. Modelin son haline ilişkin uyum değerleri $\chi^2/df=2,624$, $IFI=,923$, $TLI=,913$, $CFI=,923$, $RMSEA=,062$, $RMR=,050$, $SRMR=,0535$ olarak hesaplanmıştır. Ayrıca ölçüm modeline ilişkin faktör yapısını gösteren ifadelerin faktör yükleri Resim 3'de sunulmuştur.

Doğrulayıcı faktör analizi sonucu doğrulanmış olan algılanan yönetici desteği, işe gömülmüslük, işyeri nezaketsizliği ve iş tatminine ilişkin AVE ve CR değerleri Çizelge 3'de sunulmuştur.

Bir araştırma modelindeki ölçeklerin birleşim geçerliliğine sahip olabilmesi için $AVE > 0,50$, $CR > 0,70$, $CR > AVE$ koşullarının sağlanması gerektiği ifade edilmektedir (Hair vd., 2009; Raykov, 2004). Ancak Fornell ve Larcker, (1981: 39) $CR > 0,60$ olması durumunda ortalama açıklanan varyans AVE değerlerinin $AVE > 0,40$ olmasının birleşim geçerliliği için yeterli olacağını ifade etmiştir. Benzer şekilde Psaila ve Roland, (2007)'e göre AVE değerinin 0,40 eşit veya yüksek olması ancak CR değerinin 0,70'den büyük olması durumunda kabul edilebilir.

Bu yaklaşımlar ışığında Çizelge 3 incelendiğinde tüm ölçeklerin yüksek birleşim güvenilirliğine sahip olduğu (Bütün CR değerleri 0,70'in üzerindedir) söylenebilir. Ölçeklere ilişkin AVE değerlerinin CR değerlerinden düşük olması ve AVE değerlerinin literatürde kabul gören eşik değerden $AVE > 0,40$ yüksek olması ölçeklerin birleşim(yakınsak/benzeşim) geçerliliğine sahip olduğunu göstermektedir.

Hipotez Testleri**Korelasyon Analizi ve Ayrışım Geçerliliği**

Araştırmada kullanılan ölçeklerin geçerlilik ve güvenilirliklerinin belirlenmesinin ardından değişkenler arasındaki birebir ilişkileri ortaya koymak adına korelasyon analizi yapılmasına karar verilmiştir. Literatürde küçük farklılıklar olmasına rağmen genel anlamda $|r| > 0,70$ kuvvetli ilişki, $0,30 < |r| \leq 0,70$ orta kuvvette ilişki $|r| \leq 0,30$ ise zayıf ilişki düzeyini ifade etmektedir (Bursal 2019: 131; Büyüköztürk vd., 2011). Araştırmada kullanılan verilerin normale yakın bir dağılım göstermesinden dolayı pearson korelasyon katsayısı hesaplanmıştır.

Elde edilen bulgulara göre tüm değişkenler arasında %99 önem düzeyinde anlamlı bir ilişki vardır. Çalışanların algılanan yönetici desteği ile iş tatmini arasında anlamlı ve pozitif yönlü orta kuvvetli bir ilişki vardır ($r(427) = 0,644$, $p < 0,01$). Bu sonuca göre çalışanların yöneticilerinden gördükleri destek arttıkça çalışanların iş tatminleri de artmaktadır.

Çalışanların algılanan yönetici desteği ile işe gömülmüslükleri arasında da anlamlı ve pozitif yönde orta kuvvetli bir ilişki bulunmaktadır ($r(427)=0,629$, $p < 0,01$). Bu bilgilerden hareketle çalışanların yöneticiden destek aldığı düşüncesinin artmasıyla işlerine karşı gömülü olma seviyeleri de yükselecektir. Ayrıca çalışanların işe gömülmüslükleri ile iş tatminleri arasında anlamlı ve pozitif yönlü orta kuvvette bir ilişki olduğu görülmektedir ($r(427)=0,574$, $p < 0,01$). Bu bulguya göre çalışanların işe gömülmüslükleri artış gösterdiğinde iş tatminleri de artacaktır.

Çizelge 3. AVE – CR Değerleri

Table 3. AVE - CR Values

Değişkenler	AVE	CR
Algılanan Yönetici Desteği(Ort.)	0,57	0,92
İşe Gömülmüslük(Ort.)	0,61	0,90
İşyeri Nezaketsizliği(Ort.)	0,40	0,77
İş Tatmini(Ort.)	0,46	0,86

Çizelge 4. Değişkenler Arasındaki İlişkiyi Gösteren Pearson Korelasyon Katsayıları

Table 4. Pearson Correlation Coefficients Showing the Relationship Between Variables

Faktörler	1	2	3	4
1. Algılanan Yönetici Desteği(Ort.)	(0,748)			
2. İş Tatmini(Ort.)	,644**	(0,671)		
3. İşe Gömülmüslük(Ort.)	,629**	,574**	(0,775)	
4. İşyeri Nezaketsizliği(Ort.)	-,439**	-,428**	-,317**	(0,632)

Çizelgedeki parantez içindeki değerler AVE'nin karakök değerleridir. * $p < 0,05$ ** $p < 0,01$

Son olarak işyeri nezaketsizliği ile algılanan yönetici desteği arasında anlamlı ve negatif yönde orta kuvvetli bir ilişki ($r(427) = -0,439, p < 0,01$), iş tatmini ile anlamlı ve negatif yönlü orta kuvvette bir ilişki ($r(427) = -0,428, p < 0,01$) ve yine işe gömülmüşlük ile anlamlı ve negatif yönlü orta kuvvette bir ilişkisi ($r(427) = -0,317, p < 0,01$) bulunmaktadır. Tüm bu sonuçlardan hareketle işyeri nezaketsizliği arttıkça algılanan yönetici desteği, iş tatmini ve işe gömülmüşlük azalmaktadır. Yani işyeri nezaketsizliği ile diğer değişkenler arasında ters orantı bulunmaktadır.

Çizelge 4 de ayrıca bize ayrışım geçerliliği ile ilgili de bilgiler sunmaktadır. Değişkenlerin ayrışma geçerliliğini test etmek için Fornell ve Larcker'in yaklaşımından yararlanılmıştır. Bu yöntemde, bir yapının kendisiyle olan korelasyonunun karesi, diğer yapılarla olan korelasyonlarının karelerinden büyük olmalıdır. Yani, her bir yapının AVE'sinin (Average Variance Extracted) karesi, diğer yapılarla olan korelasyonlarından büyük olmalıdır (Fornell & Larcker, 1981). Tablodaki değerler incelendiğinde her bir yapının açıklanan ortalama varyans karekökünün diğer yapılarla korelasyonundan daha yüksek olduğu görülmektedir. Dolayısıyla ayrışım geçerliliğinin sağlandığı söylenebilir.

Araştırma Hipotezlerinin Test Edilmesi

Araştırma kapsamında elde edilen verileri analiz etmek için Hayes (2018)'in araştırmasında yer alan model 14 önerisi kullanılmıştır. Bu modeli araştırmaya uyarladığımız zaman algılanan yönetici desteği bağımsız değişken iş tatmini bağımlı değişken işe gömülmüşlük aracı değişken ve son olarak işyeri nezaketsizliği düzenleyici değişken rollerini üstlenmektedir. Process Macro ile yapılan regresyon analizlerinde, basit aracılık etkisinin, basit düzenleyicilik etkisinin veya ikisinin birlikte yer aldığı durumsal aracılık etkilerinin var olup olmadığına, bootstrap analizi neticesinde elde edilen %95 güven aralığındaki (confidence interval, CI) değerlere bakılarak karar verilmektedir. Aracı, düzenleyici ve durumsal aracılık etkilerinden hangisi araştırılıyor ise ilgili etki değerine tekabül eden alt ve üst güven aralığı değerleri sıfır (0) değerini kapsamıyorsa araştırılan etkinin var olduğu kabul edilmektedir (MacKinnon vd., 2004). Process macro ile model 14 test edilirken Bootstrap tekniği ile 5000 adet yeniden örnekleme alınmış ve hipotezlerin kabul edilebilmesi için %95 güven aralığı seçenekleri tercih edilmiştir. Bootstrap yönteminin, Baron ve Keeny (1986)'nin geleneksel yönteminden ve Sobel testinden daha güvenilir sonuçlar verdiği iddia edilmektedir (Hayes, 2018; Preacher vd., 2007; Zhao vd., 2010). Bu bağlamda hipotezleri test etmek için bootstrap yöntemini esas alan regresyon analizi yapılmış ve sonuçları Çizelge 5'de sunulmuştur.

Tüm modellerde cinsiyet ve mezuniyet durumu kontrol değişkeni olarak kullanılmıştır. Bu tabloda modelimize uygun üç farklı alt model oluşturulmuştur. Model 1'de bağımsız değişken olan algılanan yönetici desteğinin (AYD) aracı değişken olan işe gömülmüşlük (İG) üzerindeki etkisi incelenmiştir (a yolu). Algılanan yönetici desteğinin işe gömülmüşlüğü pozitif yönlü ve anlamlı bir şekilde etkilediği tespit edilmiştir ($B=0,530, p < 0,001$). Bu bilgilerden hareketle H_2 hipotezi kabul edilmiştir. Ayrıca tüm tahmin değişkenlerinin (algılanan yönetici desteğinin cinsiyet ve mezuniyet durumu ile birlikte) işe gömülmüşlükteki

değişimin yaklaşık %40'ını ($R^2=0,401, p < 0,001$) açıkladığı görülmüştür.

Model 2'de bağımsız değişken olan algılanan yönetici desteğinin bağımlı değişken olan iş tatmini (İT) üzerindeki toplam etkisi (total effect) ele alınmıştır (c yolu = $c' + (a \cdot b_1)$). Bir başka deyişle Model 2'de aracı değişken olan işe gömülmüşlük modelde olmadığı durumda algılanan yönetici desteğinin iş tatmini üzerindeki toplam etkisi irdelenmiştir. Buna göre algılanan yönetici desteği iş tatmini üzerinde pozitif ve anlamlı bir etkiye sahiptir ($B=0,544, p < 0,001$). Ayrıca algılanan yönetici desteği cinsiyet ve mezuniyet durumu ile birlikte iş tatminindeki değişimin yaklaşık %43'ünü ($R^2=0,427, p < 0,001$) açıklamaktadır.

Model 3'te ise bağımsız (AYD), aracı (İG), düzenleyici (İN) ve etkileşim (İGXİN) değişkenlerinin bağımlı (İT) değişken üzerindeki etkileri incelenmiştir. Buna göre algılanan yönetici desteğinin iş tatmini üzerindeki doğrudan etkisinin (direct effect) pozitif ve anlamlı olduğu görülmüştür ($B=0,357, p < 0,001$). (c' yolu). Yani işe gömülmüşlüğü modelde dâhil edildiği durumda da algılanan yönetici desteğinin iş tatmini üzerinde etkisinin hala anlamlı olduğu tespit edilmiştir. Bu bilgiler ışığında H_1 desteklenmiştir.

Ayrıca Model 3'e bakıldığında işe gömülmüşlüğü iş tatmini üzerinde pozitif ve anlamlı ($B=0,228, p < 0,001$), (b_1 yolu) bir etkisinin olduğu tespit edilmiştir. Bu tespiti dayanılarak H_3 hipotezimizin desteklendiği ifade edilebilir. Model 3'te ayrıca algılanan yönetici desteğinin iş tatmini üzerindeki dolaylı etkisinin (indirect effect) anlamlı olduğu görülmektedir. ($B=0,145, \%95$ GA [0879, 2021]). ($a \cdot b_1$ yolu). Dolayısıyla algılanan yönetici desteğinin iş tatmini üzerindeki etkisinde işe gömülmüşlüğü bir aracı rolünün olduğu söylenebilir. Bu sonuçlar neticesinde H_4 desteklenmiştir.

Dolaylı etki değeri ($B=0,145$), algılanan yönetici desteği düzeyi diğer çalışanlardan bir birim yüksek olan bir çalışanın (algılanan yönetici desteği yüksek olanların işe gömülmüşlüklerinin daha yüksek olması ve işe gömülmüşlüğü yüksek olan çalışanlarında iş tatminlerinin daha yüksek olması nedeniyle) iş tatmininin de diğer çalışanlardan 0,145 birim daha yüksek olduğu şeklinde yorumlanmaktadır. Algılanan yönetici desteğinin iş tatmini üzerindeki tam standardize etki büyüklüğüne bakıldığında güven aralıklarının 0 (sıfır) değerini kapsamadığından dolayı anlamlı olduğu ifade edilebilir. ($K_2=0,18, GA$ [1073, 2451]). Etki büyüklükleri yorumlanırken genellikle $K_2=0,01$ 'e yakın ise düşük etki, $K_2=0,09$ 'a yakın ise orta etki, $K_2=0,25$ 'e yakın ise yüksek etki şeklinde yorumlanmaktadır (Preacher ve Kelley, 2011). Bu bilgiden hareketle test edilen modeldeki aracılık etkisinin yüksek değere yakın olduğu belirtilebilir.

Düzenleyici değişken olan işyeri nezaketsizliğinin iş tatmini üzerinde negatif ve anlamlı ($B=-0,162, p < 0,001$), bir etkisinin bulunduğu gözlemlenmiştir. (b_2 yolu). Bunun yanı sıra etkileşim (İGXİN) değişkeninin ise iş tatmini üzerinde pozitif ve anlamlı ($B=0,097, p=0,028$), bir etkisinin bulunduğu tespit edilmiştir. (b_3 yolu). Bu sonuca göre işyeri nezaketsizliği işe gömülmüşlüğü iş tatmini üzerindeki etkisini düzenlemektedir. Bir başka deyişle; çalışanların işe gömülmüşlük düzeylerinin iş tatmini üzerindeki etkisi bu çalışanları algıladıkları işyeri nezaketsizliğine göre değişmektedir. Bundan dolayı H_5 desteklenmiştir.

Çizelge 5. İşe Gömülmürlük ve İş Tatmini Üzerindeki Çoklu Regresyon Etkileri

Table 5. Multiple Regression Effects on Job Embeddedness and Job Satisfaction

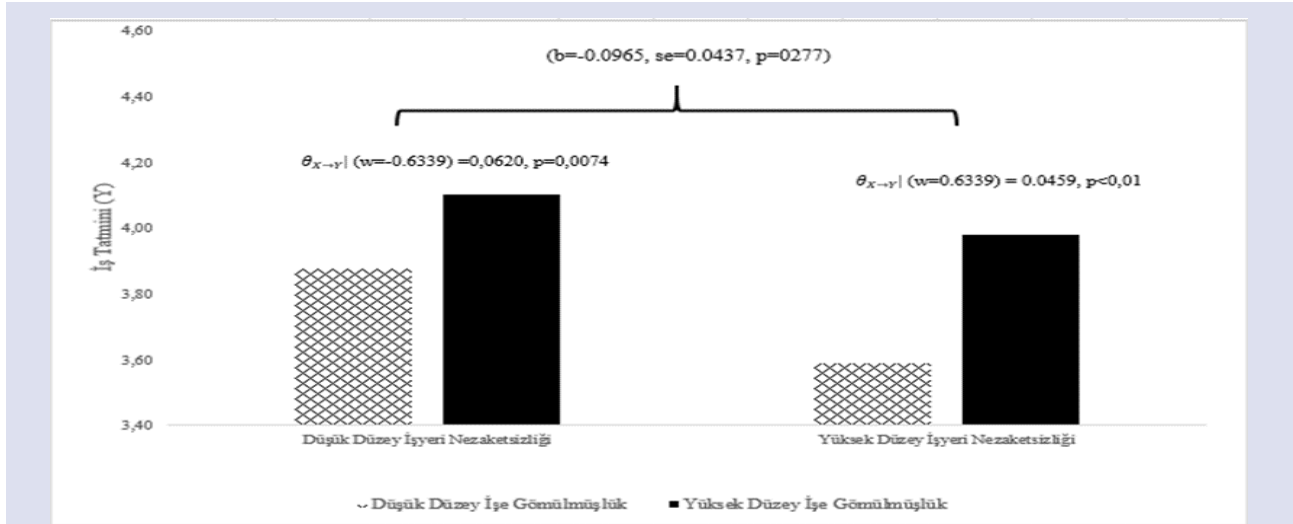
Değişkenler	Model.1 İG			Model.2 İT			Model.3 İT		
	B	SH	p	B	SH	p	B	SH	p
Sabit	-1,786	0,136	<0.001	2,211	0,132	<0.001	2,861	0,155	<0.001
AYD	0,530	0,032	<0.001	0,544	0,031	<0.001	0,357	0,040	<0.001
Cinsiyet	0,014	0,051	0,784	-0,120	0,050	0,016	-0,129	0,047	0,006
Mezuniyet	-0,050	0,024	0,039	-0,037	0,024	0,116	-0,019	0,022	0,387
İG							0,228	0,047	<0.001
İN							-0,162	0,041	<0.001
İGXİN							0,097	0,044	0,028
F		94,54			105,26			70,47	
p		<0.001			<0.001			<0.001	
R2		0,401			0,427			0,502	

Not: AYD: Algılanan Yönetici Desteği, İT: İş Tatmini, İG: İşe Gömülmürlük, İN: İşyeri Nezaketsizliği, İG X İN = İşe Gömülmürlük X İşyeri Nezaketsizliği (Etkileşim).

Çizelge 6. İN'nin Düşük, Orta ve Yüksek Olduğu Durumlarda İG'nin İT'ye Etkisi

Table 6. The Effect of PI on IT in Cases of Low, Moderate and High IN

Düzenleyici	Aracı	Bağımlı	Etki	SH
Düşük İN	İG	> İT	0,1646	0,062
Orta İN	İG	> İT	0,2295	0,047
Yüksek İN	İG	> İT	0,2945	0,046



Resim 4. İşe Gömülmürlüğün İş Tatmini Üzerindeki Etkisinin İşyeri Nezaketsizliği Tarafından Düzenlenmesi

Figure 4. Regulating the Impact of Job Embeddedness on Job Satisfaction by Workplace Incivility

Bu hipotez ile ilgili bir çıkarım daha yapmak olasıdır. Bu da Pick-a-Point yöntemi sonuçlarını yorumlamaktır. Pick-a-Point yöntemi ile ulaşılan sonuçlara göre; işyeri nezaketsizliğinin tüm düzeylerinde, işe gömülmürlük iş tatminini pozitif yönde etkilemektedir. (Çizelge 6). Bir başka ifade ile; çalışanların algıladıkları işyeri nezaketsizliği düzeyleri düşük ($\theta_{x \rightarrow y} | (W=-0,6339) = 0,0620, p=0,0074$), orta $\theta_{x \rightarrow y} | (W=0) = 0,2281, p<0,0001$ veya yüksek $\theta_{x \rightarrow y} | (W=0,6339) = 0,2893, p<0,0001$) olduğu durumlarda çalışanların işe gömülmürlük düzeyleri iş tatminini düzeylerini olumlu yönde etkilemektedir. İstatistiksel olarak anlamlı çıkan etkileşimsel terimi bize gösteriyor ki; işe gömülmürlüğün iş tatmini üzerindeki pozitif etkisi algılanan işyeri nezaketsizliği düzeyi düşük olan çalışanlarda istatistiki olarak daha düşük, yüksek olan

çalışanlarda ise istatistiki olarak daha yüksektir. Yani bu iki grup arasında istatistiksel anlamda bir farkın olduğu işyeri nezaketsizliği düzeyi arttıkça işe gömülmürlüğün iş tatmini üzerindeki etkisini daha fazla etkilediği bu değerlerden anlaşılmaktadır.

Grafikte görüleceği üzere işyeri nezaketsizliği seviyesi düşük olduğunda, düşük düzey işe gömülmürlük ile yüksek düzey işe gömülmürlük arasındaki farkın iş tatmini üzerindeki etkisi, istatistiksel olarak anlamlı olmuştur ($\theta_{x \rightarrow y} | (W=-0,6339) = 0,0620, p=0,0074$). Benzer şekilde işyeri nezaketsizliği seviyesi yüksek olduğu durumda da, düşük düzey işe gömülmürlük ile yüksek düzey işe gömülmürlük arasındaki farkın iş tatmini üzerindeki etkisi, istatistiksel olarak anlamlı olmuştur ($\theta_{x \rightarrow y} | (W=0,6339) = 0,0459, p<0,01$).

Model 14 ile test edilen bir başka önemli sonuçta işyeri nezaketsizliğinin dolaylı etkiyi düzenlemesidir. Durumsal aracılık etkisinin anlamlı olup olmadığını ortaya çıkarmak için Model 14 analiz çıktılarında yer alan durumsal aracılık endeksine bakılması gerekmektedir. Bu endeks bize gösteriyor ki; algılanan yönetici desteğinin işe gömülmüşlük vasıtasıyla iş tatmini üzerindeki etkisi, çalışanların algıladıkları işyeri nezaketsizliğine bağlıdır (endeks:0,0511, GA [0,0025, 0,1125]). Zira bu endekse ait olan güven aralığı sıfır değerini içerisinde barındırmadığından H_6 hipotezimizin kabul edildiğini ifade edebiliriz. Ayrıca bu endeks, iki çalışandan algılanan yönetici desteği diğer çalışanlardan bir birim yüksek olan bir çalışanın işe gömülmüşlük üzerinden iş tatmini 0,051 birim daha yüksek olacağı şeklinde de yorumlanmaktadır.

H_6 'yı irdelemek için kullanılan Pick-a-Point yöntemine göre; işyeri nezaketsizliğinin tüm düzeylerinde algılanan yönetici desteği, işe gömülmüşlük vasıtasıyla, iş tatminini olumlu etkilemektedir. Yani çalışanların algıladıkları işyeri nezaketsizliği düzeyleri ister düşük ($W=-0,6339$) Etki=0,0884; GA [0,0078, 0,1655]), ister orta ($W=0$) Etki=0,1208, GA [0,0615, 0,1822]), ister yüksek olsun ($W=0,6339$) Etki=0,1532, GA [0,0968, 0,2164]) dolaylı etki

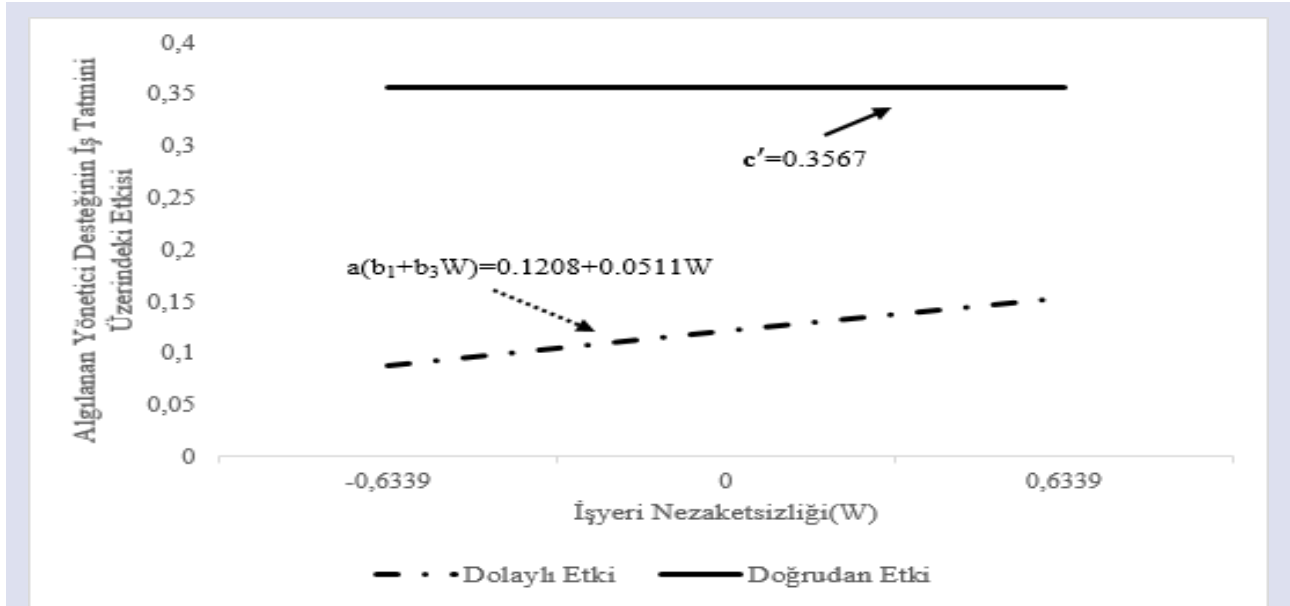
istatistiksel olarak anlamlı çıkmıştır. İstatistiksel olarak anlamlı çıkan durumsal aracılık endeksi bize gösteriyor ki; algılanan yönetici desteğinin işe gömülmüşlük vasıtasıyla, iş tatmini üzerindeki pozitif etkisi algılanan işyeri nezaketsizliği düzeyi düşük olan çalışanlarda istatistiki olarak daha düşük, yüksek olan çalışanlarda ise istatistiki olarak daha yüksektir. Yani bu iki grup arasında istatistiksel anlamda bir farkın olduğu işyeri nezaketsizliği düzeyi artıkça algılanan yönetici desteğinin işe gömülmüşlük vasıtasıyla iş tatmini üzerindeki etkisini daha fazla arttığı bu değerlerden anlaşılmaktadır.

Grafiğe bakıldığında; algılanan yönetici desteğinin işe gömülmüşlük vasıtasıyla iş tatmini üzerindeki olumlu etkisi, işyeri nezaketsizliğinin tüm düzeylerinde kendini göstermektedir. İşyeri nezaketsizliği düzeyi farklı olan çalışanlarda dolaylı etkinin farklılaştığı gözlemlenmektedir. Bir başka deyişle dolaylı etki, işyeri nezaketsizliği yüksek olan çalışanlarda (düşük olan çalışanlara göre) daha yüksek, düşük olan çalışanlarda (yüksek olan çalışanlara göre) ise daha düşüktür. Nitekim bu sonuçlar yukarıda açıklanan durumsal aracılık indeks değeri ile uyumludur.

Çizelge 7. İN'nin Düşük, Orta ve Yüksek Olduğu Durumlarda AYD'nin İG Vasıtasıyla İT'ye Dolaylı Etkisi

Table 7. Indirect Effect of the EQD on the IT through the IS in Cases of Low, Medium and High IN

Düzenleyici	Bağımsız	Aracı	Bağımlı	Etki	SH	EDGA	EYGA
Düşük İN	AYD	> İG	> İT	0,0884	0,0406	0,0078	0,1655
Orta İN	AYD	> İG	> İT	0,1208	0,031	0,0615	0,1822
Yüksek İN	AYD	> İG	> İT	0,1532	0,0302	0,0968	0,2164



Resim 5. Durumsal Aracılık Etkisi
Figure 5. Situational Mediation Effect

Sonuç

Günümüz kapitalist sisteminde kurumların devamlılıklarını sağlamaları ve yüksek karlar elde etmeleri için çalışanların iş tatminlerine önem vermeleri gerekmektedir. Araştırma iş tatmininin hangi değişkenlerden etkilenebileceği çerçevesinde şekillenmiştir. Çalışmada araştırma sorusuna etki edebileceği düşünülen üç farklı değişkenin bağımlı değişken üzerindeki etkileri analiz edilmiştir. Araştırma konusu çerçevesinde geliştirilen model, hem konunun kavramsal boyutları hem de araştırma örnekleminin ilgi alanları açısından önemli bulgular sunmaktadır.

Bulguları itibarıyla bu çalışmanın önemli bir katkısı, tekstil fabrikalarında çalışan işgörenlerin performansları açısından iş tatminlerinin dikkate almasıdır. Çalışanların özellikle iş tatminlerine yoğunluk verilerek iş tatminlerine etki edebileceği düşünülen üç farklı değişken (algılanan yönetici desteği, işe gömülmüslük ve işyeri nezaketsizliği) dikkate alınmıştır. Alan yazında daha önce mavi yakalı tekstil çalışanları üzerinde bu değişkenlerin ölçüldüğü herhangi bir araştırmaya rastlanılmamıştır. Böyle bir eksikliğin giderilmesiyle literatüre önemli bakış açıları kazandırılabilirliği düşünülmektedir.

Araştırma kuramsal açıdan değerlendirildiğinde, Maslow (1943: 382) motivasyon kuramında, kişilerin tüm ihtiyaçları karşılandığında dahi kendilerine uygun eylemleri gerçekleştirmediklerinde huzursuz hissedebileceklerini vurgulamıştır. Bu bakımdan mavi yakalı çalışanların iş performansları açısından kendilerine uygun eylemi gerçekleştirebilmek için ortaya koydukları iş tatminine etki edebilecek faktörlerin belirlenmesi önemli olacaktır. Bandura (1977a: 203) etki kuramında, bireyin çevresindeki eylemler yoluyla etki güdüsünün geliştiğini ve kişinin kendi davranışlarının oluşturduğu etkilere odaklandığını ifade etmiştir. Araştırmada mavi yakalı çalışanların iş tatminlerine etki edebilecek çevresel faktörler; yönetici, kurum ve iş arkadaşı çerçevesinde ele alınmıştır. Araştırma sonucunda, mavi yakalı çalışanların iş tatminlerine yönetici, kurum ve çalışma arkadaşlarının önemli etkileri olduğu ortaya koyulmuştur.

Bandura (1978: 345) davranış kuramında, bireyin çevresinden etkilenecek davranış geliştirdiğini belirtmiştir. Bu bağlamda, mavi yakalı çalışanların çevrelerinde iş tatminlerini etkileyebilecek değişkenler davranışsal açıdan ele alınmıştır ve yönetici, kurum ile çalışma arkadaşlarının davranışlarının bu çalışanların tutumlarını yönlendirdiği belirlenmiştir. Ramlall (2004: 53), ihtiyaç kuramında, fizyolojik ve psikolojik eksikliklerin bireyin davranışlarını harekete geçirdiğini ifade etmiştir. Bu kapsamda araştırma, mavi yakalı çalışanların iş tatminlerine yönelik fizyolojik ve psikolojik eksiklikleri ve bu eksikliklerin hangi faktörlerle giderilebileceğini önemli bir problem olarak ele almıştır.

Kalshoven vd. (2013: 216) sosyal öğrenme kuramında, çalışanların iş ortamındaki diğer bireylerin davranışlarını gözlemleyerek bu davranışları kendi tutumlarına yansıtıklarını öne sürmüştür. Bu durum, fabrika ortamında mavi yakalı çalışanların hem yöneticilerinin

hem de iş arkadaşlarının iş tatmini seviyelerine etkilerinin olabileceğini göstermektedir. Özellikle, destekleyici yönetici tutumlarının toplam etki bakımından mavi yakalı çalışanların iş tatmini düzeylerine olumlu katkı sağladığı anlaşılmıştır.

Araştırma modeline ilişkin oluşturulan hipotezler ve elde edilen sonuçlar dikkate alındığında; aracı etkili modelde direkt etkiler açısından algılanan yönetici desteğinin mavi yakalı çalışanların iş tatminleri üzerinde pozitif ve anlamlı bir etki oluşturmuştur. Araştırmanın toplam etki modelinde de (aracı etkinin olmadığı) tıpkı direkt etkiler gibi algılanan yönetici desteğinin mavi yakalı çalışanların iş tatminleri üzerinde pozitif ve anlamlı bir toplam etkiye sahip olduğu gözlemlenmiştir. Ayrıca direkt etki de toplam etkiye oranla bir azalma meydana gelmiştir. Bu azalma işe gömülmüslüğün modele dahil edilmesi ile gerçekleştiği için işe gömülmüslüğün araştırma modelinde kısmı aracı etkiye sahip olduğu anlaşılmıştır. Direkt etkideki bu azalma mavi yakalı çalışanların işe gömülmelerinin organizasyon için oldukça önemli bir değişken olduğunu ortaya koymaktadır. Çünkü bu sonuçla, mavi yakalı çalışanların algıladıkları yönetici desteğinin iş tatminleri üzerindeki etkisinin bir kısmı işe gömülmüslük vasıtasıyla meydana geldiği anlaşılmıştır. Bu sonuca Baron ve Kenny (1986: 1176-1179)'nin araştırmaları referans verilerek oluşturulan hipotez kabul edilmiştir.

Elde edilen sonuç mavi yakalı çalışanların işe gömülmüslüklerinin var olmasının algıladıkları yönetici desteğinin iş tatminlerine önemli katkıları olduğunu göstermektedir. Araştırma yönetici desteğinin iş tatminine olan katkısında işe gömülmüslük kavramının da önemli bir değişken olarak dikkate alınması gerektiğini göstermektedir. Fabrikada yöneticinin çalışanı destekler nitelikte davranışlar sergilemesinin mavi yakalı çalışanın işe gömülmüslüğüne ve iş tatminine önemli katkıları olabileceğini göstermektedir. Ceylan vd. (2015: 168), Winarto ve Chalidyanto, (2020: 2793) ve Kalliath vd. (2020: 2063) araştırmalarında çalışanların algıladıkları yönetici desteğinin iş tatminlerini artırdığını ifade etmişlerdir. Araştırma sonuçları toplam etkiler açısından bu araştırmaları desteklemektedir.

Araştırmada algılanan yönetici desteğinin işe gömülmüslüğe olumlu yansıması, fabrika ortamdaki organizasyon uygulamalarının geliştirilmesine katkıda bulunduğunu göstermektedir. Dai ve Zhang, (2019: 139) organizasyonda algılanan örgütsel desteğin ve algılanan yönetici desteğinin işe gömülmüslüğü olumlu yönde etkilediğini belirtmiştir. Arasli ve Arici, (2019: 61) yaptığı araştırmanın sonuçları, yönetici desteğinin mevsimlik çalışanların işe katılımını artırmada anahtar rol oynadığını ve bunun da işe gömülmenin artmasına ve işten ayrılma niyetinin azalmasına yol açtığını gösteriyor. Ayrıca literatüre baktığımızda yönetici desteğinin işe gömülmüslüğü olumlu yönde etkilediğine yönelik pek çok araştırma bulunmaktadır (Bergiel vd., 2009; Ferreira, 2017; Karatepe, 2014; Meredith, 2022; Nguyen, 2010; Nguyen vd., 2017; Shehawy vd., 2018; Wang, 2023; Zhang vd., 2019). Araştırma sonuçlarının bütün bu bulguları destekler nitelikte olduğu görülmüştür.

Araştırmada mavi yakalı çalışanların işe gömülmüşlüklerinin iş tatminleri üzerinde pozitif ve anlamlı etkisi olduğu sonucuna erişilmiştir. Becker vd. (1996: 476) yaptıkları araştırmada çalışanların organizasyonlarına olan bağlılıklarının performansla ilişkili olduğunu belirtmiştir. Araştırmada mavi yakalı çalışanların işlerine gömülmüşlüklerinin performans açısından iş tatminleri üzerine önemli katkıları olduğu gözlemlenmiştir. Aondo vd. (2020: 71) akademisyenlere yönelik çalışmalarında, bağlılığın performans artışına katkı sağladığını ifade etmişlerdir. Araştırmada mavi yakalı çalışanların organizasyonlarına olan sadakatlerinin performans açısından tatminlerine olumlu yansımaları bu sonucu destekler niteliktedir. Ayrıca Ha ve Kim, (2010: 1) otel çalışanları üzerine yaptığı araştırmada işe gömülmüşlüğü iş tatminini olumlu yönde yordadığını ifade etmiştir. Araştırmada mavi yakalı tekstil çalışanlarının işe gömülmüşlüğü iş tatminlerini pozitif yönde etkilemesi bu bulguları tam olarak desteklediğini göstermektedir.

Araştırmada algılanan yönetici desteğinin mavi yakalı çalışanların iş tatminleri üzerindeki etkisinde mavi yakalı çalışanların işe gömülmüşlüklerinin aracı etkiye sahip olduğu sonucuna ulaşılmıştır. Baron ve Kenny (1986: 1176) ile Ramayah vd. (2011: 423) çalışmalarında aracı etkiyi incelemek amacıyla üç değişkenli bir sistemin önemini vurgulamış; bağımsız değişkenin bağımlı değişken üzerindeki etkisini değerlendirmek için bu yöntemi kullanmışlardır. Çalışma bulguları, algılanan yönetici desteğinin iş tatmini üzerindeki etkisinde işe gömülmüşlüğü güçlü bir aracı rol oynadığını göstermektedir. Zhao vd. (2010: 204) ise araştırmalarında, yol katsayılarının çarpımlarının pozitif olması durumunda tamamlayıcı, negatif olması durumunda ise rekabetçi aracılık türünün etkili olduğunu belirtmişlerdir. Bu araştırmada yol katsayılarının çarpımının pozitif olduğu bulunmuştur. Bu sonuç algılanan yönetici desteğinin mavi yakalı çalışanların iş tatmini durumları üzerindeki etkisinde, çalışanların işlerine gömülmüşlüğü tamamlayıcı aracı görevi üstlendiğini ortaya koymaktadır.

Daha evvel gerçekleştirilen araştırmalarda (örneğin, Pearson vd., 2000; Porath ve Pearson, 2012) işyeri nezaketsizliğinin çalışma ortamlarında var olmalarına rağmen nezaketsizliğin işletmelerde önemli bir problem olarak pek de fazla dikkate alınmadığı belirtilmiştir. Bu açıdan araştırmada işyeri nezaketsizliği moderatör etkisi de ortaya koyulmuştur. Araştırma sonuçlarında mavi yakalı çalışanların işlerine olan gömülmüşlük durumlarının iş tatminleri üzerindeki etkisinde işyeri nezaketsizliğinin olumlu moderatör etkiye sahip olduğunu ortaya koymaktadır. Araştırmada ayrıca mavi yakalı çalışanların algıladıkları yönetici desteğinin işe gömülmüşlük üzerinden iş tatminine olan etkisinde işyeri nezaketsizliğinin olumlu moderatör etkisi olduğu sonucuna erişilmiştir. Bu sonuçlar oldukça ilginçtir. Zira işyeri nezaketsizliğinin iş tatmini üzerinde direkt olarak olumsuz ve önemli bir etkisi olduğu gözlemlenmişti. Oysa mavi yakalı çalışanların işe gömülmüşlüklerinin iş tatmini üzerindeki etkisi işyeri nezaketsizliğinin ılımlaştırıcı pozitif yönünü ortaya koymaktadır.

Araştırmada işyeri nezaketsizliğinin ılımlaştırıcı pozitif yönü Zorlayıcı-Engelleyici Stresör Teorisi (Challenge-Hindrance Stressor Theory) bağlamında değerlendirilebilir. Zorlayıcı-Engelleyici Stresör Teorisi, stresörleri meydan okuma (zorlayıcı) stresörleri (challenge stressors) ve engelleyici stresörler (hindrance stressors) şeklinde ikiye ayıran bir teoridir (Cavanaugh vd., 2000). Meydan okuma stresörleri, bireylerin becerilerini geliştirmelerine olanak sağlayan, onları motive eden, kişisel ve profesyonel büyüme fırsatları sunan stresörlerdir. Engelleyici stresörler ise bireyin gelişimini engelleyen, işin verimliliğini düşüren stresörlerdir. Bu teoriye göre, bazı stresörler (örneğin zorlu görevler veya baskı) olumlu sonuçlar doğurabilir, çünkü bireyler bu tür stresörleri bir fırsat olarak görüp daha iyi performans gösterebilirler (Horan vd., 2020). Araştırma bağlamında ele aldığımızda bu teoriye dayanarak bazı stresörlerin (işyeri nezaketsizliği gibi) çalışanlar tarafından zorlu ancak gelişim fırsatları sunan durumlar olarak değerlendirilebileceği ileri sürülebilir. Bu tür stresörler, çalışanların becerilerini geliştirmesine ve performanslarını artırmasına yardımcı olabilir, bu da iş tatmini üzerinde olumlu bir etki oluşturabilir. Nezaketsizlik, uygun koşullarda bireyler için bir meydan okuma olarak değerlendirildiğinde motivasyonu artırabilir.

Zorlayıcı-Engelleyici Stresör Teorisi kapsamında işyeri nezaketsizliğinin incelendiği araştırmalara bakıldığında araştırmamızı destekleyen sonuçlara ulaşıldığı görülmektedir. Örneğin Marchiondo vd. (2018: 369) işyeri nezaketsizliğinin hem olumsuz hem de meydan okuma (öğrenme ve büyüme fırsatı olarak) değerlendirmelerine odaklanarak, bu değerlendirmelerin algılanan zarar verme niyeti ve fail kontrolü atflarıyla ilişkisini incelemiştir. Çeşitli mesleklerden çalışanlarla yapılan iki çok yönlü anket sonucunda, bazı çalışanların, özellikle failere düşük kötü niyet atfettiklerinde, nezaketsizliği meydan okuma olarak değerlendirdikleri bulunmuştur. Bu tür değerlendirmeler iş tatmini ve başarıdaki artışlarla ilişkilendirilmiştir. Bu sonuç mavi yakalı çalışanların işe gömülmüşlük durumlarının iş tatminleri üzerine olumlu etkileri olmasının da işyeri nezaketsizliği davranışının sergilenmesinin bu ilişkiyi olumlu bir şekilde etkilediğini göstermektedir. Yani işe gömülmüşlüğü iş tatmini üzerindeki etkisinde işyeri nezaketsizliği davranışının olumlu düzenleyici bir etkisinin olduğunu ortaya koymaktadır. Ayrıca algılanan yönetici desteğinin işe gömülmüşlük vasıtası ile iş tatminine olan etkisinde de işyeri nezaketsizliğinin pozitif moderatör etkisi olduğunu belirtmektedir. Bu araştırma sonuçları yukarıdaki yer alan araştırma bulgularını destekler niteliktedir. Ayrıca çalışma sonuçları, pozitif psikoloji ilkelerini de dahil ederek nezaketsizliğin “her zaman kötü” olduğu varsayımını sorgulamakta ve böylece nezaketsizlik konusundaki fikir birliğini değiştirmektedir (Hollenbeck, 2008).

Örneklemin seçildiği yer olan Ağrı ilinin toplumsal yapısı, algılanan yönetici desteğinin işe gömülmüşlük üzerinden iş tatminine olan dolaylı etkisini ve işyeri nezaketsizliğinin pozitif yönde düzenlenmesini etkileyebilecek bir faktör olabilir. Bu doğrultuda Ağrı ilinin yer aldığı coğrafyanın tarihsel dönemleri incelendiğinde bu bölgenin Osmanlı devleti zamanında özel yönetim biçimlerinden birisi olan yurtluk-ocaklık sistemiyle yönetildiği görülmektedir (Kazdal, 2022, s. 308; Kaya, 2016). Günümüzde ise, Ağrı bölgesinde hala yurtluk-ocaklık sistemiyle

bazı benzerlikleri olan aşiretçiliğin kendini güçlü bir şekilde gösterdiği görülmektedir (Edi, 2010, s. 3). Ludwig Feuerbach'ın "İnsan ne yerse odur" ünlü sözünden yola çıkarak aşiret sisteminin getirdiği aşiret liderine karşı mutlak itaat kültürünün bireyin görev yaptığı kurumda amirine karşı da etkisini gösterebileceği düşünmesine yol açmaktadır. Her ne kadar günümüzde etkisinin giderek azaldığı görülse de doğu toplumlarının ataerkil oluşu bu durumu doğrular niteliktedir.

Bu araştırmadaki işyeri nezaketsizliğinin olumlu düzenleyici rolünün bir diğer nedeni mavi yakalı çalışanların Stockholm sendromuna yakalanmaları olabilir. Türk kültürü ata erkil bir toplum olduğundan araştırmamızın örneklemini oluşturan Ağrı ilinin gelenek ve göreneklerine sıkı sıkıya bağlı olması dolayısıyla bu etkiyi daha şiddetli görülmesi muhtemeldir. Ayrıca araştırmamızın yapıldığı dönem itibarıyla 2022 yılı Türkiye İstatistik Kurumu (TÜİK) verilerine göre, Türkiye'nin gelir eşitsizliği (TÜİK, 2023a) ve göreceli yoksulluk oranı (TÜİK, 2023b) en yüksek olan illerden birinin Ağrı ili olması bu sonucun sebeplerinden biri olabilir. Bu bilgilerin yanı sıra Ağrı ilindeki işsizlik oranlarının %13,7 (İŞKUR, 2023, s. 5) olması bir başka neden olarak karşımıza çıkmaktadır. Ağrı ilinin iş imkânları incelendiğinde yaklaşık 3000 çalışan ile Ağrı Tekstil Kent yerleşkesinde yer alan tekstil fabrikalarının Ağrı ilinin en önemli iş imkânı noktası olarak karşımıza çıkmaktadır (Yıldız, 2019). Tüm bu bilgiler Ağrı ilinin imkânsızlıkları arasında bir iş sahibi olan çalışanların işyeri nezaketsizliği gibi bir olumsuz davranışı dikkate almadıkları veya görmezden geldikleri söylenebilir.

Gelecek araştırmalarda, bu çalışmada kullanılan model ve ölçekler dikkate alınarak benzer değişkenlerin ölçülmesi ve daha kapsamlı bir şekilde incelenmesi yararlı olacaktır. Özellikle iş tatmini üzerine yapılacak araştırmalarda, ülkemizdeki mavi yakalı çalışanların tekstil fabrikalarındaki işlevselliklerine katkıları hem nicel hem de nitel yöntemlerle ele almak, tekstil sektörüne önemli faydalar sağlayabilir. Olumsuz olayların meydana okuma olarak değerlendirilmesi üzerine yapılan çalışmalar artmakla birlikte, bu konu işyeri nezaketsizliği bağlamında yeterince incelenmemiştir. Bu nedenle, örgütsel hayatın "karanlık yüzü" olarak görülen bu alanda bir umut ışığı olup olmadığı araştırılabilir.

Araştırmanın konusuna yönelik çalışmaların sınırlı sayıda olması dikkate alındığında yeni araştırmalara oldukça fazla ihtiyaç olduğunu göstermektedir. Bu açıdan literatür kısmında ifade edilen özellikle işe gömülmüşlük ve işyeri nezaketsizliği değişkenleri kullanılarak tekstil sektöründe yeni araştırma modellerinin oluşturulması yararlı olacaktır. Bu çerçevede Ağrı dışında iş imkanları daha yüksek olan bir ilimizde yine tekstil çalışanları üzerine araştırmalar yapılarak bu araştırmanın sonuçları ile karşılaştırılabilir. Ayrıca algılanan yönetici desteği dışındaki diğer destek türlerinin (algılanan örgütsel destek, iş ya da çalışma arkadaşı desteği, sosyal destek, aile desteği vb.) işe gömülmüşlük, işe bağlılık, işe adanmışlık, işe aidiyet gibi değişkenlerle ilişkisinin incelenmesi literatüre katkı sağlayacaktır. Bu konulara ek olarak bu araştırma bağlamında işyeri nezaketsizliğinin olumlu yönlerine daha fazla odaklanılması örgütsel ortamlara daha ciddi katkılar sunacağı kanaati oluşmaktadır. Ayrıca Seyrek (2023, s. 201) belirttiği gibi, işe gömülmüşlüğü ölçmek için orijinal dili Türkçe olan ölçek bulunmadığından Türk kültürüne uygun ölçek geliştirilmesi yönetim ve organizasyon alanına katkı sağlayabilir.

Extended Abstract

Organizations pursue various objectives from the moment they are established and strive to sustain their existence by accomplishing these goals. The protection and development of an organization is related to the human element within the organization. The human element in organizations is one of the essential components that distinguish an organization from other organizations, make it more successful and stronger, and ensure its continuity. One way for the human factor to contribute to the organization is to be satisfied with its work. In this framework, revealing the factors that may affect the job satisfaction of blue-collar employees operating in the textile sector can have very important results in terms of both national and international growth and development. For the growth and development of the textile sector, the concept of job satisfaction is crucial considering both the current activities and future goals of blue-collar employees.

Considering that blue-collar textile employees are satisfied with their jobs in terms of their performance, the main problem of the research is to determine the variables that can affect their satisfaction in their work environment and to determine the variables that can affect this satisfaction in their work environment. Blue-collar employees' attitudes towards their factories, the role of their managers and their interaction with their coworkers (other blue-collar employees) are the sources of explaining the research problem. In the literature, it has been observed that there is not much research on the job satisfaction efforts of blue-collar textile employees, especially in terms of their performance in their factories. In addition, the fact that there is no holistic study in which the variables of perceived supervisor support, job embeddedness, and workplace incivility, which may be determinants of job satisfaction of blue-collar textile employees, are discussed together, increases the importance of this study even more. Considering this gap in the literature, this study investigates whether perceived supervisor support, job embeddedness, and workplace incivility variables are the main factors that can affect the job satisfaction of blue-collar employees, which has a very important place in their job success.

In this study, the hypotheses were tested with PROCESS-Macro, an SPSS add-on. PROCESS-Macro helps us to evaluate complex models such as mediation, moderation and contingency mediation. It also makes it possible to reveal the situational mediation effect with the Bootstrap method and to examine the importance of situational mediation effects at various levels (low-medium-high) of the moderating variable (Hayes, 2013). In this direction, while determining the low, medium, and high values of the moderator variable, the analysis was carried out by marking the option indicating the level of "low" moderating effect one standard error less than the mean, "medium" moderating effect one standard error more than the mean, and "high" moderating effect one standard error more than the mean. Which or which of these levels are statistically significant and how these results should be interpreted are revealed with the help of two methods. The first of these methods is the Pick-a-Point method. This method is called simple slope analysis or spotlight analysis and is the most popular method used to examine the interactional effect

(Hayes, 2018; 2022). The second method is the Johnson Neyman method. However, it is stated that this method should only be used in simple moderating effect models and that the Pick-a-Point method would be healthier when testing situational mediation models (Bozkurt, 2023: 244). For this reason, the Johnson Neyman method was not used since the study includes a situational mediation model.

In Model 1, the effect of the independent variable, perceived supervisor support (PSS), on the mediating variable, job embeddedness (JE), was examined (path a). It was found that perceived supervisor support has a positive and significant effect on job embeddedness ($B=0.530$, $p<0.001$). Based on this information, hypothesis H_2 is accepted. In Model 3, the effects of independent (PSS), mediator (JE), moderator (WI) and interaction (JEXWI) variables on the dependent (IT) variable were examined. Accordingly, the direct effect of perceived supervisor support on job satisfaction was found to be positive and significant ($B=0.357$, $p<0.001$) (path c'). In other words, when job embeddedness is included in the model, the effect of perceived supervisor support on job satisfaction is still significant. In the light of this information, H_1 is supported. Model 3 also shows that the indirect effect of perceived supervisor support on job satisfaction is significant. ($B=0.145$, 95% CI [0.0879, 0.2011]). (a.b₁ path). Therefore, it can be said that job embeddedness has a mediating role in the effect of perceived supervisor support on job satisfaction. As a result of these results, H_4 is supported. In addition, Model 3 shows that job embeddedness has a positive and significant ($B=0.228$, $p<0.001$), (path b₁) effect on job satisfaction. Based on this finding, it can be stated that our hypothesis H_3 is supported.

It was observed that the moderator variable, workplace incivility, had a negative and significant ($B=-0.162$, $p<0.001$) effect on job satisfaction (path b₂). In addition, the interaction variable (JEXWI) was found to have a positive and significant ($B=0.097$, $p=0.028$) effect on job satisfaction (path b₃).

According to this result, workplace incivility moderates the effect of job embeddedness on job satisfaction. In other words, the effect of employees' level of job embeddedness on job satisfaction varies according to the workplace incivility perceived by these employees. Therefore, H_5 is supported. Another important result tested with Model 14 is that workplace incivility moderates the indirect effect. In order to reveal whether the situational mediation effect is significant or not, the situational mediation index in the Model 14 analysis outputs should be analyzed. This index shows that the effect of perceived supervisor support on job satisfaction through job embeddedness depends on employees' perceived workplace incivility (index: 0.0511, CI [0.0025, 0.1125]). Since the confidence interval of this index does not contain zero value, we can state that our hypothesis H_6 is accepted.

When the results of the research are examined; it is seen that perceived supervisor support has a positive overall effect on the job satisfaction of blue-collar textile employees. It has been observed that perceived supervisor support has a positive effect on blue-collar textile employees' job embeddedness. Blue-collar textile employees' job embeddedness has a positive effect on their job satisfaction. It has been concluded that workplace incivility behavior has a negative effect on job satisfaction of blue-collar textile employees. It has been observed that workplace incivility behavior has a moderating effect on the effect of blue-collar textile employees' job embeddedness on their job satisfaction. In the study, it was determined that job embeddedness has a mediating effect on the effect of perceived supervisor support on job satisfaction of blue-collar textile employees. In addition, when the research model is considered as a whole, it is concluded that workplace incivility regulates the mediating role of job embeddedness in the effect of perceived supervisor support on job satisfaction.

Katkı Oranları ve Çıkar Çatışması / Contribution Rates and Conflicts of Interest

Etik Beyan	Bu çalışmanın hazırlanma sürecinde bilimsel ve etik ilkelere uyulduğu ve yararlanılan tüm çalışmaların kaynakçada belirtildiği beyan olunur.	Ethical Statement	It is declared that scientific and ethical principles have been followed while carrying out and writing this study and that all the sources used have been properly cited
Yazar Katkıları	Çalışmanın Tasarlanması: ES (%60), NG(%40) Veri Toplanması: ES (%60), NG(%40) Veri Analizi: ES (%60), NG(%40) Makalenin Yazımı: ES (%60), NG(%40) Makale Gönderimi ve Revizyonu: ES (%60), NG(%40)	Author Contributions	Research Design: ES (%60), NG(%40) Data Collection: ES (%60), NG(%40) Data Analysis: ES (%60), NG(%40) Writing the Article: ES (%60), NG(%40) Article Submission and Revision: ES (%60), NG(%40)
Etik Bildirim Çıkar Çatışması	iibfdergi@cumhuriyet.edu.tr Çıkar çatışması beyan edilmemiştir.	Complaints Conflicts of Interest	iibfdergi@cumhuriyet.edu.tr The author(s) has no conflict of interest to declare.
Finansman	Bu araştırmayı desteklemek için dış fon kullanılmamıştır.	Grant Support	The author(s) acknowledge that they received no external funding in support of this research.
Telif Hakkı & Lisans	Yazarlar dergide yayınlanan çalışmalarının telif hakkına sahiptirler ve çalışmalarını CC BY-NC 4.0 lisansı altında yayımlanmaktadır.	Copyright & License	Authors publishing with the journal retain the copyright to their work licensed under the CC BY-NC 4.0
Etik Kurul	Bu çalışmada kullanılan veriler, Zonguldak Bülent Ecevit Üniversitesi İnsan Araştırmaları Etik Kurulu	Ethics Committee	The data used in this study were approved by the Human Research Ethics Committee of Zonguldak

Kaynakça

- Alici, İ. (2017). İşe Gömülmüşlük. 21. Yüzyılda Örgütsel Davranış (1. baskı). İstanbul: Beta Yayıncılık.
- Aman-Ullah, A., Aziz, A., Ibrahim, H., Mehmood, W., & Abbas, Y. A. (2021). The impact of job security, job satisfaction and job embeddedness on employee retention: An empirical investigation of Pakistan's health-care industry. *Journal of Asia Business Studies*, 16(6), 904-922. <https://doi.org/10.1108/JABS-12-2020-0480>
- Ampofo, E. T. (2020). Mediation effects of job satisfaction and work engagement on the relationship between organisational embeddedness and affective commitment among frontline employees of star-rated hotels in Accra. *Journal of Hospitality and Tourism Management*, 44, 253-262. <https://doi.org/10.1016/j.jhtm.2020.06.002>
- Andersson, L. M., & Pearson, C. M. (1999). Tit for tat? The spiraling effect of incivility in the workplace. *Academy of Management Review*, 24(3), 452-471. <https://doi.org/10.5465/amr.1999.2202131>
- Andriani, B. S., & Sudibjo, N. (2022). Pengaruh job embeddedness, job satisfaction, dan perceived organizational support terhadap affective commitment. *Jurnal Akuntabilitas Manajemen Pendidikan*, 10(2), 208-220. <https://doi.org/10.21831/jamp.v10i2.53156>
- Aondo, R. M., Ngui, T., & Okeyo, W. (2020). The intervening role of staff loyalty on the relationship between transformational leadership style and performance of chartered universities in Kenya. *African Journal of Emerging Issues*, 2(9), 51-75.
- Arasli, H., & Arici, H. E. (2019). Perceived supervisor support cure. *Journal of East European Management Studies*, 24(1), 61-88.
- Ashraf, M. S., Bashir, M., Bilal, M. Y., Ijaz, K., & Usman, M. (2013). The impact of working environment on organization performance: A mediating role employee's job satisfaction. *Global Management Journal for Academic & Corporate Studies*, 3(1), 131-150.
- Babin, B. J., & Boles, J. S. (1996). The effects of perceived co-worker involvement and supervisor support on service provider role stress, performance and job satisfaction. *Journal of Retailing*, 72(1), 57-75.
- Baloyi, S., Van Waveren, C. C., & Chan, K. Y. (2014). The role of supervisor support in predicting employee job satisfaction from their perception of the performance management system: A test of competing models in engineering environments. *South African Journal of Industrial Engineering*, 25(1), 85-95.
- Bambacas, M., & Kulik, T. C. (2013). Job embeddedness in China: How HR practices impact turnover intentions. *The International Journal of Human Resource Management*, 24(10), 1933-1952.
- Bandura, A. (1977a). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191-215.
- Bandura, A. (1977b). *Social learning theory*. Englewood Cliffs, NJ: Prentice Hall.
- Bandura, A. (1978). The self system in reciprocal determinism. *American Psychologist*, 33(4), 344-358.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173-1182.
- Becker, T. E., Billings, R. S., Eveleth, D. M., & Gilbert, N. L. (1996). Foci and bases of employee commitment: Implications for job performance. *Academy of Management Journal*, 39(2), 464-482.
- Bergiel, E. B., Nguyen, V. Q., Clenney, B. F., & Taylor, G. S. (2009). Human resource practices, job embeddedness and intention to quit. *Management Research News*, 32(3), 205-219.
- Betancourt, H., & Blair, I. (1992). A cognition (attribution)-emotion model of violence in conflict situations. *Personality and Social Psychology Bulletin*, 18(5), 343-350.
- Bhanthumnavin, D. (2003). Perceived social support from supervisor and group members' psychological and situational characteristics as predictors of subordinate performance in Thai work units. *Human Resource Development Quarterly*, 14(1), 79-97.
- Blau, P. M. (1964). *Exchange and power in social life*. New York: Wiley.
- Bohner, G., Bless, H., Schwarz, N., & Strack, F. (1988). What triggers causal attributions? The impact of valence and subjective probability. *European Journal of Social Psychology*, 18, 335-345.
- Bolat, E. (2018). Hemşirelikte Nezaketsizlik Ölçeği'nin Türkçe geçerlik ve güvenirlik çalışması [Yayımlanmamış yüksek lisans tezi]. Manisa Celal Bayar Üniversitesi, Sağlık Bilimleri Enstitüsü.
- Bozkurt, S. (2023). *Process Makro ile aracılık, düzenleyicilik ve durumsal aracılık etki analizleri (SPSS uygulamalı)*. Bursa: Ekin Yayınevi.
- Bursal, M. (2019). *SPSS ile temel veri analizleri (2. baskı)*. Ankara: Anı Yayıncılık.
- Büyükoztürk, Ş., Kılıç-Çakmak, E., Akgün, Ö. E., Karadeniz, Ş., & Demirel, F. (2011). *Bilimsel araştırma yöntemleri*. Ankara: Pegem Akademi Yayınları.
- Candan, H. (2016). Türkiye'de akademisyenlerin işe gömülmüşlükleri ile performans ve tükenmişlikleri arasındaki ilişkinin incelenmesine yönelik bir araştırma. *Journal of Business and Management*, 18(3), 68-80.
- Cavanaugh, M. A., Boswell, W. R., Roehling, M. V., & Boudreau, J. W. (2000). An empirical examination of self-reported work stress among U.S. managers. *Journal of Applied Psychology*, 85(1), 65–74. <https://doi.org/10.1037/0021-9010.85.1.65>
- Ceylan, A. K., Çelik, G. M., & Emhan, A. (2015). Personel güçlendirmesi ve yönetici desteğinin iş memnuniyeti üzerindeki etkisi: Enerji sektöründe bir uygulama. *İşletme Araştırmaları Dergisi*, 7(1), 168-185.
- Chetty, P. J. J., Coetzee, M., & Ferreira, N. (2016). Sources of job stress and cognitive receptivity to change: The moderating role of job embeddedness. *South African Journal of Psychology*, 46(1), 101–113. <https://doi.org/10.1177/0081246315591308>
- Cingöz, A., & Kaplan, A. (2015). The effect of workplace incivility on job satisfaction and organizational trust: A study of industrial enterprises in Turkey. In *WEI International Academic Conference Proceedings*, Vienna, Austria (pp. 12-15).
- Clark, M. S., & Grote, N. K. (1998). Why aren't indices of relationship costs always negatively related to indices of relationship quality? *Personality and Social Psychology Review*, 2, 2–17.
- Collins, B. J., Burrus, C. J., & Meyer, R. D. (2014). Gender differences in the impact of leadership styles on subordinate embeddedness and job satisfaction. *The Leadership Quarterly*, 25(4), 660-671.

- Cortina, L. M., Kabat-Farr, D., Leskinen, E. A., Huerta, M., & Magley, V. J. (2013). Selective incivility as modern discrimination in organizations: Evidence and impact. *Journal of Management*, 39(6), 1579-1605.
- Cortina, L. M., Magley, V. J., Williams, J. H., & Langhout, R. D. (2001). Incivility in the workplace: Incidence and impact. *Journal of Occupational Health Psychology*, 6(1), 64-80.
- Cropanzano, R., & Mitchell, M. S. (2005). Social exchange theory: An interdisciplinary review. *Journal of Management*, 31(6), 874-900.
- Crossley, C. D., Bennett, R. J., Jex, S. M., & Burnfield, J. L. (2007). Development of a global measure of job embeddedness and integration into a traditional model of voluntary turnover. *Journal of Applied Psychology*, 92(4), 1031-1042.
- Dai, H., & Zhang, H. (2019). The effect of perceived organizational supports, perceived supervisory supports and perceived peer supports on innovative behavior: Focused on the job embeddedness of automotive industry research institute using VR technology. *한국컴퓨터정보학회논문지*, 24(10), 139-147.
- Dechawatanapaisal, D. (2021). Meaningful work on career satisfaction: A moderated mediation model of job embeddedness and work-based social support. *Management Research Review*, 44(6), 889-908.
- Dechawatanapaisal, D. (2022). Linking workplace social support to turnover intention through job embeddedness and work meaningfulness. *Journal of Management & Organization*, 1-23.
- Edi, A. (2010). Şeyh Sait İsyanı sonrası Ağrı isyanları (1925–1930). III. Uluslararası Ağrı Dağı ve Nuh'un Gemisi Sempozyumu, 12–14 Ekim 2010, 1–14. İstanbul.
- Eisenberger, R., Huntington, R., Hutchison, S., & Sowa, D. (1986). Perceived organizational support. *Journal of Applied Psychology*, 71(3), 500–507. <https://doi.org/10.1037/0021-9010.71.3.500>
- Eisenberger, R., Stinglhamber, F., Vandenberghe, C., Sucharski, I., & Rhoades, L. (2002). Perceived supervisor support: Contributions to perceived organizational support and employee retention. *Journal of Applied Psychology*, 87, 565-573.
- Erkal, E. A. (2020). İşte var olamama bağlamında örgütsel sizinmin tükenmişlik üzerine etkisi: Atatürk Üniversitesi HELİTAM örneği (Yayımlanmamış doktora tezi). Atatürk Üniversitesi, Sosyal Bilimler Enstitüsü, Erzurum.
- Ferreira, A. I., Martinez, L. F., Lamelas, J. P., & Rodrigues, R. I. (2017). Mediation of job embeddedness and satisfaction in the relationship between task characteristics and turnover: A multilevel study in Portuguese hotels. *International Journal of Contemporary Hospitality Management*, 29(1), 248-267.
- Field, A. (2018). *Discovering statistics using IBM SPSS statistics* (5. baskı). London: Sage Publications.
- Fisher, R. T. (2001). Role stress, the type A behavior pattern, and external auditor job satisfaction and performance. *Behavioral Research in Accounting*, 13(1), 143-170.
- Folkman, S., & Moskowitz, J. T. (2000a). Positive affect and the other side. *American Psychologist*, 55(6), 647–654.
- Folkman, S., & Moskowitz, J. T. (2000b). Stress, positive emotion, and coping. *Current Directions in Psychological Science*, 9(4), 115–118.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39-50.
- Gant, L. M., Nagda, B. A., Brabson, H. V., Jayaratne, S., Chess, W. A., & Singh, A. (1993). Effects of social support and undermining on African American workers' perceptions of coworker and supervisor relationships and psychological well-being. *Social Work*, 38(2), 158-164.
- Gillen, M., Baltz, D., Gassel, M., Kirsch, L., & Vaccaro, D. (2002). Perceived safety climate, job demands, and coworker support among union and nonunion injured construction workers. *Journal of Safety Research*, 33(1), 33-51.
- Giray, M. D., & Şahin, D. N. (2012). Algılanan örgütsel, yönetici ve çalışma arkadaşları desteği ölçekleri: Geçerlik ve güvenilirlik çalışması. *Türk Psikoloji Yazıları*, 15(30), 1-9.
- Gök, S., Karatuna, I., & Başol, O. (2019). İşyeri nezaketsizliği ölçeği'nin Türkçe'ye uyarlanması. *Türk Psikoloji Yazıları*, 22(44), 116-118.
- Gök, S., Karatuna, I., & Karaca, P. O. (2015). The role of perceived supervisor support and organizational identification in job satisfaction. *Procedia - Social and Behavioral Sciences*, 177, 38-42.
- Göktepe, E. A., & Keleş, D. (2019). İşyeri nezaketsizliği ve işten ayrılma eğilimi ilişkisi: Akademik personel üzerine bir araştırma. *Sosyal Araştırmalar ve Davranış Bilimleri Dergisi*, 5(12), 262-273.
- Green, J. (2000). *Job satisfaction of community college chairpersons* (Unpublished doctoral thesis). Virginia Polytechnic Institute and State University, Virginia.
- Griffeth, R. W., Hom, P. W., & Gaertner, S. (2000). A meta-analysis of antecedents and correlates of employee turnover: Update, moderator tests, and research implications for the next millennium. *Journal of Management*, 26(3), 463-488.
- Griffin, M. A., Patterson, M. G., & West, M. A. (2001). Job satisfaction and teamwork: The role of supervisor support. *Journal of Organizational Behavior*, 22(5), 537-550.
- Gültaş, A. S. (2019). Örgütsel sapma ve nezaketsizlik davranışları ilişkisinde işyerinde dışlanmanın aracı rolü: Sağlık kurumlarında bir araştırma (Yayımlanmamış yüksek lisans tezi). Hacettepe Üniversitesi, Sosyal Bilimler Enstitüsü, Ankara.
- Gürbüz, S. (2019). *AMOS ile yapısal eşitlik modellemesi*. Ankara: Seçkin Yayıncılık.
- Gürbüz, S., & Şahin, F. (2018). *Sosyal bilimlerde araştırma yöntemleri* (5. baskı). Ankara: Seçkin Yayıncılık.
- Ha, D. H., & Kim, S. M. (2010). Effects of job embeddedness on job satisfaction, organizational commitment and turnover intention-focused on employees of hotel F & B division. *Korean Journal of Food and Cookery Science*, 26(1), 1-12.
- Hackman, J. R., & Oldham, G. R. (1975). Development of the job diagnostic survey. *Journal of Applied Psychology*, 60(2), 159-170.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2009). *Multivariate data analysis* (7. baskı). Upper Saddle River, New York: Prentice Hall.
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. (2013). *Multivariate data analysis*. Boston: Pearson Education.
- Halbesleben, J. R., & Wheeler, A. R. (2008). The relative roles of engagement and embeddedness in predicting job performance and intention to leave. *Work & Stress*, 22(3), 242-256.
- Harris, K. J., Wheeler, A. R., & Kacmar, K. M. (2011). The mediating role of organizational job embeddedness in the LMX-outcomes relationships. *The Leadership Quarterly*, 22(2), 271-281.
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (1. baskı). New York: The Guilford Press.

- Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (2. baskı). New York: The Guilford Press.
- Hayes, A. F. (2022). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (3. baskı). New York: The Guilford Press.
- Hobfoll, S. E. (1988). *The ecology of stress*. Taylor & Francis.
- Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist*, 44(3), 513-524. <https://doi.org/10.1037/0003-066X.44.3.513>
- Hobfoll, S. E. (2001). The influence of culture, community, and the nested-self in the stress process: Advancing conservation of resource theory. *Applied Psychology: An International Review*, 50(3), 337-421. <https://doi.org/10.1111/1464-0597.00062>
- Hoffman, R. L., & Chunta, K. (2015). Workplace incivility: Promoting zero tolerance in nursing. *Journal of Radiology Nursing*, 34(4), 222-227.
- Hollenbeck, J. R. (2008). The role of editing in knowledge development: Consensus shifting and consensus creation. In Y. Baruch, A. M. Konrad, H. Aguinis, & W. H. Starbuck (Eds.), *Journal editing: Opening the black box* (pp. 16–26). San Francisco: Jossey-Bass.
- Holtom, B. C., Burton, J. P., & Crossley, C. D. (2012). How negative affectivity moderates the relationship between shocks, embeddedness and worker behaviors. *Journal of Vocational Behavior*, 80(2), 434-443.
- Hom, P. W., Tsui, A. S., Wu, J. B., Lee, T. W., Zhang, A. Y., Fu, P. P., & Li, L. (2009). Explaining employment relationships with social exchange and job embeddedness. *Journal of Applied Psychology*, 94(2), 277–297. <https://doi.org/10.1037/a0013453>
- Horan, K. A., Nakahara, W. H., DiStaso, M. J., & Jex, S. M. (2020). A review of the challenge-hindrane stress model: Recent advances, expanded paradigms, and recommendations for future research. *Frontiers in Psychology*, 11, 560346. <https://doi.org/10.3389/fpsyg.2020.560346>
- Hughes, J. M. (2010). The role of supervision in social work: A critical analysis. *Critical Social Thinking: Policy and Practice*, 2(1), 59-77.
- İşıkay, Ç. (2018). İşyeri nezaketsizliği, tükenmişlik ve iş doyumu ilişkisinde örgütsel adalet algısının aracılık rolü: Muğla ili kamu hastaneleri birliğinde görev yapan hemşireler üzerine bir araştırma (Yayımlanmamış yüksek lisans tezi). Muğla Sıtkı Koçman Üniversitesi, Sosyal Bilimler Enstitüsü, Muğla.
- İLKHA. (2022). Ağrı'daki siyahiler kentte faaliyet gösteren tekstil firmalarının kapatılmaması için çağrıda bulundu. *İlkha*. <https://ilkha.com/ekonomi/agri-daki-siyahiler-kentte-faaliyet-gosteren-tekstil-firmalarinin-kapatilmamasi-icin-cagrida-bulundu-196013> (Erişim Tarihi: 26.07.2022)
- Jiang, J. J., & Klein, G. (1999). Supervisor support and career anchor impact on the career satisfaction of the entry-level information systems professional. *Journal of Management Information Systems*, 16(3), 219-240.
- Jiang, K., Liu, D., McKay, P. F., Lee, T. W., & Mitchell, T. R. (2012). When and how is job embeddedness predictive of turnover? A meta-analytic investigation. *Journal of Applied Psychology*, 97(5), 1077-1096.
- Kalliath, P., Kalliath, T., Chan, X. W., & Chan, C. (2020). Enhancing job satisfaction through work–family enrichment and perceived supervisor support: The case of Australian social workers. *Personnel Review*, 49(9), 2055-2072.
- Kalshoven, K., Den Hartog, D. N., & De Hoogh, A. H. (2013). Ethical leadership and follower helping and courtesy: Moral awareness and empathic concern as moderators. *Applied Psychology*, 62(2), 211-235.
- Kanten, P. (2014). İşyeri nezaketsizliğinin sosyal kaytarma davranışı ve işten ayrılma niyeti üzerindeki etkisinde duygusal tükenmenin aracılık rolü. *Aksaray Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 6(1), 11-26.
- Karasek, R. A., Triantis, K. P., & Chaudhry, S. S. (1982). Coworker and supervisor support as moderators of associations between task characteristics and mental strain. *Journal of Occupational Behaviour*, 3(2), 181-200.
- Karatepe, O. M. (2011). Customer aggression, emotional exhaustion, and hotel employee outcomes: A study in the United Arab Emirates. *Journal of Travel & Tourism Marketing*, 28(3), 279-295.
- Karatepe, O. M. (2012). The effects of coworker and perceived organizational support on hotel employee outcomes: The moderating role of job embeddedness. *Journal of Hospitality & Tourism Research*, 36(4), 495-516.
- Karatepe, O. M. (2014). The importance of supervisor support for effective hotel employees: An empirical investigation in Cameroon. *Cornell Hospitality Quarterly*, 55(4), 388-397. <https://doi.org/10.1177/1938965513511147>
- Karatepe, O. M. (2016). Does job embeddedness mediate the effects of coworker and family support on creative performance? An empirical study in the hotel industry. *Journal of Human Resources in Hospitality & Tourism*, 15, 119-132.
- Kautsar, A. P., Widiyanto, S., & Duhiya, G. H. (2015). The hospital pharmacists' role: Influence of job embeddedness on job performance and job satisfaction through mediator's job involvement. *International Journal of Pharmaceutical Sciences Review and Research*, 34(2), 265-272.
- Kaya, H. (2016). Bayezid sancağı örneğinde Osmanlı idari yapısında yurtluk-ocaklık sistemi. *Current Research in Social Sciences*, 2(1), 17–26.
- Kazdal, M. (2022). XVIII. yüzyılın ilk yarısında yurtluk-ocaklık sistemi: Çıldır beylerbeyliği örneği. *Recep Tayyip Erdoğan Üniversitesi İlahiyat Fakültesi Dergisi*, 22, 308–324.
- Kesen, M., & Akyüz, B. (2016). Duygusal emek ve prososyal motivasyonun işe gömülmüşlüğü etkisi: Sağlık çalışanları üzerine bir uygulama. *Çukurova Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 25(2), 233-250.
- Kline, R. B. (2011). *Principles and practice of structural equation modeling* (3. baskı). New York: Guilford Press.
- Kottke, J. L., & Sharafinski, C. E. (1988). Measuring perceived supervisory and organizational support. *Educational and Psychological Measurement*, 48(4), 1075–1079. <https://doi.org/10.1177/0013164488484024>
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30(3), 607–610. <https://doi.org/10.1177/001316447003000308>
- Kula, S. (2011). Occupational stress and work-related wellbeing of Turkish National Police (TNP) members (Unpublished doctoral dissertation). University of Central Florida, Orlando.
- Lazarus, R. S., & Folkman, S. (1984). *Selections in stress, appraisal, and coping*. Springer Publishing.
- Lee, T. W., & Mitchell, T. R. (1994). An alternative approach: The unfolding model of voluntary employee turnover. *Academy of Management Review*, 19(1), 51-89.
- Lee, T. W., Mitchell, T. R., Sablynski, C. J., Burton, J. P., & Holtom, B. C. (2004). The effects of job embeddedness on organizational citizenship, job performance, volitional absences, and voluntary turnover. *Academy of Management Journal*, 47(5), 711-722.
- Leiter, M. (2013). *Analyzing and theorizing the dynamics of the workplace incivility crisis*. Springer.
- Lewin, K. (1947). Group decision and social change. *Readings in Social Psychology*, 3(1), 197–211.

- Lewin, K. (1951). *Field theory in social science: Selected theoretical papers* (Edited by Dorwin Cartwright). Harpers.
- Liden, R. C., & Maslyn, J. M. (1998). Multidimensionality of leader-member exchange: An empirical assessment through scale development. *Journal of Management*, 24(1), 43-72.
- Lim, S., Cortina, L. M., & Magley, V. J. (2008). Personal and workgroup incivility: Impact on work and health outcomes. *Journal of Applied Psychology*, 93(1), 95-107.
- Lloyd, C., King, R., & Chenoweth, L. (2002). Social work, stress and burnout: A review. *Journal of Mental Health*, 11(3), 255-265.
- Locke, E. (1976). The nature and causes of job satisfaction. In *Handbook of industrial and organizational psychology* (pp. 1297-1349). Chicago: Rand McNally.
- Mackinnon, D. P., Lockwood, C. M., & Williams, J. (2004). Confidence limits for the indirect effect: Distribution of the product and resampling methods. *Multivariate Behavioral Research*, 39(1), 99-128.
- Malik, A., Shahwar, M., Amin, M., & Shahid, M. N. (2023). The mediating role of work engagement on the relationship between job security, organizational justice, job embeddedness and turnover intention of Pakistan's textile industry. *Current Trends in Law and Society*, 3(1), 12-31.
- Marchiondo, L. A., Cortina, L. M., & Kabat-Farr, D. (2018). Attributions and appraisals of workplace incivility: Finding light on the dark side?. *Applied Psychology*, 67(3), 369-400.
- Martadiani, A. A. M., Pulawan, I. M., & Nitiwidari, D. A. (2022). Role of job satisfaction, work-life balance and job embeddedness on turnover intention nurse in Denpasar. *EPRA International Journal of Economic and Business Review (JEER)*, 10(10), 35-45.
- Martin, R. J., & Hine, D. W. (2005). Development and validation of the uncivil workplace behavior questionnaire. *Journal of Occupational Health Psychology*, 10(4), 477-490.
- Martinko, M. J., Harvey, P., & Douglas, S. C. (2007). The role, function, and contribution of attribution theory to leadership: A review. *The Leadership Quarterly*, 18, 561-585. <https://doi.org/10.1016/j.leaqua.2007.09.004>
- Maslow, A. H. (1943). A theory of human motivation. *Psychological Review*, 50, 370-396.
- Matsunaga, M. (2011). Underlying circuits of social support for bullied victims: An appraisal-based perspective on supportive communication and postbullying adjustment. *Human Communication Research*, 37, 174-206.
- Matthews, R. A., Bulger, C. A., & Barnes-Farrell, J. L. (2010). Work social supports, role stressors, and work-family conflict: The moderating effect of age. *Journal of Vocational Behavior*, 76(1), 78-90.
- Meier, L. L., & Gross, S. (2015). Episodes of incivility between subordinates and supervisors: Examining the role of self-control and time with an interaction-record diary study. *Journal of Organizational Behavior*, 36(8), 1096-1113.
- Meredith, O. M. (2022). The role of perceived organizational support and on the job embeddedness on employee turnover intention (Doctoral dissertation). The University of North Carolina at Charlotte.
- Miller, D. T. (2001). Disrespect and the experience of injustice. *Annual Review of Psychology*, 52, 527-553.
- Mitchell, T. R., Holtom, B. C., Lee, T. W., Sablinski, C. J., & Erez, M. (2001). Why people stay: Using job embeddedness to predict voluntary turnover. *Academy of Management Journal*, 44(6), 1102-1121.
- Moskowitz, J. T., Folkman, S., & Acree, M. (2003). Do positive psychological states shed light on recovery from bereavement? Findings from a 3-year longitudinal study. *Death Studies*, 27(6), 471-500.
- Mujtaba, B. G., & Senathip, T. (2020). Workplace mobbing and the role of human resources management. *Business Ethics and Leadership*, 4(1), 17-34.
- Mujtaba, B. G., Cavico, F. J., & Senathip, T. (2020). Strategies for personal, organizational and professional leadership success. *Scientific Journal of Research & Reviews*, 2(3), 1-10.
- Mullins, L. J. (2002). *Management and organizational behavior* (6th ed.). Prentice Hall.
- Muse, L. A., & Pichler, S. (2011). A comparison of types of support for lower-skill workers: Evidence for the importance of family supportive supervisors. *Journal of Vocational Behavior*, 79(3), 653-666.
- Nalband, N. A., & Otaibi, S. A. (2022). Job embeddedness or work engagement: A catalyst for job satisfaction?. *Pacific Business Review (International)*, 15(5), 93-103.
- Ng, T. W., & Feldman, D. C. (2011). Locus of control and organizational embeddedness. *Journal of Occupational and Organizational Psychology*, 84(1), 173-190. <https://doi.org/10.1348/096317910X494197>
- Nguyen, V. Q. (2010). Organizational, job, and supervisory antecedents and consequence of job embeddedness: The case of Vietnam (Unpublished doctoral dissertation). Mississippi State University, Mississippi.
- Nguyen, V. Q., Taylor, G. S., & Bergiel, E. (2017). Organizational antecedents of job embeddedness. *Management Research Review*, 40(11), 1216-1235.
- Nicholson, T., & Griffin, B. (2017). Thank goodness it's Friday: Weekly pattern of workplace incivility. *Anxiety, Stress, & Coping*, 30(1), 1-14.
- O'Fallon, M., & Butterfield, K. (2012). The influence of unethical peer behavior on observers' unethical behavior: A social cognitive perspective. *Journal of Business Ethics*, 109, 117-131.
- Ohly, S., & Fritz, C. (2010). Work characteristics, challenge appraisal, creativity, and proactive behavior: A multi-level study. *Journal of Organizational Behavior*, 31, 543-565.
- Oshagbemi, T. (2000). Satisfaction with co-workers' behaviors. *Employee Relations*, 22(2), 88-106.
- Parvin, M. M., & Kabir, M. N. (2011). Factors affecting employee job satisfaction of pharmaceutical sector. *Australian Journal of Business and Management Research*, 1(9), 113-123.
- Pearson, C. M., Andersson, L. M., & Porath, C. L. (2000). Assessing and attacking workplace incivility. *Organizational Dynamics*, 29(2), 123-137.
- Perrewe, P. L., & Carlson, D. S. (2002). Do men and women benefit from social support equally? Results from a field examination within the work and family context. In D. L. Nelson & D. S. Burke (Eds.), *Gender, work, stress and health: Current research issues* (pp. 101-123). American Psychological Association.
- Pillemer, D. (2003). Directive functions of autobiographical memory: The guiding power of the specific episode. *Memory*, 11(2), 193-202. <https://doi.org/10.1080/741938208>
- Porath, C. L., & Pearson, C. M. (2012). Emotional and behavioral responses to workplace incivility and the impact of hierarchical status. *Journal of Applied Social Psychology*, 42(1), 326-357.
- Potgieter, I. L., & Ferreira, N. (2018). Female human resource professionals' job embeddedness in relation to commitment foci: An exploratory study. *Acta Commercii*, 18(1), 1-8.
- Preacher, K. J., & Kelley, K. (2011). Effect size measures for mediation models: Quantitative strategies for communicating indirect effects. *Psychological Methods*, 16(2), 93-115.

- Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research, 42*(1), 185-227.
- Psaila, G., & Roland, W. (Eds.). (2007). *E-commerce and web technologies: 8th international conference, EC-Web 2007, Regensburg, Germany, September 3-7, 2007, proceedings* (Vol. 4655). Springer.
- Ramayah, T., Lee, J. W. C., & In, J. B. C. (2011). Network collaboration and performance in the tourism sector. *Service Business, 5*(4), 411-428.
- Ramesh, A., & Gelfand, M. J. (2010). Will they stay or will they go? The role of job embeddedness in predicting turnover in individualistic and collectivistic cultures. *Journal of Applied Psychology, 95*(5), 807-823.
- Ramlall, S. (2004). A review of employee motivation theories and their implications for employee retention within organizations. *Journal of American Academy of Business, 5*(1/2), 52-63.
- Rathi, N., & Lee, K. (2017). Understanding the role of supervisor support in retaining employees and enhancing their satisfaction with life. *Personnel Review, 46*(8), 1605-1619. <https://doi.org/10.1108/PR-11-2015-0287>
- Raykov, T. (2004). Behavioral scale reliability and measurement invariance evaluation using latent variable modeling. *Behavior Therapy, 35*(2), 299-331.
- Reich, T. C., & Hershcovis, M. S. (2015). Observing workplace incivility. *Journal of Applied Psychology, 100*(1), 203-215.
- Reio Jr, T. G., & Ghosh, R. (2009). Antecedents and outcomes of workplace incivility: Implications for human resource development research and practice. *Human Resource Development Quarterly, 20*(3), 237-264.
- Rhoades, L., & Eisenberger, R. (2002). Perceived organizational support: A review of the literature. *Journal of Applied Psychology, 87*(4), 698-714.
- Rhoades, L., Eisenberger, R., & Armeli, S. (2001). Affective commitment to the organization: The contribution of perceived organizational support. *Journal of Applied Psychology, 86*(5), 825-836.
- Robbins, S., & Judge, T. (2017). *Örgütsel davranış* (İ. Erdem, Çev.). Ankara: Nobel Akademik.
- Robinson, R. N., Kralj, A., Solnet, D. J., Goh, E., & Callan, V. (2014). Thinking job embeddedness not turnover: Towards a better understanding of frontline hotel worker retention. *International Journal of Hospitality Management, 36*, 101-109.
- Sari, N. R., & Anjaningrum, W. D. (2023). Can the affective commitment and job satisfaction mediate the impact of job embeddedness on turnover intention?. *Jurnal Ilmiah Universitas Batanghari Jambi, 23*(1), 47-54.
- Schad, E., Torkelson, E., Bäckström, M., & Karlson, B. (2014). Introducing a Swedish translation of the workplace incivility scale. *Lund Psychological Reports, 14*(1), 1-15.
- Schaefer, J. A., & Moos, R. H. (1992). Life crises and personal growth. In B. N. Carpenter (Ed.), *Personal coping: Theory, research, and application* (pp. 149-170). Praeger.
- Schaefer, J. A., & Moos, R. H. (1998). The context for posttraumatic growth: Life crises, individual and social resources, and coping. In R. G. Tedeschi, C. L. Park, & L. G. Calhoun (Eds.), *Posttraumatic growth: Positive changes in the aftermath of crisis* (pp. 99-126). Lawrence Erlbaum.
- Seyrek, E. (2023). Türkiye'de işe gömülmüslük üzerine yapılan araştırmaların içerik analizi. *Iğdır Üniversitesi Sosyal Bilimler Dergisi, 32*(1), 186-208.
- Shaikh, S. H., Shaikh, H., & Shaikh, S. (2019). The impact of job dissatisfaction on extrinsic factors and employee performance in textile industries. *International Journal of Scientific and Research Publications, 9*(6), 9-14. <https://doi.org/10.29322/IJSRP.9.06.2019.P9003>
- Shanock, L. R., & Eisenberger, R. (2006). When supervisors feel supported: Relationships with subordinates' perceived supervisor support, perceived organizational support, and performance. *Journal of Applied Psychology, 91*(3), 689-695.
- Shehawey, Y. M., Elbaz, A., & Agag, G. M. (2018). Factors affecting employees' job embeddedness in the Egyptian airline industry. *Tourism Review, 73*(4), 548-571. <https://doi.org/10.1108/TR-03-2018-0036>
- Singh, B., Shaffer, M. A., & Selvarajan, T. T. (2018). Antecedents of organizational and community embeddedness: The roles of support, psychological safety, and need to belong. *Journal of Organizational Behavior, 39*(3), 339-354.
- Snyder, C. R., Shorey, H. S., Cheavens, J., Pulvers, K. M., Adams, V. H., III, & Wiklund, C. (2002). Hope and academic success in college. *Journal of Educational Psychology, 94*(4), 820-826.
- Son, S. Y., & Choi, J. S. (2015). Effect of job embeddedness and job satisfaction on turnover intention in nurses. *Korean Journal of Adult Nursing, 27*(2), 180-187. <https://doi.org/10.7469/kjan.2015.27.2.180>
- Spector, P. E. (1985). Measurement of human service staff satisfaction: Development of the job satisfaction survey. *American Journal of Community Psychology, 13*(6), 693-713. <https://doi.org/10.1007/BF00929796>
- Spence Laschinger, H. K., Leiter, M. P., Day, A., Gilin-Oore, D., & Mackinnon, S. P. (2012). Building empowering work environments that foster civility and organizational trust: Testing an intervention. *Nursing Research, 61*(5), 316-325.
- Spitzer, D. (1986). Five keys to successful training. *Training, 23*(6), 37-39.
- Stein, N., Folkman, S., Trabasso, T., & Richards, T. A. (1997). Appraisal and goal processes as predictors of psychological well-being in bereaved caregivers. *Journal of Personality and Social Psychology, 72*(4), 872-884.
- Stewart, J. L., & Wiener, K. K. K. (2021). Does supervisor gender moderate the mediation of job embeddedness between LMX and job satisfaction?. *Gender in Management: An International Journal, 36*(4), 536-552.
- Tabak, F., & Hendy, N. T. (2016). Work engagement: Trust as a mediator of the impact of organizational job embeddedness and perceived organizational support. *Organization Management Journal, 13*(1), 21-31.
- Taştan, S. B. (2014). İşyeri nezaketsizliğini öngören örgütsel ve durumsal önceller ile çalışanların davranışsal sonuçları arasındaki ilişkinin ve sosyo-psikolojik kaynakların rolünün incelenmesi: Sağlık kurumlarında yapılan bir araştırma. *ISGUC The Journal of Industrial Relations and Human Resources, 16*(3), 60-75.
- Tavşancıl, E. (2014). *Tutum ölçümü ve SPSS ile veri analizi* (5. baskı). Nobel Yayın Dağıtım.
- Thakur, S. J., & Bhatnagar, J. (2017). Mediator analysis of job embeddedness: Relationship between work-life balance practices and turnover intentions. *Employee Relations, 39*(5), 718-731. <https://doi.org/10.1108/ER-11-2016-0223>
- Tomaka, J., Blascovich, J., Kelsey, R. M., & Leitten, C. L. (1993). Subjective, physiological, and behavioral effects of threat and challenge appraisal. *Journal of Personality and Social Psychology, 65*(2), 248-260.
- Trudel, J., & Reio, T. G., Jr. (2011). Managing workplace incivility: The role of conflict management styles—Antecedent or antidote? *Human Resource Development Quarterly, 22*, 395-423. <https://doi.org/10.1002/hrdq.20081>
- Türkiye İstatistik Kurumu [TÜİK]. (2023a). Gelir dağılımı istatistikleri, 2022. <https://124.im/jau> (Erişim Tarihi: 20.11.2023)

- Türkiye İstatistik Kurumu [TÜİK]. (2023b). Yoksulluk ve yaşam koşulları istatistikleri, 2022. <https://l24.im/vrxaqu> (Erişim Tarihi: 20.11.2023)
- Türkiye İş Kurumu [İŞKUR]. (2023). İşgücü piyasası araştırması Ağrı ili 2022 yılı sonuç raporu. *İŞKUR*. <https://media.iskur.gov.tr/66860/agri.pdf> (Erişim Tarihi: 20.11.2023)
- Van Dyk, J., Coetzee, M., & Takawira, N. (2013). Satisfaction with retention factors as predictors of the job embeddedness of medical and information technology services staff. *Southern African Business Review*, 17(1), 57–75.
- Vangelisti, A. L., & Young, S. L. (2000). When words hurt: The effects of perceived intentionality on interpersonal relationships. *Journal of Social and Personal Relationships*, 17, 393–424. <https://doi.org/10.1177/0265407500173005>
- Wang, C. J. (2023). Influence of social identity on service sabotage in hospitality organizations: Cross-level roles of job embeddedness, organizational identification and supervisor support. *International Journal of Contemporary Hospitality Management*. <https://doi.org/10.1108/IJCHM-12-2022-1622>
- Wheeler, A. R., Harris, K. J., & Harvey, P. (2010). Moderating and mediating the HRM effectiveness—intent to turnover relationship: The roles of supervisors and job embeddedness. *Journal of Managerial Issues*, 22(2), 182–196.
- Wheeler, A. R., Harris, K. J., & Sablinski, C. J. (2012). How do employees invest abundant resources? The mediating role of work effort in the job-embeddedness/job-performance relationship. *Journal of Applied Social Psychology*, 42, E244–E266.
- Winarto, Y., & Chalidyanto, D. (2020). Perceived supervisor support and employee job satisfaction in private hospital. *Eurasian Journal of Biosciences*, 14(2), 2793–2797.
- Yıldız, S. (2019, Haziran 13). Ağrı'nın kaderi Tekstil kent ile değişecek. *Anadolu Ajansı*. <https://www.aa.com.tr/tr/ekonomi/agrinin-kaderi-tekstil-kent-ile-degisecek/1503009> (Erişim Tarihi: 20.11.2023)
- Yoon, J., & Lim, J. C. (1999). Organizational support in the workplace: The case of Korean hospital employees. *Human Relations*, 52(7), 923–945.
- Yu, J., Ariza-Montes, A., Giorgi, G., Lee, A., & Han, H. (2020). Sustainable relationship development between hotel company and its employees: Linking job embeddedness, job satisfaction, self-efficacy, job performance, work engagement, and turnover. *Sustainability*, 12(17), 7168. <https://doi.org/10.3390/su12177168>
- Zhang, L., Fan, C., Deng, Y., Lam, C. F., Hu, E., & Wang, L. (2019). Exploring the interpersonal determinants of job embeddedness and voluntary turnover: A conservation of resources perspective. *Human Resource Management Journal*, 29(3), 413–432.
- Zhao, X., Lynch Jr, J. G., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research*, 37(2), 197–206. <https://doi.org/10.1086/651257>



Problems Encountered by International Students in Turkey in Accounting Education and Solution Suggestions: A Qualitative Study

Arif Gümüş^{1,a,*}

¹ Department of Accounting and Financial Management, Faculty of Social and Human Sciences, Malatya Turgut Özal University, Malatya, Türkiye

*Corresponding author

Research Article

History

Received: 27/09/2024

Accepted: 26/11/2024

JEL Codes: M40, M41, M49, A20

ABSTRACT

This study aims to identify the challenges faced by international students enrolled in accounting courses at İnönü University's Faculty of Economics and Administrative Sciences and to explore potential solutions to these challenges using a qualitative research method.

In a globalized world, the increasing mobility of international students leads to challenges for those from diverse cultural and linguistic backgrounds, especially in technical courses such as accounting. This study highlights the importance of mathematical and language proficiency for foreign students in understanding accounting courses and proposes solutions, such as combining traditional teaching methods with practical applications. The findings contribute to understanding these students' educational needs and developing appropriate teaching strategies. As a result of the data evaluation, the participants emphasized the necessity of having a solid understanding of Mathematics to comprehend the Accounting course. The findings also highlighted the importance of instructors teaching in English using clear and comprehensible language, international students studying in Turkish programs should master the Turkish language before starting their undergraduate education, and it would be beneficial for courses to be taught face-to-face using both classical methods and slides. Additionally, they emphasized the need for more practical training. The other responses of the participants are discussed in the Conclusion and Discussion section.

Keywords: Accounting Course, Accounting Education, Learning Difficulties

Türkiye'deki Uluslararası Öğrencilerin Muhasebe Öğreniminde Karşılaştıkları Problemler ve Çözüm Önerileri; Nitel Bir Çalışma

Süreç

Geliş: 27/09/2024

Kabul: 26/11/2024

Jel Kodları: M40, M41, M49, A20

Copyright

This work is licensed under Creative Commons Attribution-NonCommercial 4.0 International License International License

ÖZ

Bu çalışmada, İnönü Üniversitesi İktisadi ve İdari Bilimler Fakültesi'nde öğrenim gören uluslararası öğrencilerin muhasebe dersinde karşılaştıkları problemler ve bu problemlerin çözüm yöntemleri nitel araştırma yöntemi kullanılarak belirlenmeye çalışılmıştır. Araştırmada veri toplama yöntemi olarak görüşme tekniği kullanılmıştır. Küreselleşen dünyada artan uluslararası öğrenci hareketliliği, farklı kültürel ve dilsel geçmişlere sahip öğrencilerin muhasebe gibi teknik derslerde zorlanmalarına neden olmaktadır. Bu araştırma, yabancı öğrencilerin muhasebe dersini anlamada matematik ve dil yeterliliklerinin önemini vurgularken, derslerin hem klasik yöntemle hem de uygulamalı olarak öğretilmesinin faydalı olacağı yönünde çözüm önerileri sunmaktadır. Elde edilen bulgular, bu öğrencilerin eğitim ihtiyaçlarını anlamaya ve uygun eğitim stratejileri geliştirmeye katkı sağlamaktadır. Verilerin değerlendirilmesi sonucu katılımcılar; Muhasebe dersini anlamak için Matematik dersinin bilinmesi gerektiği, İngilizce ders veren öğretim elemanlarının açık ve anlaşılır bir dil kullanmalarının önemli olduğunu, Türkçe öğrenim gören uluslararası öğrencilerin Türkçe diline hakim olmadan lisans eğitimine başlatılmaması gerektiğini, derslerin hem klasik yöntemle hem de slaytta yüz yüze anlatılmasının faydalı olacağını, daha fazla uygulamalı eğitime yer verilmesi gerektiğini belirtmişlerdir. Katılımcıların diğer cevapları sonuç bölümünde tartışılmıştır.

Anahtar Kelimeler: Muhasebe Dersi, Muhasebe Eğitimi, Öğrenme Zorlukları

a



a.qumus17@gmail.com



[0000-0002-4865-0892](https://doi.org/10.37880/cumuiibf.1557021)

How to Cite: Gümüş A (2025) Problems Encountered by International Students in Turkey in Accounting Education and Solution Suggestions: A Qualitative Study, Journal of Economics and Administrative Sciences, 26(1): 143-155, DOI: [10.37880/cumuiibf.1557021](https://doi.org/10.37880/cumuiibf.1557021)

Introduction

Accounting is a discipline that encompasses the processes of recording, classifying, and reporting financial information (Cemalçılar and Erdoğan, 1997: p. 9). Accounting education aims to equip individuals with the knowledge and skills necessary to perform these functions. Educational programs strive to provide students with competencies required by the profession while conveying nationally and internationally recognized scientific and professional standards. These standards offer accounting education a globally accepted framework, enabling graduates to meet international professional expectations (Zaif and Ayanoğlu, 2007: p. 117).

Globalization, which produces new and different networks of relationships, has had multifaceted effects on the world of higher education. In this new order, international higher education allows students to continue their education in a country other than their own (Çelik, 2019: p. 561). The number of international students pursuing education abroad is steadily rising, both worldwide and within our country.

One of the aims of undergraduate programs is to educate students as individuals in all aspects. Universities and academics focus not only on intellectual development and learning but also on topics such as intercultural competence or global learning and development, addressing the moral, social, physical, and spiritual development of students. It is crucial for students to gain a global perspective during their university years. They need to consider living in a world where they meet, work with, and coexist with people from different cultural backgrounds, habits, perspectives, traditions, religious beliefs, and expectations (Braskamp et al., p. 2009: 101).

Individuals who graduate from university in their home countries have the opportunity to work in international companies. They use technology to prepare products and services for customers worldwide, communicate with suppliers, and collaborate on projects with overseas offices. This situation allows new graduates to engage with many international cultures without ever leaving their country. In recent years, some employers in the United States have also been seeking the ability to work in a multicultural environment as a desirable trait in employees. Students can acquire these characteristics through international education. Additionally, having proficiency in a major international language and international experiences will not be sufficient in the future. Individuals who can transfer the knowledge gained abroad may have an advantage in finding a job. In this regard, employers expect their employees to possess the necessary professional and technical knowledge in their field, adaptability to interpersonal and teamwork, the ability to organize in a global context, and a strategic understanding of the industry they are in, along with intercultural experience (Matherly, 2005: p. 9).

Studying abroad is often seen as a defining moment in a young person's life, and such an experience has been found to be beneficial in terms of personal development, intercultural growth, and education. Students who experience studying abroad become more familiar with the various values adopted by different countries and may

develop greater tolerance towards these values (Liu, 2019: p. 307).

It has been observed that individuals who study abroad gain increased awareness of career options upon their return (Hannigan, 2005: p. 13). However, studying abroad is also criticized by some, who argue that contemporary education focuses on consumerism and entrepreneurship, with the intention of keeping top students educated in their own countries and making them citizens of their respective nations (Sharpe, 2015: p. 228).

Individuals studying abroad have certain expectations from this experience for various reasons. These expectations include improving their grade point average, enhancing language learning, increasing intercultural understanding and providing a global context, and boosting employability and career skills (Liu, 2019: p. 307). Additionally, some other benefits of studying abroad can be listed as follows (Curtis and Ledgerwood, 2018: p. 64):

- Studying abroad influences individuals' worldviews, personal development, and cultural interests, and helps them make effective decisions.
- There is a positive change in the individual's attitudes, personal development, and cultural awareness.
- Students can compare their home country with the host country, and these comparisons help broaden their horizons and better understand where they come from.
- Different cultural experiences help students understand the meaning of culture, leading to a positive effect on intercultural development.

Sometimes individuals decide to study abroad on their own, while other times it is due to their parents' requests. One of the most significant reasons for this is the perception that education abroad is of higher quality than in their own country (Lauer mann, 2012: p. 197).

In recent years, international student mobility has also been reflected in the numbers. While the number of students studying outside their home country worldwide was 4.3 million in 2013 (OECD, 2013: p. 32), this number exceeded 6.3 million according to 2021 data (YÖK, 2022: p. 8). According to 2023-2024 data, the number of students in Turkey is 336.366. These students come from 227 countries to study. When looking at the numbers of international students studying in Turkey, the top five countries with the most students are: Syrian Arab Republic with 60.750, Republic of Azerbaijan with 40.343, Turkmenistan with 29.126, Islamic Republic of Afghanistan with 9.147, and Federal Republic of Somalia with 8.866 (YÖK, 2024). Among these numbers, it is seen that refugees who came to our country due to the civil war in the Syrian Arab Republic are in the first place.

Identifying the expectations of international students studying in Turkey regarding an easier understanding of the accounting course is crucial for understanding their needs and challenges during their education. By identifying these students' demands and suggestions, it is expected to contribute to a better understanding of the accounting course. This study aims to identify the problems encountered by international students studying in our country in the accounting course and to propose solutions.

When the literature is examined, it is seen that previous studies are generally based on the survey method. However, the qualitative research method was preferred in this study. While it is seen that previous studies focused more on the language skills and cultural differences of the students, this study made it possible to address all the difficulties that the students encountered in understanding the accounting course in detail thanks to the flexibility provided by the qualitative method. The qualitative research method allows the researcher to understand the experiences and opinions of the participants in depth, instead of focusing on pre-structured questions. This approach offers a comprehensive and multi-dimensional perspective in identifying the problems and developing solution suggestions.

International students may have difficulty understanding courses such as accounting, which are full of technical terms, due to having received education in a different language before. The fact that the course is not presented in an understandable language can further complicate the learning process. In addition, the fact that international students try to adapt to different educational systems can make it difficult for them to adapt to the courses. Cultural and economic differences are also among the factors that reinforce these difficulties. Understanding the expectations of international students studying in Turkey regarding the accounting course, determining their needs during the educational process and analyzing the difficulties they encounter are of great importance in this context. This study aims to identify the problems that international students encounter in accounting courses and to offer solutions to these problems. The aim of the implementation of the recommendations is to guide universities and educational policy makers in making accounting courses more effective. For this purpose, a qualitative research method was used to deeply understand the experiences and opinions of students.

Literature Review

In his study, Bhattacharyya (2010) conducted a semi-structured survey with 20 Chinese students studying in Australia. Based on the study's results, the author suggested several solutions for addressing these students' issues: organizing workshops and discussions to identify and address cultural, language, and educational topics and needs; ensuring that each student feels confident and receives care; progressing slowly in classes to ensure students understand the concepts; making extensive use of whiteboards and slides in lessons; providing lecture notes to students before classes; forming study groups; making greater efforts to understand the students' culture and learning approaches; and meeting with the students at least once a week in an educational session.

Jackling et al. (2012) employed the Accounting Attitude Scale (AAS) to examine differences in perceptions of the accounting profession between Australian and

international students. The results indicated that both groups generally held positive attitudes toward the accounting profession. However, significant differences were identified between their levels of interest in accounting and their overall attitudes toward the profession.

Daly and colleagues (2015) conducted a study to improve the accounting curriculum at a university in Australia. In the study, groups were formed to develop intercultural skills among domestic and international students. At the end of the term, a survey was administered, and the survey results compared students who received similar accounting education with the experimental group. As a result, it was found that the groups formed for experimental purposes achieved a higher level of mutual cultural learning compared to other students.

Modise et al. (2021) examined the effects of language policies on education in South Africa, highlighting the existence of eleven official languages in the country. The researchers investigated how using English as the language of instruction influenced the academic performance of tenth-grade accounting students in South Africa's Free State region. The study emphasized that students with limited English proficiency experienced negative academic outcomes and advocated for bilingual education—combining native language and English instruction—as a means to improve their achievement.

Wang et al. (2021) explored the relationships between English language proficiency, accounting knowledge, and academic performance among international accounting students participating in a transnational education program in China. The study analyzed the academic records of 104 accounting students using the Pearson correlation test. The findings revealed a significant relationship between English language proficiency and academic achievement, concluding that both language proficiency and prior knowledge in accounting positively affected students' performance.

In his study, Fidan (2022) conducted a survey to measure the perceptions of international students at Bilecik Şeyh Edebali University's Faculty of Economics and Administrative Sciences regarding the General Accounting course. The study found no statistical difference in the perceptions of the General Accounting course concerning the students' departments and ages. However, some statistical differences were identified based on grade level, gender, nationality, and the letter grades received. It was also noted that most students believed that the General Accounting course should not be delivered through distance education and that they had good communication with the course instructors.

In their study, Umar and Olowo (2023) conducted interviews with faculty members at Malaysian universities to identify the challenges faced by Asian students in accounting courses. The study found that Asian students struggled to understand accounting concepts due to their limited vocabulary. Additionally, their insufficient proficiency in international languages hindered interaction with faculty members, thereby impeding active learning. As a result, these students focused more on rote memorization for exams rather than understanding the theoretical aspects of accounting.

Refai (2023) investigated the impact of language difficulties on accounting education in the S1 Accounting Program at Universitas Muhammadiyah Metro. The research proposed developing specialized materials to address language learning challenges and improve academic success in accounting courses. Furthermore, it emphasized that collaboration between language and accounting instructors could enhance student outcomes and contribute to producing graduates aligned with business world demands.

Methodology

Social sciences aim to develop innovative methods to understand the changing nature of social realities. Social scientists argue that it is necessary to explore the meanings of people's lives and systematically analyze the critical dimensions of social issues. However, even the most optimistic scientist acknowledges that they can only access information available at the time of the research or up to that point. While it may not be possible to fully understand all aspects of the research, it is the duty of every researcher to approach each study with as much impartiality, ethical responsibility, and diligence as possible (Jackson, 2007: p. 22).

Qualitative research involves carefully using and collecting various empirical materials (such as case studies, personal experiences, introspections, life stories, interviews, observations, historical data, and interactional and visual texts) to understand the routines and problematic moments in individuals' lives. These materials provide a deep understanding of people's experiences and the meanings they attach to those experiences (Aspers and Corte, 2019: p. 142). While standardized methods require a definitive understanding of the research topic in designing data collection tools (such as surveys), qualitative research is more open to innovations and seemingly unknown elements that may emerge in the studied phenomenon (Flick et al., 2004: p. 5). Quantitative research not only seeks numerical expressions but also aims to explain the events themselves. The quantitative research method allows participants the freedom to express their own opinions and thoughts. Pre-prepared questions may not be sufficient to understand an event and develop solutions. The same problem may require further research to solve. Qualitative research, by removing these problems, focuses on finding the right answer rather than finding the right question (Sofaer, 1999: p. 1102-1103). In this context, this research aims to understand people's behaviors and experiences using qualitative research methods.

Research Design

In this study, the case study design, one of the qualitative research methods, was used. In Turkish, "case study" is referred to as "durum incelemesi" and is a qualitative research method used to obtain in-depth and detailed information about a specific topic, event, individual, or group. This method focuses on understanding the context and complexity of the

phenomenon being studied, often concentrating on real-life situations. Case studies provide detailed examination and analysis of a particular event, process, or individual (Heale and Twycross, 2018: p. 7). In this study, the case study design was used to investigate the problems encountered by undergraduate students studying accounting at Malatya İnönü University.

Study Group

The participants of the study were selected from undergraduate students taking accounting courses at Malatya İnönü University using the snowball sampling method. Face-to-face interviews were conducted with nine participants for the purpose of the study. Snowball sampling is a method frequently used in observational research, especially when it is difficult to find participants. It relies on the process where, after the first participant is identified, new participants are found through this initial participant. The term "snowball" is used to describe a growing mass that starts from a small point and expands as it rolls (Yağar and Dökme, 2018: p. 5).

Data Collection

The data for the study were obtained through face-to-face interviews with the participants. The interviews were conducted in study rooms at the dormitories where the participants resided. The interviews were recorded, and participant confirmation was obtained at the end of each interview.

Validity and Reliability

In qualitative research, the applicability of the findings to other contexts, environments, or groups is considered. To ensure reliability and validity, the researcher presents different perspectives, provides explanations to support the findings, obtains confirmations for the participants' views after the interviews, ensures that the participants' perspectives are presented openly and accurately, and the researcher should be open and transparent in interpreting the data (Noble and Smith, 2015: p. 3-4).

The study's questions were sent to two experts in the field, and their opinions were obtained. Based on the feedback from the experts, the questions were revised. During the face-to-face interviews, the participants' views were recorded, and confirmations were obtained at the end of the interviews. The validity and reliability of the study were ensured by sharing the participants' views with direct quotes within the study.

Ethical Considerations

The ethical approval for the study was obtained from the Social and Human Sciences Research Ethics Committee of Malatya Turgut Özal University with the decision dated 26/06/2024 and numbered 2024/26-7. Following ethical guidelines, each participant was assigned a code in the format of Y1, Y2, Y3, and so on.

Analysis and Results

In the study, demographic questions were first asked to the participants, followed by questions relevant to the study's purpose. The responses were recorded and analyzed. According to the advisory decision of the Council of Higher Education, 30% of the courses in universities can be given through distance education (YÖK, Art. 6-b). Some of the courses in the university where the study was conducted are given through distance education. It is understood from the statements given by the participants that the courses given through distance education are given synchronously or asynchronously.

Demographic Questions

Among the participants, four are male and five are female. The participants' ages are as follows: one participant is 21 years old, three are 22 years old, and five are 23 years old. The participants come from the following countries: four are from Somalia, two from Equatorial Guinea, two from Syria, and one from Indonesia. Their native languages are as follows: four speak Somali, two speak Arabic, two speak Spanish, and one speaks Indonesian. When asked about the languages they speak, three participants responded Somali, English, Turkish, and Arabic; two participants responded Spanish, English, French, Turkish, and the traditional language Ndowne; two participants responded Arabic, English, and Turkish; one participant responded Arabic, English, and Turkish; and one participant responded Indonesian, English, and Turkish. Therefore, it was determined that each participant speaks at least three languages.

Regarding the duration of their stay in Turkey, one participant has been in Turkey for approximately ten years, one for approximately eight years, three for approximately five years, two for approximately three years, one for two and a half years, and one for two years.

Seven participants stated that they learned Turkish through preparatory courses at school. One of the other two participants took a preparatory course in high school, while participant Y4 stated, "I learned Turkish when I started high school. I didn't take a preparatory course; it was difficult at first, but it turned out better this way".

Three participants are studying International Trade and Business, two are studying Economics, two are studying Business Administration, and two are studying Finance.

When asked how they sustain themselves financially in Turkey, the participants provided the following responses: Y1: "My father sends money, and I also receive a scholarship from the dormitory where I stay". Y2: "My uncle supports me". Y3: "My father passed away. My aunt supports me, and I also receive a scholarship from the dormitory". Y4: "My family lives here. My father is a car mechanic, and I also receive a scholarship from Turkey". Y5: "My parents are teachers, and they send money". Y6: "My father sends

money". Y7: "My father provides for me. I also receive a DAFI¹ (scholarship for foreigners)". Y8: "My father sends money. I work at the Indonesian embassy in Ankara. Currently, I work part-time remotely, just helping out, and I earn very little". Y9: "My father sends money".

It was noted that many students rely on financial support from their family members, and some also benefit from various scholarship opportunities available in Turkey.

Participants' Reasons for Choosing Their Field of Study

Regarding the reasons for choosing their field of study, seven participants indicated that they selected their program based on the results of the Foreign Student Examination (YÖS²) in Turkey. Y1 stated, "I chose this program to get a good diploma". Y2 mentioned, "I took the YÖS exam along with many other countries, but I was accepted in Turkey, so I came here. Initially, I wanted to study a program related to computers, but since my score wasn't high enough, I chose this program instead".

Participants' Reasons for Choosing Turkey for Education

Participants generally cited Turkey's status as a Muslim country as a primary reason for choosing it for their education. Their views on this matter are as follows:

Y1: "Because it's a Muslim country and the easiest way was Turkey. I tried other countries, but it didn't work out". Y2: "It was a country close to us religiously, and I wanted to study in Turkey. For these reasons, I chose Turkey". Y3: "I wanted to study in a different country. I could have studied in my own country. It was also a country close to us religiously. I had friends here before, so I chose it too". Y4 and Y7 expressed similar reasons: Y4: "We had to migrate because of the war. We stayed here because we are close both religiously and culturally". Y7: "We had to come to Turkey due to the war". Y5 and Y6: "I had friends here before, so I chose it too". Other participants' views were: Y8: "The education is good and very cheap. Life is also cheap. And it is also close to us religiously". Y9: "I studied at a Turkish Maarif school in Somalia in high school. After that, coming to Turkey was very easy. And it is a Muslim country."

Participants' Views on Speaking and Understanding Turkish

It is desirable for students studying in a foreign country to not face language problems. Sometimes courses are taught in the language of that country, while other times, they may be taught in widely used international languages. Students' proficiency in the language of instruction will also affect their success in courses. In this study, some participants stated that they were studying in English, while others mentioned that they were studying in Turkish. All participants except one stated that they had taken Turkish preparatory courses. On this topic:

¹ United Nations High Commissioner for Refugees (UNHCR) Albert Einstein German Academic Refugee Initiative Fund. This fund provides scholarships to refugees at public universities in Turkey.

² Foreign student exam.

Y1, Y2, and Y3 used similar statements: *"I didn't find it difficult to learn. It was easy because we had two semesters of language education"*. Other positive participant views included: Y3: *"No, I didn't have difficulty learning it. It was easy because we had two semesters of language education"*. Y4: *"I struggled at first when I started in high school. There was no need for preparatory courses, but it was better this way; I learned more easily"*. Y5: *"We received language education for two semesters. I had difficulty at first, but now I don't"*. Y7: *"No, I didn't have difficulty learning it. We had language education. I took one semester of preparatory courses in high school"*. Y6 and Y8, despite receiving preparatory education, expressed their difficulties as follows: Y6: *"Even though we had two semesters of language education, I sometimes have a bit of difficulty"*. Y8: *"Even though I took language preparatory courses at the university, I still have difficulty. My native language and Turkish are very different; I have problems speaking, but no issues with reading or writing"*. Y9: who had previously received Turkish education in his country: *"In Somalia, we had Turkish lessons at Maarif, but it wasn't enough to learn. We saw the same things and weren't that curious. There were too many courses. The courses there were in English. We started from scratch with preparatory courses in Turkey. After coming to Turkey, I had more difficulty at first. It's better now."*

Participants' Views on the Impact of Cultural and Economic Differences on Understanding Courses

Cultural differences can influence students' education and social integration in various ways. Students from different educational systems may find it challenging to adapt to a new system. Language barriers can hinder both communication and students' success in courses. Additionally, cultural differences may negatively affect students' classroom interactions and participation in activities like group work. Economic differences similarly impact students' educational experiences significantly. Access to financial resources can directly affect students' access to educational materials and technology, thereby influencing their academic success.

Participants Y1, Y2, Y3, Y5, Y6, and Y9 stated that cultural and economic differences did not affect their success in courses. Y8 mentioned, *"It doesn't affect me. Education and those things are different. But because my father is a civil servant, I feel obligated to work. I need to be successful"*. Participants with differing views, Y4 and Y7, shared the following:

Y4: *"It affects me socially, but not academically. I'm more interested in management rather than accounting. Although a manager should know accounting, I'm more interested in management, and I'm already successful in accounting courses"*. Y7: *"It affects me negatively; I feel like a foreigner psychologically. But I still want to succeed and help my family."*

Participants' Views on the Understanding of Their Questions by the Responsible Parties

It is crucial for students' questions during or after class to be understood correctly so that they can grasp the subject matter thoroughly and for their learning process to progress effectively. Misunderstanding students' questions or the students misunderstanding the answers they receive can

adversely affect their educational experience. On the other hand, proper understanding can increase students' motivation.

The participants in the study indicated that their questions were understood by the responsible parties (instructors, friends, and others) and that they did not face any issues in this regard.

Participants' Views on the Relationship Between Accounting and Mathematics Courses

Mathematics education imparts critical skills in reasoning, critical thinking, establishing relationships between events, making predictions, communication, and problem-solving in an increasingly complex world (Karadeniz and Kelleci, 2015: p. 3). The discipline of accounting relies heavily on solid foundations in analytical and numerical competencies. Accounting, which involves the processes of recording, classifying, and reporting financial data, depends significantly on mathematical calculations to ensure the accuracy of these processes. Mathematics plays a crucial role in the preparation of financial statements and ensuring the accuracy of financial information. Accountants use mathematical formulas and calculations in analyzing financial data, preparing budgets, calculating costs, and evaluating financial performance. Therefore, mathematical skills are indispensable for the effective and reliable conduct of accounting. In this context, there is a close relationship between accounting and mathematics. Regarding this topic:

Participants Y1, Y2, and Y8 gave similar responses: *"The mathematics I know is enough to understand accounting"*. Y3: *"My math skills aren't good, so understanding this course is challenging"*. Y4: *"My math is good, but mathematical knowledge is also necessary to understand accounting courses"*. Y5: *"My math is good, so I don't have any problems with accounting courses"*. Y7: *"I'm successful in math courses. I believe this success reflects in my accounting course. I do well in other courses as well, especially those involving numbers rather than verbal skills"*. Y9: *"I'm not very good at math. I still have deficiencies. I think this also affects my accounting course"*. Y6, differing from the other participants: *"My math isn't very good, but I don't need to know a lot of math for accounting"*.

Participants' Views on the Understanding of Accounting Courses Taught by the Instructor

Among the participants, three are taking their courses in English, while six are taking them in Turkish. The participants taking courses in English had one year of English preparatory education, and those taking courses in Turkish had one year of Turkish preparatory education. Participants studying in a language other than their native language may encounter communication problems in the courses. These problems can sometimes arise from the instructor or from the students' insufficient language proficiency.

The participants' views on whether they understood the accounting courses taught by the instructor are as follows:

Y1: *"It was a bit of a difficult course, but you can do it if you study"*. Y2: *"In the first semester, the classes were face-to-face, and I had no problem understanding the*

topics. In the second semester, instead of live classes, the teacher uploads videos. We can't ask questions. We can't ask about things we don't understand. For this reason, we can't understand the course. The course needs to be conducted face-to-face for better understanding. The exams are face-to-face, and because there are calculations, the time is not enough". Y3: "I actually understand the courses. But because I didn't use a calculator, I failed the accounting course. I mentioned earlier that my math skills are poor". Y4: "It's difficult to understand because the course itself is hard. But it becomes manageable with studying". Y5: "Yes, sometimes I struggle because the Turkish we learned is not the same as the Turkish used in the course. The Turkish in the course is a bit harder to understand". Y6: "Sometimes I struggle, but I review it at home. Sometimes I don't understand the topic because I don't understand some of the words used in the course. Sometimes I ask questions, but I can't always ask". Y7: "I understand, I don't have a problem". Y8: "I struggled with understanding concepts like balance sheets. There are no problems with other parts". Y9: "I had difficulty understanding the instructor in the first year. My foreign language was not sufficient for understanding. Now that my language skills have improved, I understand better. By the way, I am retaking the accounting course".

Participants' Views on Understanding the Instructor's Speech in Class

International students' lack of proficiency in the language of instruction or the instructor's ineffective use of this language can hinder the course's desired effectiveness. This situation can make it difficult for students to understand the course content and actively participate. Factors such as the complexity of the language used by the instructor, the speaking pace, and accent can significantly affect students' comprehension levels.

Y1, who is taking courses in English, shared their views on understanding the instructor's language: "My English and Turkish are good, so I understand the course. There are both Turkish and foreign students in the class. Sometimes the instructor explains in Turkish because there are Turkish students, and then switches to English when the foreign students don't understand. However, sometimes even when the instructor explains in English, the topic may not be clear. Sometimes I understand the instructor's Turkish but not the English". Y2, another participant studying in English, stated, "I understand the instructor's speech in the class". Meanwhile, Y3, also studying in English, said, "The course is supposed to be in English, but the instructor explains half in Turkish and half in English, which makes it difficult for me to understand".

The views of the participants taking courses in Turkish were as follows: Y4: "Since the program is in Turkish, I don't have difficulty understanding". Y5: "The instructors are aware that there is a foreign student following their courses, but they teach as if all students are Turkish. So, I don't understand; I don't know the meanings of some

words, which makes it hard to grasp the topic". Y6: "I struggle to understand the course because I don't know the concepts used by the instructors".

The other three participants expressed that they had no problem understanding the instructor's speech.

Participants' Views on the Teaching Method of the Course

The teaching method of a course is among the factors that can influence student success. An efficient teaching method helps students better understand the course content, increases their interest in learning, and allows for a deeper comprehension of the subjects. Student-centered teaching approaches, active learning strategies, and interactive course materials can enhance student engagement and motivation. Additionally, employing various teaching techniques can cater to different learning styles, helping each student reach their full potential.

The participants' views on the teaching method of the course are as follows:

Y1: "The teaching method affects our understanding of the course. Theoretical topics should be taught with slides, and practical exercises should be demonstrated on the board". Y2: "Theoretical topics should be taught with slides, and practical exercises should be demonstrated on the board. The course should be face-to-face; whether it's taught with slides or on the board is not important, as long as we can ask questions. Mathematics and accounting courses shouldn't be online; they need to be conducted face-to-face". Y3: "I fail in exams because the instructor doesn't ask questions similar to the examples discussed in class. I prefer the course to be taught using slides because the instructor makes abbreviations on the board, and we miss them. I don't rely solely on the instructor's explanations; I have my own materials as well". Y5: "The instructor uses a traditional method, and I prefer that too. The instructor writes on the board while explaining, and I can listen and write at the same time". Y6: "I prefer the course to be taught in a traditional manner. I understand better this way and can take notes". Y7: "I prefer the instructor to teach the course by writing on the board and interacting with the students. I find it difficult to learn if it's taught with slides". Y8: "I think it would be beneficial if the course is taught both traditionally and with slides. The theoretical part should be taught with slides, and the practical exercises should be done on the board because I need to read to understand". Y9: "Both methods should be used; the theoretical part should be taught with slides, and the practical exercises should be done on the board because I need to read to understand".

Most students suggested that it would be beneficial for the course to be taught using both slides and traditional methods. They emphasized that theoretical topics should be presented with slides, while practical exercises should be demonstrated on the board. Participant Y2 particularly emphasized the importance of conducting the courses face-to-face.

Participants' Views on Preparation for the Accounting Course Before Attending

Preparations made before class help students become familiar with the fundamental concepts of the course and learn the topics more deeply. This increases active participation during the class and enhances students' abilities to ask questions, participate in discussions, and solve problems. Students who come prepared can understand the course material more quickly and contribute more to class interactions. In accounting courses, being familiar with accounting terms and concepts beforehand can contribute to students' success in both the class and exams.

Participants Y8 and Y9 stated, *"I don't do any review before or after the class"*. Other participants shared the following views: Y1: *"I didn't review before the class, but I did review the topics after class. Foreign students study more consciously"*. Y2: *"I look at the material after class, but not much. I don't review before the class either. Since the classes are online and taught via videos, preparing for the class doesn't make much sense. The instructor can't ask us questions, and we can't ask the instructor either"*. Y3: *"If it involves math, I don't look at it at all"*. Y4: *"I think you can't pass without reviewing, so I look at the material after class"*. Y5: *"I review both after the class and before coming to the class"*. Y6: *"I don't review before the class, but I do after the class"*. Y7: *"I didn't review regularly; I only studied before the exams"*.

Participants' Views on Being Successful in the Accounting Course

Gathering students' views on academic success is a valuable source of information. These insights can help tailor course content and teaching methods to meet student expectations. Additionally, strategies for overcoming challenges encountered in the course may be more effective when proposed by those who have experienced the problems firsthand.

The participants' thoughts on what students should do to succeed in the accounting course are as follows:

Y1: *"They should review the material until they understand it, and if they don't understand a topic, they shouldn't delay trying to comprehend it. They can look it up on YouTube or ask the teacher. They can also ask their friends who understand the topic"*. Y2: *"They should spend more time studying for this course. They need to study after class. They can use YouTube or other resources"*. Y3: *"They need to have a good foundation in mathematics"*. Y4: *"In my opinion, students have a bias against the accounting course. If they fail in the first semester, they think they will fail again in the second semester, so they don't study. They need to study throughout the semester to pass the course"*. Y5: *"I think it's essential to understand the topics well. I follow the lessons on YouTube because of the language barrier"*. Y6: *"They need to study more than for other courses. They should study every day. They can ask their teachers and friends about topics they don't*

understand". Y7: *"They should try to understand the course during the class. If they don't understand, they should check the same topic on YouTube. If they still don't understand, I think the issue might be with the student or their inadequate language skills. They can also ask their friends"*. Y8: *"They should learn Turkish well and solve lots of examples. They should ask the teacher about topics they don't understand"*. Y9: *"They should study hard, do research, and use other resources. They should learn the language very well. The language is very important"*.

Participants' Expectations from Instructors for Success in Accounting Courses

International students who do not receive education in their native language often have specific expectations from their instructors to succeed in courses. Meeting these expectations can positively impact students' academic success, while failure to meet them can negatively affect their performance.

The participants' views on this topic are as follows: Y1: *"The topic should be explained entirely in English. It can also be explained in Turkish; I understand that too, but the English explanation needs to be as clear as the Turkish"*. Y2: *"They should teach the course face-to-face. After class, we should be able to find them and ask questions"*. Y3: *"They should ask questions similar to the examples given in class. They should increase the number of examples"*. Y4: *"The topics are important and should be explained in detail. All topics are important and should not be explained superficially but with detailed examples. More examples are needed. It is difficult at first"*. Y5: *"They need to ensure the topic is fully understood. I can't understand the topic because I am a foreigner"*. Y6: *"The instructor should identify and re-explain the topics that are not understood"*. Y7: *"There shouldn't be slides; they should increase the number of examples and solve different examples. They should give examples related to the interactions between accounts"*. Y8: *"The instructor should be approachable and not just come in, teach the class, and leave. They should interact with the students and solve many examples. They should use both slides and the board in the classes"*. Y9: *"If a student doesn't understand, the instructor should ask them and explain the topic again with a different example"*.

Participants' Views on the Class Duration

It is essential to plan the topics covered each week in alignment with the class hours. For classes to be pedagogically effective, the content and pace for each class hour must be appropriately balanced. The speed at which topics are covered should be manageable and maintained consistently across all sessions. Additionally, the class duration should be planned in a way that encourages student participation (Dizman, 2018: p. 85).

Participants Y1, Y2, Y6, Y8, and Y9 stated that the current class hours are sufficient. The other participants' views are as follows:

Y3: "I would prefer a schedule that allows for solving more examples. It would be better if we had one day for theory and another for practice. There is no point in increasing class hours after covering the same material". Y4: "I think it's sufficient, but more examples should be solved for important topics to ensure better understanding". Y5: "I think it's sufficient, but additional classes can be offered for those who do not understand". Y7: "The time and number of examples were sufficient for me, but for students who do not understand, the number of examples could be increased. An additional hour could be added for this purpose".

Participants' Views on How They Prepare for the Accounting Course Exam

Due to individual characteristics, each student may prepare for exams differently. Students may possess various study skills, which relate to their abilities, motivation, and efficient use of time. There is a positive relationship between students' study habits, skills, and academic success (Bay et al., 2005: p. 95).

The participants' views on studying for the accounting course are as follows:

Y1: "Sometimes I study with friends. I look at my notes and my friends' notes. When there are topics I don't understand, I check YouTube. I also sometimes look at past exam questions if I can find them, to get an idea of what might be on the exam". Y2: "I study with friends. When we don't understand something, we used to ask the teacher in the first semester, but we couldn't do that in the second semester because the classes were online". Y3: "I studied the first time I took the course, but after failing, I stopped because I felt I wouldn't understand anyway. I study from my own notes. I also tried watching videos on YouTube, even in my own language and in English. I actually understood, but the teacher doesn't accept it if the numbers are incorrect. I tried looking at past exam questions, but they were in Turkish, so I had difficulty understanding them; it wasn't useful. It would have been more helpful if they were in English". Y4: "I use my own notes. Some teachers provide their notes, and I study from those. Teachers should share their notes. It's challenging for me to listen and take notes at the same time. It would be better if notes were provided. I also sometimes use YouTube, which helps me". Y5: "I study from the notes provided by the teacher, YouTube, and my notes. In the first semester, I found past exam questions and studied them, but none of them appeared in the exam, so I stopped looking at them". Y6: "I use my class notes, the textbook, and YouTube. Sometimes I also get notes from friends because mine are incomplete". Y7: "I study from my notes. I look at and solve example questions from the internet before the exam. If needed, I get help from friends and provide help to them. I haven't watched videos in my own language to avoid confusion". Y8: "Teachers provide the topics that will be covered in the exam, and I study those. I study from my notes. I check questions from the TÜRMOB website. They're not the same, but they're similar. I don't

use YouTube. I get help from my Turkish friends". Y9: "I prepare for the exam using my notes and notes shared in friend groups. I research topics I don't understand on Google. I do my research in English because my English is better".

Participants' Attitudes Toward the Accounting Course

Attitude is an acquired internal state that shapes an individual's behavior toward various objects, people, events, and situations. This internal state results from the combination of affective, cognitive, and behavioral components aligned with the individual's evaluation, knowledge, and inclinations toward the attitude object (Karadeniz and Kelleci, 2015: p. 3). Students' perceptions of the accounting course can significantly impact their success in the subject.

The participants' attitudes toward the accounting course are as follows:

Y1: "I had some prejudices at first because they said it was a difficult course. But after taking the course, I see it as a normal class". Y2: "I see it as a normal class. They said it was a hard course, so I had some prejudices, but after taking it, I found it to be a regular class. Students in the third year had said it was hard, but I didn't find it that difficult". Y3: "I don't like the course because I don't like math, and I don't like this either. I didn't have any prejudices before taking the course, but I didn't understand it because my math is weak, so I don't like it". Y4: "I don't really like it; I'm studying because it's compulsory. I didn't have any prejudices against the course before taking it. But I did develop some after taking it. The course itself is difficult. However, I think the instructors teaching the course have sufficient knowledge". Y5: "I like the course when I understand it, but I hate it when I don't. I had some prejudices before taking the course. Former students spoke negatively about the course instructor, so I had some prejudices against them as well". Y6: "I already had prejudices against the accounting course before taking it. I generally like the course, but I don't when I don't understand it". Y7: "I like it because it's quantitative". Y8: "I liked it at first, but now I don't. I liked General Accounting, but after taking Financial Statements and Inventory Balance courses, I didn't like them. They're very difficult courses. My language skills are not enough to understand". Y9: "I neither like nor dislike it. I don't like it much because my math isn't very good".

Participants' Views on Topics They Found Difficult to Understand in the Accounting Course

Understanding accounting requires knowledge of accounting concepts and principles, as well as the logic behind accounting entries. The participants' views on the challenging aspects of the course are as follows:

Y1: "I had difficulty creating financial statements". Y2: "I struggle with fill-in-the-blank questions in exams. It would be better if there were multiple-choice questions. In fill-in-the-blank questions, I find it hard to figure out which

word to use". Y3: "There's math involved in general". Y4: "Creating financial statements and journal entries were challenging for me". Y5: "I don't understand the logic. I get confused about which account should be debited and which should be credited". Y6: "Sometimes I have trouble understanding the logic. I get confused about whether to debit or credit the accounts". Y7: "There wasn't anything difficult; I understood everything comfortably". Y8: "Analyzing financial statements, inventory balance courses, and ledger entries were difficult for me". Y9: "I was confused about where to place debit and credit accounts. I couldn't understand how to create a balance sheet".

According to the participants, the challenging aspects of the accounting courses include understanding the logic behind accounting, the operation of debit and credit accounts, how to make accounting entries, and how to create financial statements.

Participants' Expectations from Educational Institutions for Better Understanding of the Accounting Course

Curriculum design includes mandatory and elective courses aimed at imparting field-specific and professional competencies. The rationale for offering programs and achieving competencies is developed by evaluating external stakeholders' views. When creating a curriculum, determining the course content is one of the most challenging and focused areas for educators. Discussions on the content to be included in the program, the topics to be covered, and the resources available to students require significant time (Curriculum Development, 2024).

The participants' views on their expectations from educational institutions for better understanding accounting courses are as follows:

Y1: "There should be more practical training. If the exam questions were 50% theoretical and 50% practical, it would be better". Y2: "Courses like accounting and math should be conducted face-to-face. Exams should be administered by the course instructors, and we should be able to reach them when we have questions. It would be helpful to include practical training". Y3: "Students should be provided with enough math knowledge to use in the course". Y4: "Since this is our first time encountering such a course, the curriculum should be arranged to allow for repetition". Y5: "For students who do not understand, a separate group should be formed where the course is taught again. If the exam questions were 50% theoretical and 50% practical, it would be better". Y6: "It would be better if we could see this course practically". Y7: "First, they should teach the language adequately to the students. They shouldn't pass those who haven't learned it from preparatory courses, because once they pass, they don't understand the courses and fail. They should increase the practical applications in the course. If the instructors' attitudes toward foreign students are positive and they encourage us to ask questions, it gives us confidence, and we are not afraid to ask questions. They should continue this approach". Y8: "They shouldn't allow

students to take courses without sufficient knowledge of Turkish. They shouldn't pass students from preparatory courses. They should offer the option of instruction in different languages according to the student's preference. For example, if I could take this course in English, I would be more successful because my English is very good". Y9: "If the course instructor knows multiple languages, they could provide examples in English for students who do not understand Turkish".

Discussion and Conclusion

With globalization, international education has seen a rapid rise. In recent years, there has been an increase in the number of international students in Turkey as well. Identifying the problems faced by international students in their education and proposing solutions is considered to contribute to improving the quality of education.

This study aimed to identify the challenges faced by international students studying accounting at İnönü University and to offer solutions to these challenges.

Regarding the demographic characteristics of the participants, four were from Somalia, two from Equatorial Guinea, two from the Syrian Arab Republic, and one from Indonesia. The age range of the participants was between 21 and 23 years. Except for one participant who had visited Turkey before, the other eight participants had not been in Turkey prior to their studies.

The participants mentioned that their reasons for choosing Turkey for their studies included the religious similarity to their home country, the desire to study in a different country, their scores being sufficient to study in Turkey, and the lower cost of living compared to other countries.

Among the participants, three are studying International Trade and Business, two Economics, two Business Administration, and two Finance. Except for one participant, all reported having taken Turkish preparatory courses. Most participants, except for Y6 and Y8, did not have difficulty speaking and understanding Turkish.

While most participants believed that having different cultural and economic backgrounds did not affect their academic performance, Y7 mentioned that it affected them, and Y4 said it only affected their social life. The other participants stated that cultural and economic differences did not impact their success in the courses.

All participants except Y6 acknowledged a close relationship between accounting and mathematics.

According to the participants, students who are proficient in the language of instruction and mathematics do not struggle in accounting courses, while those lacking these competencies do. Additionally, Y2 mentioned that taking the course online and the inability to communicate with the instructor made it difficult to understand the material.

The participants suggested that instructors use clearer and more understandable language, considering the language proficiency of international students. They also recommended supporting lectures with visual and written materials, which could positively impact the learning process.

About half of the participants stated that they review the topics before and after the class, while the other half did not follow this study method.

For success in the course, participants emphasized the importance of mastering the language of instruction and making efforts to understand the topics from different resources.

Students expressed that instructors should use clear and understandable language, solve more examples, conduct face-to-face classes, engage with students, offer practical lessons, consider cultural differences, and cater to individual student needs to positively influence their performance.

Regarding the class hours, most students found the current schedule sufficient but suggested that the class duration could be extended if more examples were to be solved.

For preparing for accounting exams, participants reported using previous students' notes, teacher-provided notes, YouTube videos, their notes, and conducting research in their languages on the internet. Participant Y2 mentioned the difficulty of asking questions to the instructor due to online classes.

Except for Y6, other participants stated that they did not like the accounting course and had prejudices against it. Y3 and Y9 said they were not successful in accounting because they were not good at mathematics, which led to a dislike of the course. This result differs from the study of Jackling et al. (2012).

Participants' expectations from educational institutions include providing more practical accounting training, offering pre-course mathematics topics needed for the accounting course, ensuring adequate language training according to international students' study language, not allowing students who do not meet the required language proficiency to start undergraduate education, conducting accounting courses face-to-face, encouraging students towards the courses, offering

education in the languages students are proficient in, and having instructors who can teach in multiple languages when necessary.

In cases where international students will receive education in the local language, they should not be allowed to pass the preparatory class without having sufficient proficiency in this language. Similarly, it should be ensured that local students who will receive education in a different language do not start classes without completing the language preparatory class. However, due to the lack of physical infrastructure and teaching staff in universities, feedback is received that some students pass the preparatory class without having sufficient language skills. In order to solve this problem, university administrations need to take concrete steps to increase the physical infrastructure and the number of teaching staff. In addition, attention should be paid to ensuring that the teaching staff teaching in the departments where international students study have not only language proficiency but also pedagogical and academic equipment that can convey the course content at a practical level. In this way, communication between the instructor and the student will be strengthened and courses that require conceptual and analytical knowledge, such as accounting, will be made more understandable. Regularly obtaining the opinions of students and instructors will allow for innovations in the education system and create a more effective education environment. In addition to language education, participants' demands from educational institutions include giving more space to practical accounting education, teaching the mathematical topics that will be used before starting the accounting course, conducting face-to-face courses, and instructors adopting an encouraging approach towards students. Furthermore, students are asked to be provided with the opportunity to study in their own language and the instructor of the course is asked to know more than one language so that they can teach in different languages when necessary.

Contribution Rates and Conflicts of Interest

Etik Beyan	Bu çalışmanın hazırlanma sürecinde bilimsel ve etik ilkelere uyulduğu ve yararlanılan tüm çalışmaların kaynakçada belirtildiği beyan olunur.	Ethical Statement	It is declared that scientific and ethical principles have been followed while carrying out and writing this study and that all the sources used have been properly cited
Yazar Katkıları	Çalışmanın Tasarlanması: EKK (%100) Veri Toplanması: EKK (%100) Veri Analizi: EKK (%100) Makalenin Yazımı: EKK (%100) Makale Gönderimi ve Revizyonu: EKK (%100)	Author Contributions	Research Design: EKK (%100) Data Collection: EKK (%100) Data Analysis: EKK (%100) Writing the Article: EKK (%100) Article Submission and Revision: EKK (%100)
Etik Bildirim Çıkar Çatışması	iibfdergi@cumhuriyet.edu.tr Çıkar çatışması beyan edilmemiştir.	Complaints Conflicts of Interest	iibfdergi@cumhuriyet.edu.tr The author(s) has no conflict of interest to declare.
Finansman	Bu araştırmayı desteklemek için dış fon kullanılmamıştır.	Grant Support	The author(s) acknowledge that they received no external funding insupport of this research.
Telif Hakkı & Lisans	Yazarlar dergide yayınlanan çalışmalarının telif hakkına sahiptirler ve çalışmaları CC BY-NC 4.0 lisansı altında yayımlanmaktadır.	Copyright & License	Authors publishing with the journal retain the copyright to their work licensed under the CC BY-NC 4.0

Etik Kurul	Bu çalışmada kullanılan veriler, Malatya Turgut Özal Üniversitesi Sosyal ve Beşeri Bilimler Araştırmaları Etik Kurul Başkanlığı tarafından 26.06.2024 tarihinde onaylanmıştır.	Ethics Committee	The data used in this study were approved by the Ethics Committee for Social and Human Sciences Research at Malatya Turgut Özal University on June 26, 2024.
-------------------	--	-------------------------	--

References

- Aspers, P., & Corte, U. (2019). What is qualitative in qualitative research. *Qualitative sociology*, 42, 139-160.
- Bay, E., Tuğluk, M. N., & Gençdoğan, B. (2005). Üniversite Öğrencilerinin Ders Çalışma Becerilerinin İncelenmesi. *Elektronik Sosyal Bilimler Dergisi*, 4(14), 94-105.
- Bhattacharyya, A. (2010). Learning accounting in globalised Australian Universities: Challenges and way out. *The International Journal of Learning*, 17(3).
- Braskamp, L. A., Braskamp, D. C., & Merrill, K. (2009). Assessing progress in global learning and development of students with education abroad experiences. *Frontiers: The interdisciplinary journal of study abroad*, 18, 101-118.
- Cemalcılar, Ö., & Erdoğan, N. (1997). Genel Muhasebe. *Beta Basım Yayım Dağıtım AŞ, İstanbul*.
- Curtis, T., & Ledgerwood, J. R. (2018). Students' motivations, perceived benefits and constraints towards study abroad and other international education opportunities. *Journal of International Education in Business*, 11(1), 63-78. <https://doi.org/10.1108/JIEB-01-2017-0002>
- Çelik, Ö. (2019). Yabancı Uyruklu Öğrenciler ile Türk Öğrencilerin Birbirleri Hakkındaki Eğitim Algılarının Karşılaştırılması. *İnsan ve Toplum Bilimleri Araştırmaları Dergisi*, 8 (1), 559-580.
- Daly, A., Hoy, S., Hughes, M., Islam, J., & Mak, A. S. (2015). Using group work to develop intercultural skills in the accounting curriculum in Australia. *Accounting Education*, 24(1), 27-40. <https://doi.org/10.1080/09639284.2014.996909>
- Dızman, Ş. (2018). Yükseköğretimde Bir Dersin Yapılandırılması ve Sunumunda İdeali Arayış: Muhasebe Dersi Örneği. *Akademik Sosyal Araştırmalar Dergisi*, Yıl: 6, Sayı: 78, Eylül 2018, s. 82-107. Doi: 10.16992/ASOS.14161
- Fidan, M. E. (2022). Yabancı uyruklu öğrencilerin genel muhasebe dersine yönelik algıları: Bilecik Şeyh Edebali Üniversitesi. *International Journal of Social Sciences and Education Research*, 8(4), 376-389. <https://doi.org/10.24289/ijsser.1158459>
- Flick, U., Von Kardorff, E., & Steinke, I. (2004). What is qualitative research? An introduction to the field. *A companion to qualitative research*, 1, 3-11.
- Heale, R., & Twycross, A. (2018). What is a case study?. *Evidence-based nursing*, 21(1), 7-8.
- Hannigan, P. (2005) Development Professionals to Improve the Quality and Impact of Work Abroad Experiences by Terence, Martin Tillman, (Ed.) Impact of education abroad on career development I. *American Institute for* <https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=5a5ec74658bba34739b98d7d5f69067ac953ecd9> (Access date: 09.07.2024).
- Jackling, B., De Lange, P., Phillips, J., & Sewell, J. (2012). Attitudes towards accounting: differences between Australian and international students. *Accounting Research Journal*, 25(2), 113-130. <https://doi.org/10.1108/10309611211287305>
- Jackson, R. L., Drummond, D. K., & Camara, S. (2007). What is qualitative research?. *Qualitative research reports in communication*, 8(1), 21-28.
- Lauermann, F. (2012). To go or not to go: the decision to pursue higher education abroad. In *Transitions across schools and cultures* (Vol. 17, pp. 177-204). Emerald Group Publishing Limited. [https://doi.org/10.1108/S0749-7423\(2012\)0000017010](https://doi.org/10.1108/S0749-7423(2012)0000017010)
- Liu, W. (2019). "Education Abroad" for International Student Advisors: What is the impact on their professional development?. *Journal of International Students*, 9(1), 306-319. DOI: 10.32674/jis.v9i1.258
- Karadeniz, M. H., & Kelleci, D. (2015). Meslek yüksekokulu öğrencilerinin matematik dersine ilişkin tutumlarının başarıya etkisi. *Karadeniz Sosyal Bilimler Dergisi*, 7(02)
- Matherly, C. (2005) Effective Marketing of International Experiences to Employers. Martin Tillman, (Ed.) Impact of education abroad on career development I. *American Institute for*. <https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=5a5ec74658bba34739b98d7d5f69067ac953ecd9> (Access date: 09.07.2024).
- Modise, M. A., Schlebusch, G., & Schlebusch, L. (2021). Examination of the Effect of English Language on Limited English Proficiency Accounting Learners in South Africa. *International Journal of Innovation, Creativity and Change*, 15(1), 1049-1063.
- Müfredatin oluşturulması (2024). Necmettin Erbakan Üniversitesi, https://erbakan.edu.tr/storage/files/departman/egitimplanlamaizlemevedegerlendirme/Kararlar/Y%C3%B6nerge_2_KARAR.pdf (Access date: 16.07.2024)
- Noble, H., & Smith, J. (2015). Issues of validity and reliability in qualitative research. *Evidence-based nursing*, 18(2), 34-35. <https://doi.org/10.1136/eb-2015-102054>
- OECD (2013). Education at a Glance 2013, Chart C4.3, available at <http://dx.doi.org/10.1787/888932847583>
- Refa'i R. (2023). Developing English Learning Materials for Accounting Students: Language Challenges and Accounting Education. *Journal Of English Education And Entrepreneurship*, 3 (2), 63-79. <https://doi.org/10.24127/jeep.v3i2.4331>
- Sharpe, E. K. (2015). Colonialist tendencies in education abroad. *International Journal of Teaching and Learning in Higher Education*, 27(2), 227-234.
- Sofaer, S. (1999). Qualitative methods: what are they and why use them?. *Health services research*, 34(5 Pt 2), 1101.
- Umar, M. A., & Olowo, R. (2023). Issues in teaching and learning accounting among students who use English as a second language. *Accounting Education*, 1-24. <https://doi.org/10.1080/09639284.2023.2219655>
- Wang, H., Schultz, J. L., & Huang, Z. (2023). English language proficiency, prior knowledge, and student success in an international Chinese accounting program. *Heliyon*, 9(8), 1-12. <https://doi.org/10.1016/j.heliyon.2023.e18596>
- Yağar, F., & Dökme, S. (2018). Niteliksel araştırmaların planlanması: Araştırma soruları, örneklem seçimi, geçerlik ve güvenilirlik. *Gazi Sağlık Bilimleri Dergisi*, 3(3), 1-9.
- YÖK (2022). Yükseköğretim Kurumlarında Uzaktan Öğretime İlişkin Usul ve Esaslar, https://www.yok.gov.tr/Documents/Kurumsal/egitim_ogretim_dairesi/Uzaktan_ogretim/yuksekogretim-kurumlarinda-uzaktan-ogretime-iliskin-usul-ve-esaslar.pdf, (Access date: 19.11.2024).
- YÖK (2022). Yükseköğretimde Uluslararasılaşma ve Türkiye'deki Üniversitelerin Uluslararası Görünürlüğünü Artırma Çalıştayı, 28 Kasım 2022, Ankara.
- YÖK (2024). Yükseköğretim Bilgi Yönetim Sistemi, <https://istatistik.yok.gov.tr/> (Access date : 08.07.2024).

Zaif, F., & Ayanoglu, Y. (2007). Muhasebe Eđitiminde Kalitenin Arttırılmasında Ders Programlarının Önemi: Türkiye’de Bir

İnceleme. *Gazi Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 9(1), 115-136.



Does Türkiye Have a Demographic Dividend? NUTS 2 Analysis

Seda Ertürk^{1,a,*}, Selçuk Koç^{2,b}

¹Economics, Social Sciences Institutes, Kocaeli University, Umuttepe, Türkiye

²Economics, Political Science Faculty, Kocaeli University, Umuttepe, Türkiye

*Corresponding author

Research Article

History

Received: 02/10/2024

Accepted: 14/11/2024

JEL Codes: D04, J11, J13

ABSTRACT

As the population in Turkey continues to age, the share of the working-age population in the total population has also started to decline. However, the fact that the share of the working-age population is at most 2/3 while the country's population is ageing may occur a demographic window of opportunity and a demographic dividend for economic growth. In this study, the demographic dividend for 2023-2050 in NUTS 2 regions of Turkey with different fertility rates is calculated by projection analysis. According to the results of the study, it is estimated that Turkey entered the demographic dividend process in 2023 and may peak in 2036-2037. This trend is expected to persist until 2050. An analysis of NUTS 2 regions suggests that certain areas, such as TR31 (İzmir) and TR62 (Adana-Mersin), are projected to achieve the highest demographic dividend. This trend is expected to persist until 2050. An analysis of NUTS 2 regions suggests that certain areas, such as TR31 (İzmir) and TR62 (Adana-Mersin), are projected to achieve the highest demographic dividend. This trend is expected to persist until 2050. An analysis of NUTS 2 regions suggests that certain areas, such as TR31 (İzmir) and TR62 (Adana-Mersin), are projected to achieve the highest demographic dividend.

Keywords: Demographic dividend, Demographic window of opportunity, Population ageing

Türkiye'nin Demografik Temettüsü Var mı? Düzey 2 Analizi

Süreç

Geliş: 02/10/2024

Kabul: 14/11/2024

Jel Kodları: D04, J11, J13

ÖZ

Türkiye'de nüfus yaşlanmaya devam ettikçe, çalışma çağındaki nüfusun toplam nüfus içindeki payı da azalmaya başlamıştır. Ancak ülkenin nüfusu yaşlanırken çalışma çağındaki nüfusun payının en fazla 2/3 olması demografik bir fırsat penceresi oluştururken ekonomik büyüme için bir demografik temettü elde edeceği anlamına gelebilir. Bu çalışmada Türkiye'nin farklı doğurganlık oranlarına sahip NUTS 2 bölgelerinde 2023-2050 yılları için demografik temettü projeksiyon analizi ile hesaplanmaktadır. Çalışmanın sonuçlarına göre, Türkiye'nin 2023 yılında demografik temettü sürecine girdiği ve 2036-2037 yıllarında zirve yapabileceği tahmin edilmektedir. 2050 yılına kadar bu sürecin devam edeceği tahmin edilmektedir. NUTS 2 bölgeleri incelendiğinde bazı bölgelerin TR31 (İzmir) ve TR62 (Adana-Mersin) en yüksek demografik temettü elde etmesi öngörülmektedir. Bu bölgelerde temettünün 2050 yılına kadar devam edileceği tahmin edilirken, doğurganlık oranının düşük seyrettiği TR83 (Samsun, Tokat, Çorum, Amasya) bölgesinde 2044 yılına kadar süreceği ve demografik fırsat penceresinin kapanacağı öngörülmektedir. Bu bulgulara göre, Türkiye'nin demografik fırsat penceresinden en iyi yararlanabilmesi için beşeri sermaye yatırımlarını artırması, iş gücüne katılımı teşvik eden politikalar geliştirmesi gerektiğini ortaya koymaktadır. Aksi durumda, yaşanan nüfusa sahip olan Türkiye için ekonomik büyüme potansiyelinin azalacağı düşünülmektedir.

Anahtar Kelimeler: Demographic dividend, Demographic window of opportunity, Population ageing

Copyright



This work is licensed under
Creative Commons
AttributionNonCommercial 4.0
International License International
License

^a sedaerturk41@gmail.com

^b [0000-0001-5505-8750](tel:0000-0001-5505-8750)

^b selcukkoc@kocaeli.edu.tr

^b [0000-0001-7451-2699](tel:0000-0001-7451-2699)

How to Cite: Ertürk S, Koç S (2025) Does Türkiye Have a Demographic Dividend? NUTS 2 Analysis, Journal of Economics and Administrative Sciences, 26(1): 156-166, DOI: 10.37880/cumuiibf.1560382

Introduction

In the history of the world, countries have been experiencing changes with various population growth rates. Thompson (1929:961), analysing the demographic data of countries for the last 200 years, stated that the population went through 3 types of demographic transformation groups. In the first group, in countries with high fertility and high mortality rates, the increase in the fertility rate faster than the mortality rate leads to an increase in the population growth rate. The second group is the decline in both fertility rates and mortality rates, but mortality rates reduce as fast or faster than fertility rates, bringing about the same or lower population growth rate. The third group of demographic transformation is one in which both fertility and mortality rates are lower than the second group. This is the demographic transformation that occurs when fertility rates are kept under control. This leads to negative population growth, in other words, to a reduction in population.

The demographic transition between age groups poses many social and economic opportunities as well as social and policy challenges, especially for a country with an aging population (Gomez and deCos, 2008:351; Ertürk and Koç, 2023:). The economic and social benefits derived from demographic changes are referred to as the demographic dividend or window of opportunity (Islam, 2020:1). In fact, these two concepts are used with different meanings in the literature. The demographic window of opportunity arises from the increase in the working-age population during the transition from high fertility rates to low fertility and mortality rates. This situation arises due to the insufficiency of the working-age population, particularly the labour force participation of women who did not participate in the labour market before. The participation of new individuals in the labour force creates a potential situation for the realization of demographic dividends through increased savings and investments for economic growth (Lee, et al. 1997:13; Bloom and Williamson, 1998: 429; Mason, 2003:8). The concept of "demographic dividend", first used by Bloom, et al. (2003:25), represents the third group of the demographic transition that emerged when analysing the demographic transition in East Asia.

A demographic window of opportunity occurs at the point where the proportion of the working-age population in the total population reaches the highest output (Vallin, 2005: 150). With the demographic window of opportunity, increased production of goods and services leads to an increase in GDP, which is called the demographic dividend. The demographic dividend arises for two different reasons. The first one is the decline in expenditures due to the decreasing number of children, while the second one is the change in consumption patterns due to the ageing of the population and the increase in life expectancy, leading to more savings.

The so-called demographic window of opportunity for economic growth covers a period of several decades (Crombach and Smits, 2022:172). The dividend, whose per

capita income is calculated to depend on labour productivity and the proportion of the labour force, is calculated from the difference between the growth rate of the working-age population and the growth rate of the overall population. If this difference is positive, the growth rate of per capita income increases even if the growth rate of labour productivity does not change (Navaneetham and Dharmalingam, 2012:287) and the first demographic dividend is realized. The second demographic dividend is an incentive for individuals to save and accumulate assets in old age due to expectations of a longer life and an extended retirement period (Mason and Kinugasa, 2008: 395; Mason and Lee, 2006: 12; 2007: 4). Unlike the first demographic dividend, the second demographic dividend is permanent due to capital deepening and higher per capita income (Ogawa, et al., 2009: 146).

Demographic dividend arises in periods when the working age segment of the population grows and the young and old dependent population decreases. During this period, more people can join the labour force, raising savings and investment rates, resulting in higher per capita income and accelerated economic growth. The demographic dividend offers a great opportunity for economic development, particularly for developing countries. If this process is well utilised, the long-term economic performance of the country can improve significantly. However, if this opportunity is missed, countries may not be able to turn their demographic structure into an advantage (Bloom, et al., 2013:11). Moreover, the demographic dividend should be supported not only by the increase in the working-age population but also by economic and social policies. In this context, strategies in areas such as education, health and labour market policies can play a key role in benefiting from the demographic dividend (Mason, 2005:97). In the absence of economic and social reforms that support the growth of the working-age population, the demographic dividend opportunity may be missed. This change in the demographic structure may be reversed by an increase in the population reaching retirement age, and increasing economic burdens (Lee and Mason, 2006: 17).

As the consequences of the fertility-death ratio and reduced mobility, the demographic dividend is illustrated by an increase in the working population and a high support ratio. If the high support ratio is supported by inclusive public policies and investment in relevant sectors, the demographic transition will conclude with a demographic dividend. In this case, the demographic transition may result in sustainable development; otherwise, the demographic transition may end badly. Barsukov (2019:171) tried to identify the countries that have achieved and missed the demographic dividend according to the World Population Projection prepared by the United Nations in 2015. Although determining the demographic dividend, he states that it will be realized in a situation where the ratio of the non-productive population (population under 15 and over 65) to the productive population is 1 to 2 or less and the share of the productive population is 66.6% or higher. Accordingly,

Barsukov (2019:172), who categorizes countries into red, green and yellow groups¹, assigns Turkey to the yellow group.

Figure 1 indicates the natural population growth and its determinants in Turkey. From the 1960s onwards, the mortality rate has shown a decreasing trend, ranging between 2% and 0.51%, with a slight increase during the Covid-19 period. The fertility rate declined rapidly from a peak of 4.42% in 1961. As a consequence, the natural rate of population growth has correspondingly fallen to a low and stable level and was at its lowest point during the relevant period.

After 2007, the growth rate increased slightly until 2018, but returned to a downward trend, also due to the impact of COVID-19. The considerable increase in life expectancy and the steady reduction in fertility and mortality rates reflect the ageing of the population. With further ageing of the population, i.e. an increase in the proportion of the oldest old, the mortality rate can be expected to continue to rise, which is another factor pulling down the population growth rate.

According to the main scenario in the projection of TurkStat (2023), Turkey's population is projected to increase until the mid-2050s and then begin to decline, falling below 77 million in 2100. When the age structure of the population is analysed, the population will keep going age and 1 out of every 3 people is expected to be elderly in 2075. The proportion of the working age population is expected to be 61.9% in 2050, 55.9% in 2075 and 54.6% in 2100. The total fertility rate, which was 2.38 in 2001, stagnated at the replacement level of 2.10 between 2003 and 2014, and then declined sharply to 1.51 in 2023. The elderly dependency ratio, which refers to the number of elderly people per 100 people of working age, raised from 12.9% in 2018 to 15.0% in 2023. According to population projections, the elderly

dependency ratio is projected to be 19.6% in 2030, 25.3% in 2040, 37.5% in 2060 and 43.6% in 2080.

The first demographic dividend brings out when changes in the age structure interact with the production and consumption life cycle (Cai, 2016:2). To examine age-related structural transitions in Turkey, the classification into children (0-14), youth (15-64) and 65 and over is considered to correspond to life cycle stages and the impact of the population in different age groups on the overall economy. Since the child population (0-14) is dependent on adults for consumption, they spend on health and education. Youth (15-64) spend on health and education but have different consumption patterns. The population in the 15-64 age group has various consumption patterns, the younger population (25-49) saves little as they consume most of what they earn. The middle-aged population (50-59) is likely to earn more and therefore save more. The majority of seniors aged 60+ are dependent on others to meet their consumption needs. The macroeconomic performance of any country therefore depends on the relative size of the population at different life cycle stages. In this context, projections suggest that the proportion of the elderly population will exceed 15 percent in the first half of 2030 and the demographic window of opportunity will close (TurkStat, 2023).

Taking a look at Turkey's population pyramids in 1960 and 2023 in Figure 2, there is a clear shift in the age distribution of the population from productive to older ages. As this shift progresses, the advantage of having a population concentrated in productive ages will disappear as this concentration disappears. The second demographic dividend arises to the extent that consumers and policymakers are forward-looking and respond effectively to projected demographic changes.

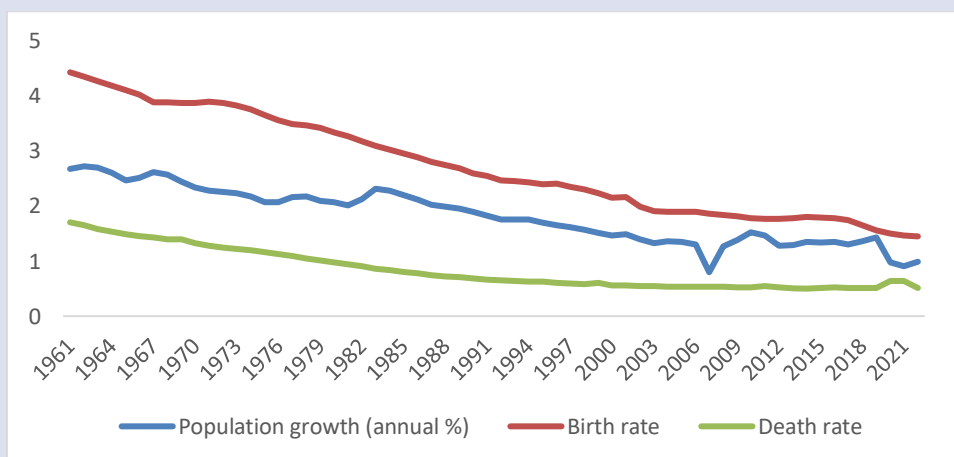


Figure 1. Demographics Variables of Turkey

* Data are taken from the World Bank Database and the authors' own calculations.

¹ Countries that have finished generating the demographic dividend are referred to as the red group. Countries that have achieved the demographic dividend are referred to as the yellow group and countries that will achieve the demographic dividend are referred to as the green group.

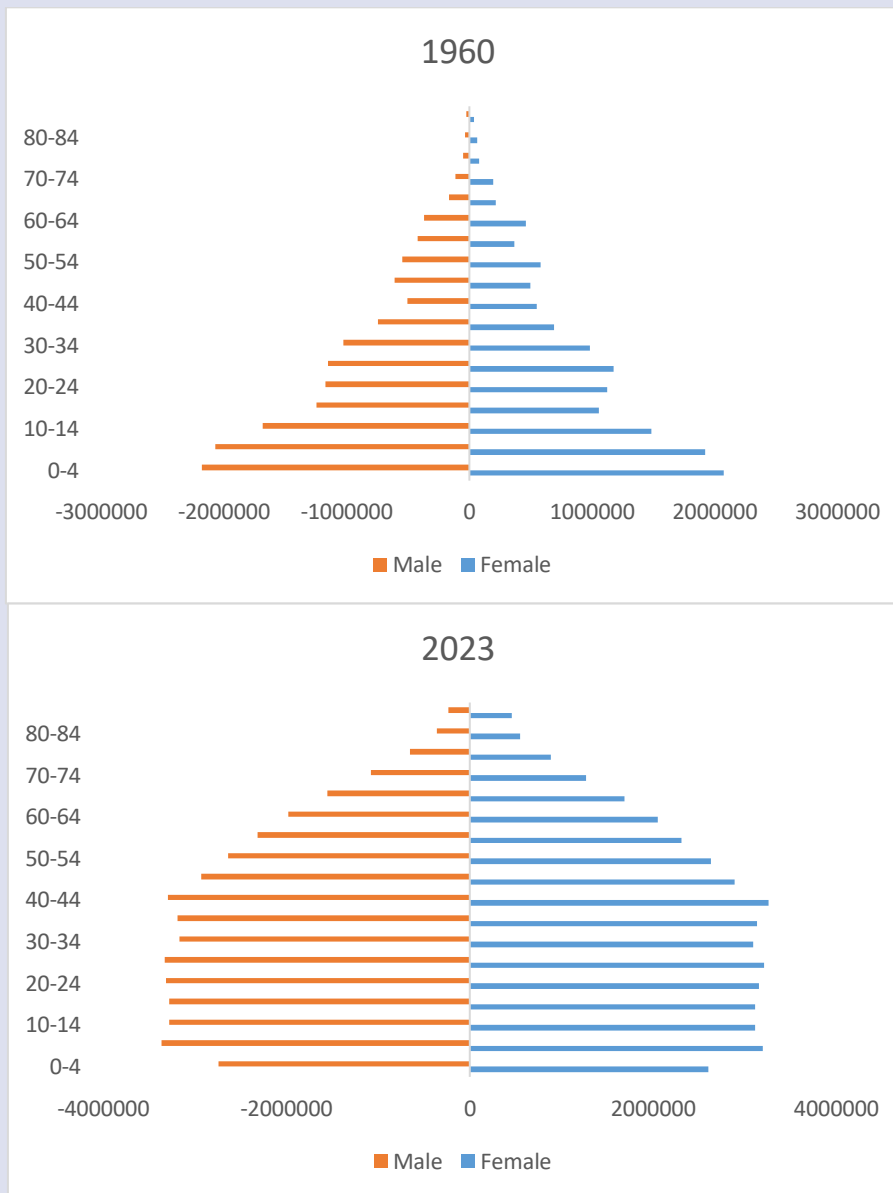


Figure 2. Population Pyramids of Turkey

* Data are taken from TURKSTAT Database and are the authors' own calculations.

Figure 2 shows that Turkey's population has been young and fast growing for many years. It has been among the countries that can utilise the economic growth opportunity with its young population advantage. However, with the decline in fertility rates in recent years, this structure has deteriorated and the demographic dividend gains importance for Turkey in this period. Turkey can turn this opportunity into economic development by increasing the labour force participation of its working age population and strengthening its investments in education and health. However, it can be argued that this opportunity has not been fully exploited due to deficiencies in labour force participation rates, employment policies and education reforms. In particular, the lack of necessary reforms regarding women's participation in the labour force and general labour policies may have caused Turkey to miss this opportunity.

There is a certain 'demographic window' period to benefit from the demographic dividend. This refers to the period when the young and working-age population is growing but the elderly dependent population is not yet very large. According to TurkStat (2023) projections, this window is approximately closed in Turkey. In addition, the increase in the proportion of the elderly population and the relative decline in the young population suggest that Turkey has missed this opportunity. Therefore, an article addressing the question of why Turkey may have missed the demographic dividend opportunity can be an important guide both for evaluating the current situation and for what should be done in the future.

Turkey's demographic structure and dividend opportunity evaluation process show differences and similarities when compared to other developing countries. Countries such as South Korea, Singapore and China have successfully utilised the demographic dividend

opportunity and achieved rapid economic development (Kim, 1996:28; Lee and Lee, 2013: 646; Cai, 2020:30). An article on why Turkey has not achieved a similar success compared to these countries can make a considerable contribution to the international literature.

The consequence of that, a study on the demographic dividend for Turkey is of great importance for the economic and social development of the country. The possibility of missing the demographic opportunity may have critical consequences for economic growth, social welfare and policies. Therefore, the aim of such a study is to properly analyse Turkey's demographic transition process, to reveal why this opportunity may have been missed and to provide a roadmap for what needs to be done in the future.

Considering the above information, the basic hypothesis of this study is whether Turkey has missed the demographic dividend opportunity considering the current socioeconomic conditions? The contribution of this study to the literature will be that it will be the first study in this field, realizing that such a study has not been conducted in Turkey before. Accordingly, following the introduction, the material and methodology will be explained and the results will be discussed. Finally, this study will be concluded with a general evaluation.

Literature Review

The expected improvements in economic growth as a result of demographic transition may not always be valid. The extent to which countries will benefit from the demographic transition depends on the policies that create the most favourable conditions (Cooper, 2008: 100). Many institutions have developed policy instruments, notably the African Union Commission (2018:215), which states that the demographic dividend can be generated by strengthening a country's labour force (Bloom and Canning, 2003:4), education (Bloom, et al., 2001:4), health (McNicoll, 2006:3) and good governance (Bloom et al., 1998:260). These policies have focused on designing strategies that can harness the benefits of the demographic dividend (Chen and Li, 2023:5). This allows countries to benefit more from the demographic dividend when certain preconditions are met (Bloom, et al., 2017:68; Shekar, et al., 2016:3).

Investments in human capital are among the leading policies that can be implemented for countries to achieve demographic dividends. Lee and Mason (2010:160) examined the impact of investments in human capital development. According to the study, they show that declines in the fertility rate and declines in the dependency ratio initially led to sharp increases in economic growth. Although, when this growth is not directed towards policies to support human capital investment, the demographic dividend will mitigate over the years. Ahmad and Khan (2019:753) also investigated the impact of age and changes in human capital on the economic growth of 67 developing countries from 1960 to 2014. It was found that human capital has a positive effect

on economic growth, but it was concluded that economic growth may vary between different income groups of countries. In this context, the impact of human capital investment on economic growth may become an important driver of economic growth by increasing labour productivity, even if the impact of human capital investment on economic growth is different among different income groups.

In addition to reaping demographic dividends, behavioural effects can also be observed in the process of population ageing, affecting consumption, savings, investments, public expenditures and technological progress. Mason and Kinugasa (2008: 398) argue that demographic change is an important part of economic growth in East Asia and show that it accounted for about 92% of the increase in saving rates between 1965 and 1995. Mason and Lee (2006: 17) show that a longer life anticipation and a smaller family size led people to save more to support themselves in old age. As a consequence of this saving pattern, more savings can contribute to more investment and hence result in a higher growth rate.

The reduction in consumption as the population ages, the decline in the income of older individuals and the tendency to save as a precautionary measure after retirement lead to a weakening of the overall consumption capacity (Cai, 2020:31-32). However, consumption patterns are likely to change as countries age. Increased expenditures of older individuals on health services have positively affected economic growth (Wang, 2011:1536; Amiri and Ventelou, 2012:541; Gerdtam, et al., 1992:63; Braendle and Colombier, 2016:1051).

The demographic dividend varies according to the policies implemented by countries regarding the ageing population, labour force participation, health and education. An important area is whether the realisation of the demographic dividend varies according to the income levels of countries. In this respect, demographic dividend differs in developed and developing countries. Although there are numerous scientific studies on the simulation of the demographic dividend, they do not address the dimensionality in developed regions (Woldegiorgis, 2023: 381). Dobrokhleb, et al. (2022: 184) argue that, according to their analyses in various developed countries, demographic dividends are characterised by a marked differentiation in the formation and use of dividends, which is due to cultural, social and economic determinants. The analysis of data on the proportion of the population aged 25-64 years concluded that in Russia, Moldova, Belarus, Ukraine, Armenia, Azerbaijan, Lithuania, Latvia and Estonia, the proportion of people of working age in the total population peaked in the 2020s. In this context, they stated that they are in the process of achieving demographic dividends. In the long term, after 2030, their absolute and relative numbers will decline. They noted that in countries where the working-age population will soon predominate (Kyrgyzstan, Turkmenistan, Uzbekistan, Tajikistan), it is necessary to promote the use of demographic dividend in the economy, introducing institutions that motivate people to

save and invest in the development of human potential. It was stated that Uzbekistan is in the early stages of the demographic dividend, and that this demographic dividend can be used to benefit from investment in human capital and the socio-economic development of youth and women. Demographic dividend refers to a period in a country's economic development when changes in population structure contribute to economic growth, and these opportunities varies according to the social, economic, and demographic policies of the countries. Labor force participation rates, education, and health policies are the main factors that determine how much demographic dividend can be utilized. While this process is managed efficiently in developed countries thanks to better organized labour markets and human capital investments, it is suggested that this potential may not be fully realized in developing countries due to policy deficiencies. Bloom, Canning, and Sevilla (2003) state that developing countries can seize economic growth opportunities following rapid population growth, but these opportunities should be supported by human capital development policies such as education and health investments. Lee and Mason (2006) emphasize that labour market dynamics are the basis of this difference. In addition, it is stated that income inequalities and female labour force participation rates play an important role (Bloom and Williamson, 1998). In this process, the increase in the ageing population and the pressures on social security may threaten economic gains (Birdsall, vd., 2001). Consequently, it is critical to implement the right social and economic policies to benefit from the demographic dividend.

According to TurkStat (2023) projections, it is thought that the demographic dividend has been missed. However, when the literature is examined, there is no comprehensive demographic dividend analysis specific to Turkey. In this context, this study aims to correctly analyze Turkey's demographic transition process, to reveal why this opportunity may have been missed, and to provide a roadmap for what needs to be done in the future.

Material and Method

This study is based on the method applied in Navaneetham and Dharmalingam (2012:286) to calculate the demographic dividend in NUTS 2 regions (26 regions)² of Turkey between 2010 and 2050. The demographic dividend is derived from the difference between the growth rate of the working-age population aged 25-59 and the total population, indicating that it occurs when the growth rate of producers exceeds the growth rate of consumers.

$$\frac{Y}{N} = \frac{Y}{L} * \frac{L}{N} \quad 1$$

In Equation 1, Y is income, N is total population and L is total labour force. In Equation 1, derivatives are taken to obtain growth rates. Therefore, the demographic dividend will depend on the growth rate of income per

capita g_y , growth rate of income per labour force g_z , growth rate of labour force g_l and growth rate of total population g_n . For the calculation of the demographic dividend, the growth rate will take the form of Equation 2:

$$g_y = g_z + g_l - g_n \quad 2$$

There is an important difference between Navaneetham and Dharmalingam (2012:286), who calculate the demographic dividend for different periods in South Asian countries, and the methodology to be applied in this study. This difference is that Navaneetham and Dharmalingam (2012:287) used projections by taking data from a single year, whereas this study uses linear regression analysis using data from 2007-2023. The main reason for using linear regression analysis in projection is that it offers a very simple and fast application by using historical data when projecting on time series data. It is a method that can be used as a first step in basic analyses such as economic growth and population projections, especially when the data set is small and in short-term projection applications (Wooldridge, 2023:3). The main reason for using linear regression in this study, which may be inadequate in processes with complex dynamics such as population projections (Bloom and Williamson, 1998), is that it has data limitations. In addition, it has been stated that linear regression can be used in population projections and linear regression can be used in short-term forecasts (Eberhardt, 1987:103). A simple linear regression model is given in Equation 3.

$$\hat{y} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 \quad 3$$

\hat{y} estimated growth rate, independent variables are the variables in Equation 2 respectively g_z, g_l and g_n . The estimated growth rate for each year is applied to the population in the current year in Equation 4 and population projection is made:

$$Population_{t+1} = Population_t * \left(1 + \frac{\hat{y}}{100}\right) \quad 4$$

Jupyter Notebook 6.4.12 was used to forecast the future growth rate of the population and to calculate projections for 2020-2050. The data in the projection, i.e. income per capita, labour force population and total population for the years 2020- 2023, are taken from the Turkish Statistical Institute (TURKSTAT).

The economic support ratio is used to calculate the demographic dividend. The economic support ratio was first defined by Cutler, et al. (1990:8) as the ratio of the working age population to all consumers. The economic support ratio is differentiated according to the hypotheses of the studies in the literature. In some studies, Ha and Lee (2016:28) used the definition of Cutler, et al. (1990:8), while in some studies, Navaneetham and Dharmalingam (2012:288) calculated the support ratio as the ratio of the working-age population to the dependent population

² NUTS-2 Regions and the provinces covered are given in Appendix 1

(sum of 0-14 and 65+ population). Since this study follows the method of Navaneetham and Dharmalingam (2012:288), the calculation of the economic support ratio remains the same and the demographic dividend of Turkey's Level 2 regions in 2020-2050 is calculated in Equation 5:

$$DD = SR * \frac{\hat{y}}{100} \quad 5$$

where DD, demographic dividend, SR is the economic support ratio³.

Findings and Discussion

Turkey was divided into 26 regions in 2002 for basic development planning purposes under the convergence objective of the EU harmonization policy. Figure 3 presents the demographic dividend projections of Turkey's NUTS 2 regions until 2050. In 2023, Turkey is categorized as a country with an ageing population with a dependency ratio of 10.2. Thus, the demographic dividend is likely to increase after 2023. After 2025, Turkey will see a gradual increase in the demographic dividend, which is anticipated to peak in 2036-2037. Until 2050, the demographic dividend will be zero after 2050.

Turkey has included the demographic dividend process in 2023. This marks a critical period for Turkey's economic growth for the reason that the working-age population is growing faster than the dependent population. By 2023, Turkey's working-age population is

still high relative to the total population, allowing the demographic dividend process to begin. From 2025 onwards, a gradual increase in Turkey's demographic dividend rate is observed. This increase is the result of a larger share of the working-age population. The active participation of the young and productive population in the labour force will constitute an important opportunity for economic growth and welfare increase in this period. With increased savings and investments, economic development can accelerate.

Figure 3 expresses that the demographic dividend process will **peak in 2036-2037**. During this period, the proportion of the working-age population will be at its highest level and the dependent population will be at its lowest. Turkey will have the most convenient conditions for economic growth during this peak period. In these years, when investments and labor force participation are at their highest, the growth rate of the Turkish economy is expected to increase significantly.

The demographic dividend process will go on till 2050, after which it will gradually diminish to zero. This can be explained by the ageing and retirement of the working-age population. As the elderly dependency ratio increases, the growth rate of the working-age population will decline and the productive population in the economy will be replaced by the elderly dependent population. This will weaken the potential for economic growth. After 2050, new challenges will emerge for Turkey; pension expenditures will increase and burdens on health and social security systems will grow.

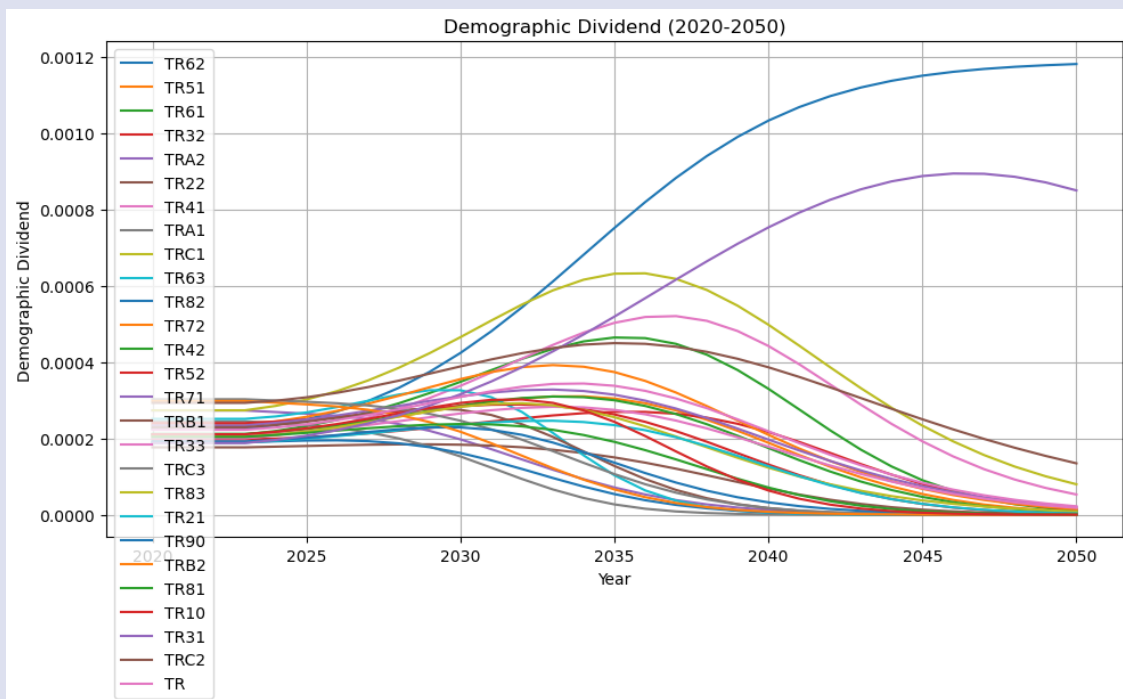


Figure 3. Results of Demographic Dividend

³³ For more detailed information about the method, see Navaneetham and Dharmalingam (2012).

While the demographic dividend in most regions in Turkey is close to the Turkish average, TR62 (Adana-Mersin) and TR31 (Izmir) are the regions with the highest dividend and are projected not to close in 2050. When we look at the basic economic characteristics of these regions, we see that the unemployment rate is low and the labour force participation rate is below Turkey's average. However, these regions are also among the provinces with a high elderly population. TR83 (Samsun, Tokat, Çorum and Amasya) region is anticipated to achieve a demographic dividend above Turkey's average until 2044, and a demographic dividend very close to Turkey's average after 2044. However, with the increase in the elderly population in the region, the demographic dividend is also projected to progress at a rate equivalent to the Turkey's average until 2050.

The demographic dividend process takes place at different speeds in different regions of Turkey. The Figure 3 expresses that some regions (TR62 and TR31) are more advantageous in terms of demographic dividend. They stand out as regions that exhibit **a demographic dividend above Turkey's average** and where this dividend process is not expected to end even in 2050. As these regions have a high proportion of young and productive population, they also have a high potential for economic growth.

However, the elderly population is also expected to increase rapidly in these regions, so public policies need to be adjusted accordingly.

TR83 region will provide a demographic dividend above Turkey's average until 2044; however, it will decline to a level close to Turkey's average after this date. This means that the young population in the region will age and join the dependent population over time and the demographic dividend will decrease.

The demographic dividend creates a window of opportunity to boost economic growth. However, this window of opportunity is limited to a short period of **a few decades** and needs to be used effectively. Turkey entered this window of opportunity in 2024, when the study was conducted, and it is critical that public policies are organized to support the working-age population in this process, which is expected to peak in 2036-2037.

The economic support ratio, which is the determinant of the demographic dividend, is presented in Figure 4. Regions with fertility rates below Turkey's average are regions with low fertility rates. Regions that are above Turkey's average are regions with high fertility rates. Especially after 2030, the difference between regions below and above the average is expected to widen.

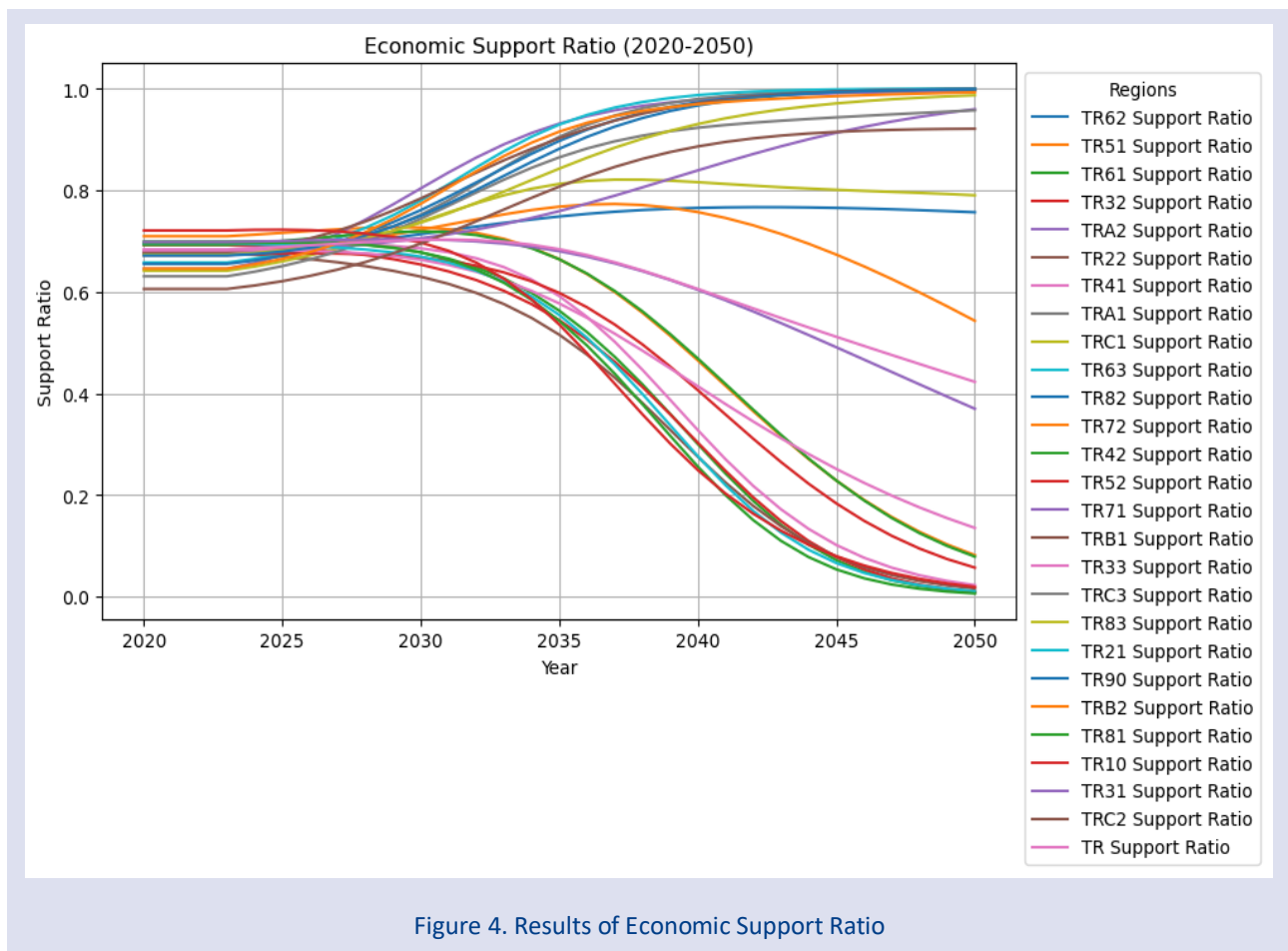


Figure 4. Results of Economic Support Ratio

The economic support ratio is a critical indicator for analysing Turkey's economic growth capacity. It is calculated as the ratio of the working-age population (15-64 years) to the dependent population (0-14 years and over 65 years). A high economic support ratio means that more workers take care of fewer dependents, leading to increased savings, investment and economic growth. Figure 4 clearly shows that there are regional differences in the economic support ratio in different regions of Turkey.

Regions below the national average represent areas with low fertility rates. In these regions, the rate of economic support is low because the young population has decreased and the elderly population has increased. Low fertility rates will bring about a reduction in the working age population and an increase in the elderly dependency ratio in these regions in the long run. In these regions with low economic support, the potential for economic growth may remain limited. This problem is particularly pronounced in countryside areas and non-industrialized regions.

In contrast, regions that are above Turkey's average include those with relatively high fertility rates. In these regions, the economic support ratio is high, meaning that the young and working-age population is higher than the dependent population. This provides opportunities for economic growth in these regions in the short and medium term. However, the high fertility rate implies that in the future the growing young population will need education and employment, which may put pressure on public resources.

It is also projected that after 2030, the gap between regions above and below Turkey's average will widen. This means that in regions with low fertility rates, the ageing population will accelerate further, giving rise to a decline in the youth population and hence in economic support. Conversely, in regions with high fertility rates, a high youth dependency ratio will increase the demand for the working-age population. However, this will require significant investments and public policies to sustain economic growth.

The decline in the economic support ratio over time will be particularly rapid in regions with low fertility rates. In order for Turkey to cope with this demographic shift, there are primary policy instruments that need the attention of policymakers. First, investments in education and health can help the young population to participate in the economy as a more productive labour force. Second, as the elderly

population grows, the pressure on social security systems will increase. Therefore, reforms that encourage labour force participation of older individuals or restructure the pension system will be needed (Ertürk and Koç, 2023a:887).

Conclusion

This study analyzes the effects of changes in Turkey's demographic structure on economic growth and focuses on the country's demographic dividend process. It is concluded that Turkey has entered the demographic dividend process as of 2023, which will peak in 2036-2037 and continue until 2050. However, after 2050, the demographic dividend will disappear due to the decline in the working-age population and the increase in the elderly dependency ratio. The demographic dividend and demographic window of opportunity results of this study are consistent with the results of the United Nations (2010), which prepared population projections of countries according to various age groups.

Regional analysis suggests that some regions such as Izmir (TR31) and Adana-Mersin (TR62) may benefit from the demographic dividend for a longer period of time, while other regions such as Samsun, Tokat, Çorum, Amasya (TR83) may have a shorter dividend period. This suggests that economic growth may vary in different regions of Turkey depending on the population structure.

In order to make the most of the demographic dividend, Turkey is required to increasing investments in human capital, encouraging labour force participation and developing social policies for the ageing population. Moreover, being prepared for the challenges that will arise with the closing of the demographic window of opportunity is critical for long-term sustainable economic growth. In this context, Turkey's effective use of existing demographic opportunities and the implementation of the necessary policies will be decisive for economic development.

In regions where the demographic dividend is low or ends early, there is likely to be an internal migration of individuals who do not want to experience a loss of welfare towards regions where the dividend continues. Therefore, it is clear that the demographic dividend will lead to socioeconomic consequences in addition to its economic consequences.

Contribution Rates and Conflicts of Interest

Etik Beyan	Bu çalışmanın hazırlanma sürecinde bilimsel ve etik ilkelere uyulduğu ve yararlanılan tüm çalışmaların kaynakçada belirtildiği beyan olunur.	Ethical Statement	It is declared that scientific and ethical principles have been followed while carrying out and writing this study and that all the sources used have been properly cited
Yazar Katkıları	Çalışmanın Tasarlanması: SK (%60)-SE(%40) Veri Toplanması: SK(%30)-SE(%70) Veri Analizi: SK (%10)-SE(%90) Makalenin Yazımı: SK (%80)-SE(%20) Makalenin Gönderimi ve Revizyonu: SK (%80)-SE(%20)	Author Contributions	Research Design: SK (%60)- SE(%40) Data Collection: SK(%30)-SE(%70) Data Analysis: SK (%10)-SE(%90) Writing the Article: SK (%80)-SE(%20) Article Submission and Revision: SK (%80)-SE(%20)
Etik Bildirim	iibfdergi@cumhuriyet.edu.tr	Complaints	iibfdergi@cumhuriyet.edu.tr

Çıkar Çatışması	Çıkar çatışması beyan edilmemiştir.	Conflicts of Interest	The author(s) has no conflict of interest to declare.
Finansman	Bu araştırmayı desteklemek için dış fon kullanılmamıştır.	Grant Support	The author(s) acknowledge that they received no external funding in support of this research.
Telif Hakkı & Lisans	Yazarlar dergide yayınlanan çalışmalarının telif hakkına sahiptirler ve çalışmalarını CC BY-NC 4.0 lisansı altında yayımlanmaktadır.	Copyright & License	Authors publishing with the journal retain the copyright to their work licensed under the CC BY-NC 4.0
Etik Kurul	Etik kurul iznine ihtiyaç bulunmamaktadır	Ethics Committee	Ethics committee approval is not required.

References

- African Union Commission. (2018). *Africa's Development Dynamics 2018 Growth, Jobs and Inequalities: Growth, Jobs and Inequalities*. OECD Publishing.
- Ahmad, M., & Khan, R. E. A. (2019). Does demographic transition with human capital dynamics matter for economic growth? A dynamic panel data approach to GMM. *Social Indicators Research, 142*, 753-772.
- Amiri, A., & Ventelou, B. (2012). Granger causality between total expenditure on health and GDP in OECD: Evidence from the Toda–Yamamoto approach. *Economics letters, 116*(3), 541-544.
- Barsukov, V. N. (2019). From the demographic dividend to population ageing: World trends in the system-wide transition. *Economic and Social Changes: Facts, Trends, Forecast, 12*(4), 167-182.
- Birdsall, N., Kelley, A. C., & Sinding, S. (Eds.). (2001). *Population matters: demographic change, economic growth, and poverty in the developing world*. OUP Oxford.
- Bloom, D. E., & Canning, D. (2003). How Demographic Change can Bolster Economic Performance in Developing Countries. *World Economics, 4*(4), 1-14.
- Bloom, D. E., & Williamson, J. G. (1998). Demographic transitions and economic miracles in emerging Asia. *The World Bank Economic Review, 12*(3), 419-455.
- Bloom, D. E., Canning, D., & Sevilla, J. (2001). Economic Growth and the Demographic Transition. *NBER Working Paper*, (w8685).
- Bloom, D. E., Humair, S., Rosenberg, L., Sevilla, J. P., & Trussell, J. (2013). *A demographic dividend for sub-Saharan Africa: Source, magnitude, and realization* (No. 7855). IZA Discussion Papers.
- Bloom, D. E., Kuhn, M., & Prettnner, K. (2017). Africa's prospects for enjoying a demographic dividend. *Journal of Demographic Economics, 83*(1), 63-76.
- Bloom, D. E., Sachs, J. D., Collier, P., & Udry, C. (1998). Geography, demography, and economic growth in Africa. *Brookings papers on economic activity, 1998*(2), 207-295.
- Bloom, D., Canning, D., & Sevilla, J. (2003). *The demographic dividend: A new perspective on the economic consequences of population change*. Rand Corporation.
- Braendle, T., & Colombier, C. (2016). What drives public health care expenditure growth? Evidence from Swiss cantons, 1970–2012. *Health Policy, 120*(9), 1051-1060.
- Cai, F. (2016). Demographic transition, demographic dividend, and Lewis turning point in China. In *Debating the Lewis turning point in China* (pp. 17-29). Routledge.
- Cai, F. (2020). The second demographic dividend as a driver of china's growth. *China & World Economy, 28*(5), 26-44.
- Chen, X., & Li, J. (2023). Facilitating knowledge-driven economic and social development: The significance of demographic transformation in tourism villages in China. *Journal of the Knowledge Economy, 1*-29.
- Cooper, R. N. (2008). Global imbalances: globalization, demography, and sustainability. *Journal of Economic Perspectives, 22*(3), 93-112.
- Crombach, L., & Smits, J. (2022). The demographic window of opportunity and economic growth at sub-national level in 91 developing countries. *Social Indicators Research, 161*(1), 171-189.
- Cutler, D. M., Poterba, J. M., Sheiner, L. M., Summers, L. H., & Akerlof, G. A. (1990). An aging society: opportunity or challenge?. *Brookings papers on economic activity, 1990*(1), 1-73.
- Eberhardt, L. L. (1987). Population projections from simple models. *Journal of Applied Ecology, 103*-118.
- Ertürk, S., & Koç, S. (2023). The Transition of Fertility Rates in the World: Regime Switching Model. *Karamanoğlu Mehmetbey Üniversitesi Sosyal Ve Ekonomik Araştırmalar Dergisi, 25*(45), 1324-1335.
- Ertürk, S., & Koç, S. (2023a). *Calculation of Cost of Early Retirement in Turkey*. 47th EBES Congress, Berlin
- Gerdtham, U. G., Sjøgaard, J., Andersson, F., & Jönsson, B. (1992). An econometric analysis of health care expenditure: A cross-section study of the OECD countries. *Journal of health economics, 11*(1), 63-84.
- Gomez, R., & De Cos, P. H. (2008). Does population ageing promote faster economic growth?. *Review of Income and Wealth, 54*(3), 350-372.
- Ha, J., & Lee, S. H. (2016). Demographic dividend and Asia's economic convergence towards the US. *The Journal of the Economics of Ageing, 8*, 28-41.
- Islam, M. M. (2020). Demographic transition in Sultanate of Oman: emerging demographic dividend and challenges. *Middle East Fertility Society Journal, 25*(1), 7.
- Kim, I. K. (1996). Demographic transition and population aging in Korea. *Korea journal of population and development, 27*-40.
- Lee, R. D., Mason, A., & Miller, T. (1997). Saving, wealth, and the demographic transition in East Asia. *Population change and economic development in East Asia: challenges met, opportunities seized*, Stanford University Press.
- Lee, R., & Mason, A. (2006). What is the demographic dividend?. *Finance and development, 43*(3), 16.
- Lee, R., & Mason, A. (2010). Fertility, human capital, and economic growth over the demographic transition. *European Journal of Population= Revue Européenne de Démographie, 26*(2), 159.
- Lee, Y. Y., & Lee, S. S. Y. (2013). Policy implications for inclusive growth in the Republic of Korea. *Korea and the World Economy, 14*(3), 607-651.
- Lutz, W., & Kc, S. (2010). Dimensions of global population projections: what do we know about future population trends and structures?. *Philosophical Transactions of the Royal Society B: Biological Sciences, 365*(1554), 2779-2791.

- Mason, A. (2003). Population change and economic development: what have we learned from the East Asia experience?. *Applied Population and Policy*, 1(1), 3-14.
- Mason, A. (2005, August). Demographic transition and demographic dividends in developed and developing countries. In *United Nations expert group meeting on social and economic implications of changing population age structures* (Vol. 31, No. 5). New York: United Nations, Population Division.
- Mason, A., & Kinugasa, T. (2008). East Asian economic development: two demographic dividends. *Journal of Asian Economics*, 19(5-6), 389-399.
- Mason, A., & Lee, R. (2006). Reform and support systems for the elderly in developing countries: capturing the second demographic dividend. *Genus*, 11-35.
- Mason, A., & Lee, R. (2007). Transfers, capital, and consumption over the demographic transition. *Population aging, intergenerational transfers and the macroeconomy*, 6, 128-162.
- McNicoll, G. (2006). Policy lessons of the East Asian demographic transition. *Population and Development Review*, 32(1), 1-25.
- Navaneetham, K., & Dharmalingam, A. (2012). A review of age structural transition and demographic dividend in South Asia: Opportunities and challenges. *Journal of Population Ageing*, 5, 281-298.
- Ogawa, N., Mason, A., Chawla, A., & Matsukura, R. (2010). Japan's unprecedented aging and changing intergenerational transfers. In *The economic consequences of demographic change in East Asia* (pp. 131-160). University of Chicago Press.
- Pool, I. (2007). Demographic dividends: Determinants of development or merely windows of opportunity. *Ageing Horizons*, 7(2007), 28-35.
- Ross, J. L., & Iannotta, J. G. (Eds.). (2002). *Equality of Opportunity and the Importance of Place: Summary of a Workshop*. National Academies Press.
- Shekar, M., Yazbeck, A., Hasan, R., & Bakilana, A. (2016). *Population and development in the Sahel: policy choices to catalyze a demographic dividend*. World Bank.
- Thompson, W.S. (1929): "Population." *American Journal of Sociology* 34 (6), 959-75.
- United Nations. Department of Economic and Social Affairs. (2013). *World Population Prospects: The 2010 Revision, Volume II-Demographic Profiles*. UN.
- Vallin, J. (2005). The demographic window: an opportunity to be seized. *Asian Population Studies*, 1(2), 149-167.
- Wang, K. M. (2011). Health care expenditure and economic growth: Quantile panel-type analysis. *Economic modelling*, 28(4), 1536-1549.
- Wooldridge, J. M. (2023). Simple approaches to nonlinear difference-in-differences with panel data. *The Econometrics Journal*, 26(3), C31-C66.
- Yip, P. S., Cheung, K. S., Law, S. C., Chi, I., & Robine, J. M. (2010). The demographic window and economic dependency ratio in the Hong Kong SAR. *Asian Population Studies*, 6(2), 241-260.

Appendixes-1

Appendix1: NUTS2 Regions

NUTS-2 Regions	The Provinces
TR62	Adana, Mersin
TR51	Ankara
TR61	Antalya, Isparta, Burdur
TR32	Aydın, Denizli, Muğla
TRA2	Ağrı, Kars, Iğdır, Ardahan
TR22	Balıkesir, Çanakkale
TR41	Bursa, Eskişehir, Bilecik
TRA1	Erzurum, Erzincan, Bayburt
TRC1	Gaziantep, Adıyaman, Kilis
TR63	Hatay, Kahramanmaraş, Osmaniye
TR82	Kastamonu, Çankırı, Sinop
TR72	Kayseri, Sivas, Yozgat
TR42	Kocaeli, Sakarya, Düzce, Bolu, Yalova
TR52	Konya, Karaman
TR71	Kırıkkale, Aksaray, Niğde, Nevşehir, Kırşehir
TRB1	Malatya, Elazığ, Bingöl, Tunceli
TR33	Manisa, Afyon, Kütahya, Uşak
TRC3	Mardin, Batman, Şırnak, Siirt
TR83	Samsun, Tokat, Çorum, Amasya
TR21	Tekirdağ, Edirne, Kırklareli
TR90	Trabzon, Ordu, Giresun, Rize, Artvin, Gümüşhane
TRB2	Van, Muş, Bitlis, Hakkari
TR81	Zonguldak, Karabük, Bartın
TR10	İstanbul
TR31	İzmir
TRC2	Şanlıurfa, Diyarbakır



Impact of Operational and Financial Efficiency on Aviation Stock Prices: A Machine Learning Model with SHAP Interpretability

Ahmet Akusta^{1,a,*}

¹ Rectorate, Konya Technical University, Konya, Türkiye

*Corresponding author

Research Article

History

Received: 03/10/2024

Accepted: 29/12/2024

JEL Codes: G12, G32, C45

ABSTRACT

Using a machine learning approach, this study examines how operational and financial efficiency metrics influence stock prices in the aviation industry. A CatBoost regression model enhanced with SHapley Additive exPlanations (SHAP) was developed using data from 65 global aviation companies collected between 2015 and 2023. The model predicts stock prices based on various operational and financial indicators, including Total Revenue per Available Seat Mile (ASM), Passenger Load Factor, liquidity ratios, and debt-to-assets ratios. The findings suggest that operational efficiency metrics, particularly Total Revenue per ASM and Passenger Load Factor, play a significant role in predicting stock prices within the aviation sector. Financial metrics, such as the Quick Ratio and Debt-to-Assets Ratio, also contribute to the model but appear to have a secondary influence compared to operational factors. SHAP values provided interpretable insights into the model's predictions, allowing for a better understanding of the relative importance of different features. Furthermore, the study's findings offer support for the semi-strong form of the Efficient Market Hypothesis (EMH), demonstrating that operational and financial metrics are reflected in stock prices. These results indicate that aviation companies demonstrating higher operational efficiency may be better positioned for favorable stock market performance, although financial health remains important. This study contributes to the existing literature by integrating operational and financial metrics into a machine learning framework, offering a comprehensive and interpretable model for stock price prediction in the aviation industry.

Keywords: Aviation stock prices, machine learning, SHAP values, operational efficiency, CatBoost

Operasyonel ve Finansal Verimliliğin Havacılık Hisse Senedi Fiyatları Üzerindeki Etkisi: SHAP Yorumlanabilirliğine Sahip Bir Makine Öğrenme Modeli

Süreç

Geliş: 03/10/2024

Kabul: 29/12/2024

Jel Kodları: G12, G32, C45

Öz

Bu çalışma, bir makine öğrenimi yaklaşımı kullanarak, operasyonel ve finansal verimlilik ölçütlerinin havacılık sektöründeki hisse senedi fiyatlarını nasıl etkilediğini incelemektedir. SHapley Additive exPlanations (SHAP) ile geliştirilmiş bir CatBoost regresyon modeli, 2015-2023 yılları arasında 65 küresel havacılık şirketinden toplanan veriler kullanılarak geliştirilmiştir. Model, Mevcut Koltuk Kilometre Başına Toplam Gelir (ASM), Yolcu Yük Faktörü, likidite oranları ve borç-varlık oranları dahil olmak üzere çeşitli operasyonel ve finansal göstergelere dayalı olarak hisse senedi fiyatlarını tahmin etmektedir. Bulgular, özellikle ASM başına Toplam Gelir ve Yolcu Yük Faktörü gibi operasyonel verimlilik ölçütlerinin havacılık sektöründeki hisse senedi fiyatlarının tahmininde önemli bir rol oynadığını göstermektedir. Hızlı oran ve borç varlık oranı gibi finansal ölçütler de modele katkıda bulunmakta ancak operasyonel faktörlere kıyasla ikincil bir etkiye sahip görünmektedir. SHAP değerleri, modelin tahminleri hakkında yorumlanabilir bilgiler sağlayarak farklı özelliklerin göreceli öneminin daha iyi anlaşılmasına olanak tanımıştır. Ayrıca çalışmanın bulguları, operasyonel ve finansal metriklerin hisse senedi fiyatlarına yansıtıldığını göstererek, Etkin Piyasa Hipotezi'nin (EPH) yarı-güçlü formunu desteklemektedir. Bu sonuçlar, finansal sağlık önemini korusa da, daha yüksek operasyonel verimlilik gösteren havacılık şirketlerinin olumlu borsa performansı için daha iyi konumlandırılabilirliğini göstermektedir. Bu çalışma, operasyonel ve finansal ölçütleri bir makine öğrenimi çerçevesine entegre ederek havacılık sektöründe hisse senedi fiyat tahmini için kapsamlı ve yorumlanabilir bir model sunarak mevcut literatüre katkıda bulunmaktadır.

Anahtar Kelimeler: Havacılık hisse senedi fiyatları, makine öğrenimi, SHAP değerleri, operasyonel verimlilik, CatBoost

Copyright

This work is licensed under
Creative Commons Attribution-
NonCommercial 4.0 International
License International License

^a ahmetakusta@hotmail.com

[0000-0002-5160-3210](https://orcid.org/0000-0002-5160-3210)

How to Cite: Akusta A (2025) Impact of Operational and Financial Efficiency on Aviation Stock Prices: A Machine Learning Model with SHAP Interpretability, Journal of Economics and Administrative Sciences, 26(1): 167-182, DOI: 10.37880/cumuiibf.1560514

Introduction

The aviation industry, highly sensitive to both internal operational dynamics and external macroeconomic forces, provides a unique setting for examining how efficiency impacts stock performance. Key performance indicators, such as revenue passenger kilometers (RPK), cost per available seat kilometer (CASK), and load factor (LF), have been extensively studied in this context. Increases in RPK are generally associated with stock price growth, while higher CASK and LF reflect inefficiencies in cost management and capacity utilization, adversely affecting stock values (Alici and Sevil, 2022). These findings align with broader discussions in air transport economics, where operational efficiency encompasses aerodynamic, fuel, and cost efficiency, each influencing an airline's ability to maximize revenue within specific market conditions (McLean, 2005).

Operational efficiency's broader implications on stock prices are supported by empirical research. Metrics such as the BOPO ratio negatively influence stock prices, indicating that operational inefficiencies directly affect financial performance (Wulansari et al., 2024). Similarly, profitability and cost efficiency are critical determinants of stock values, with profitability exhibiting a stronger positive impact (Putra et al., 2024). Technological interventions, such as blockchain, have been proposed to enhance operational transparency and efficiency, though market responses to such advancements have been mixed (Gimerská et al., 2023). Additionally, macroeconomic indicators such as inflation and GDP interact with operational metrics to shape stock prices, underscoring the multifaceted relationship between internal efficiency and external economic conditions (Aldabbas et al., 2023).

Financial efficiency also plays a critical role in determining stock prices within the aviation industry. Effective financial management of assets, operating income, and market capitalization enhances financial health and stock performance (Slater, 2023). Hedging strategies, mainly through financial derivatives, have been shown to mitigate operational cost fluctuations, stabilize profitability, and boost stock prices during market instability (Dewikristi Siallagan & Prijadi, 2020). These tools help airlines manage external shocks, such as fuel price volatility and exchange rate fluctuations, critical factors influencing profitability (Yilmaz & Köse, 2023).

Operational cost management is another critical factor influencing stock performance. Research on the Brazilian and Indian aviation sectors highlights the importance of managing labor, aircraft acquisition, and fuel costs, all of which dominate the cost structure in this industry. Efficiently controlling these factors positively impacts profitability and stock valuation (Lopes & Beuren, 2017; Singh et al., 2019). Moreover, operational metrics such as stage length and seats per kilometer are crucial for determining operational efficiency and its effect on stock performance (Singh et al., 2019). These findings align with the Efficient Market Hypothesis (EMH) principles, which asserts that financial asset prices reflect all available

information, thereby reducing opportunities for abnormal returns (Okur & Gurbuz, 2015; Rossi, 2016).

The Efficient Market Hypothesis (EMH), initially proposed by Eugene Fama (1970), serves as a foundational theory in finance. EMH posits that stock prices fully incorporate all relevant information, making it impossible to achieve consistent abnormal returns. Fama classified market efficiency into three forms: weak, semi-strong, and strong. Weak-form efficiency suggests that historical prices do not predict future movements, semi-strong form posits that all publicly available information is reflected in prices, and strong form extends this to include insider information (Fama, 1970; Yongxin, 2009). However, anomalies such as speculative bubbles and excess volatility challenge the validity of EMH, particularly during periods of market stress (Sachdeva, 2020). Studies on market anomalies, including calendar effects and return predictability, further question EMH's applicability across different contexts (Rossi, 2016; Woo et al., 2020).

Macroeconomic factors like oil prices, exchange rates, and GDP growth further complicate the relationship between efficiency and stock prices. Depending on global markets, airlines are especially vulnerable to these external forces. Research demonstrates that external factors, such as oil price volatility and GDP growth, often outweigh internal operational metrics, such as load factor or fleet size, in determining profitability (Yilmaz & Köse, 2023). Moreover, regulatory and political environments significantly impact airline performance, with stable conditions fostering better operational efficiency and stock performance (Yadav & Goriet, 2022). Strategic financial tools, such as hedging and diversification, are essential for managing these external pressures and stabilizing financial outcomes (Woo et al., 2020).

Corporate governance also plays a vital role in influencing stock prices within the aviation industry. Airlines with robust governance frameworks, including larger boards and frequent committee meetings, demonstrate stronger financial performance, which translates into higher stock market valuations (Wang et al., 2011). Effective governance enables airlines to manage risks and navigate external shocks effectively, enhancing shareholder value (Lee & Park, 2013). Similarly, strategic alliances and partnerships allow airlines to optimize operational efficiency, expand market reach, and improve profitability, contributing to stronger financial outcomes and stock valuations (Bissessur & Alamdari, 1998).

The aviation industry exemplifies the intricate relationships between operational and financial efficiencies and stock performance. By analyzing these factors within the Efficient Market Hypothesis (EMH) framework, as established by Fama (1970), this study seeks to provide insights into the determinants of stock price movements. This comprehensive exploration highlights how internal metrics and external forces collectively shape financial outcomes in this dynamic and competitive sector.

This paper is structured as follows: The next section reviews existing literature on operational and financial efficiency in the aviation sector and their implications for stock performance. The third section details the data collection process and methodology, emphasizing the CatBoost model and SHAP interpretability framework. Section four presents the findings, focusing on feature importance and the role of operational and financial metrics. Section five's discussion contextualizes existing research results, highlighting practical implications and limitations. Finally, the conclusion synthesizes the key insights and suggests avenues for future research.

Literature Review

Studies have consistently examined the relationship between operational metrics and their implications for airline profitability and stock valuation. Alici and Sevil (2022) provide evidence that key performance indicators such as revenue passenger kilometers (RPK) and load factor (LF) correlate positively with airline stock prices. In contrast, cost per available seat kilometer (CASK) shows a negative association. Similarly, Labantová and Begera (2014) emphasize the importance of operational indicators such as seat occupancy and fuel efficiency in enhancing profitability and influencing stock market performance. These analyses suggest a measurable link between operational data and financial outcomes, providing a basis for further exploration of efficiency drivers in the aviation sector.

The increasing reliance on data-driven methods across industries highlights the transformative impact of machine learning in optimizing business processes. In the food and beverage sector, Şahinbaş (2022) illustrates how machine learning models such as XGBoost and CatBoost can significantly enhance price prediction accuracy, enabling restaurant owners and entrepreneurs to set competitive prices aligned with market expectations. This approach ensures better customer satisfaction and improves profitability by identifying optimal pricing strategies based on specific business features. Similarly, Yüksel (2023) underscores the pivotal role of demand forecasting in the retail sector, demonstrating the superior performance of CatBoost in predicting consumer demand with high accuracy. These findings emphasize the transition from heuristic to quantitative approaches, showcasing the power of advanced algorithms in achieving operational efficiency, reducing costs, and minimizing environmental impacts through waste reduction. Together, these studies reflect the growing necessity for businesses to adopt machine learning to remain competitive, leveraging data science to make informed, actionable decisions.

Studies on flight price prediction and passenger satisfaction have employed advanced machine learning models to uncover nuanced relationships between dependent variables such as flight prices and satisfaction levels and independent factors like time, space, and density. Choudhary et al. (2023) utilize a Random Forest

model to predict flight ticket prices, achieving 95% accuracy by integrating variables such as temporal and spatial data. Similarly, Kumar et al. (2024) corroborate the effectiveness of Random Forest, highlighting its generalizability and superior performance compared to baseline models. Both studies emphasize the pivotal role of time and spatial metrics in driving prediction accuracy, suggesting the broader applicability of these factors in aviation pricing strategies. Nagesh et al. (2023) extend this analysis using Decision Tree Regression, demonstrating 85% accuracy in predicting ticket prices, thereby underscoring tree-based models' effectiveness for numerical and categorical data.

In contrast, focusing on passenger satisfaction introduces new dimensions to the analysis. Hong et al. (2023) explore the relationship between satisfaction levels and operational metrics using RF-RFE-LR, revealing time and density as significant predictors. Bhargav and Prabu (2023) further refine this approach by comparing KNN and a Hybrid Random Forest model, identifying the latter as superior in analyzing satisfaction survey data. These studies align in their methodological reliance on machine learning but diverge in application focus—pricing versus satisfaction. While flight price studies emphasize quantitative accuracy in prediction, satisfaction studies delve deeper into subjective metrics, offering insights into consumer experience. Together, they reflect the aviation sector's shift from heuristic approaches to data-driven methods, harnessing advanced algorithms to optimize operational and customer-centric outcomes.

Operational scale and workforce management have also been investigated for their impact on cost behavior. Lopes and Beuren (2017), focusing on Brazilian airlines, highlight cost asymmetry as a significant factor where workforce and fleet size variations directly affect operational expenses. Singh et al. (2019) similarly underline the importance of optimizing variables such as fuel prices, payload, and stage length in reducing costs. These findings illustrate the nuanced relationships between operational strategies and their financial effects, though further studies could refine these conclusions across different market contexts.

The impact of external economic factors on airline financial outcomes has been extensively studied, with varying conclusions about the extent of these influences. Yilmaz and Köse (2023) identify GDP, oil prices, and exchange rates as significant variables affecting profitability and stock prices, often to a greater extent than internal metrics. Complementing this, Yadav and Goriet (2022) address the effects of political and legal conditions on airline performance, offering insights into how external pressures shape operational strategies. Dewikristi Siallagan and Prijadi (2020) explore the role of hedging strategies, particularly fuel price management, in stabilizing financial outcomes, reinforcing that external variables are integral to financial resilience.

The role of financial management in improving airline operations, particularly during structural transitions such as IPOs, has received attention. Lee and Park (2013) note

significant improvements in operational metrics like RPK and LF among low-cost carriers (LCCs) following public listings, suggesting that financial restructuring can influence operational efficiency. Amankwah-Amoah (2018) identifies financial constraints as a barrier to operational improvement for African airlines, highlighting regional variations in how financial structuring affects performance. These studies indicate that financial management practices can affect operational outcomes, though the specific mechanisms warrant further examination.

Collaboration among airlines, mainly through alliances, has been identified as a potential driver of operational and financial efficiency. Bissessur and Alamdari (1998) focus on network size and service frequency, suggesting these factors can enhance profitability through improved resource utilization. Zhang et al. (2021) expand on this perspective by integrating operational and financial efficiency metrics through a network DEA approach. While these findings highlight collaborative strategies as a possible avenue for efficiency gains, the effectiveness of such measures may vary depending on market conditions and alliance structures.

Environmental performance has been increasingly recognized for its potential effects on financial and operational outcomes. Seufert et al. (2017) propose an efficiency measure called Luenberger-Hicks-Moorsteen by Briec and Kristiaan Kerstens (2009) that accounts for CO₂ emissions, showing that airlines adopting stricter environmental practices achieve improved financial performance. Lee et al. (2017) report similar findings, with higher environmental efficiency scores linked to better profitability and stock performance. These observations align with Saranga and Nagpal (2016), who highlight cost reductions from environmentally focused operational improvements in Indian low-cost carriers. While these studies present compelling evidence of a relationship between environmental strategies and financial outcomes, their applicability across different regulatory contexts remains an open question.

Research has also investigated how airlines respond to macroeconomic volatility and operational disruptions. Piranti (2021) examines the influence of fuel price fluctuations and exchange rates, observing significant effects on stock performance. This perspective aligns with Mantin et al. (2012), who analyze the impact of external shocks like the 9/11 attacks, noting that macroeconomic instability exacerbates operational challenges. Evans and Schäfer (2014) simulate responses to airport capacity constraints, suggesting that scheduling and aircraft size adjustments can mitigate financial impacts. Lee (2023) further identifies network flexibility as a critical factor in absorbing external shocks. These studies collectively underline the importance of strategic planning in managing disruptions, though their implications may vary depending on specific market or operational conditions.

The relationship between operational and financial efficiency and airline performance continues to be a

subject of rigorous study, with diverse approaches highlighting both internal and external influences. While operational metrics such as RPK, LF, and CASK are frequently linked to profitability and stock valuations, macroeconomic and regulatory factors also significantly shape outcomes. Financial management, collaborative efforts, and environmental considerations offer additional pathways for improving performance, though the effectiveness of these strategies may differ across markets and regulatory environments. The interconnected nature of these findings underscores the complexity of achieving sustained efficiency and financial stability in the aviation industry. Further research addressing regional and contextual variations could provide deeper insights into these dynamics.

Previous studies have primarily used traditional methods to explore operational and financial metrics' impact on aviation stock prices, often treating these factors separately. This study differs by integrating both metrics into a machine learning framework using CatBoost and SHAP values, providing a unified, interpretable model. This approach offers more profound insights into the relative importance of these factors, bridging the gap between traditional methods and modern data-driven analysis.

Methodology

Data Collection and Preprocessing

The data employed in this study were obtained from the Eikon platform (retrieved on 2 June 2024), encompassing the period from 2015 to 2023 and comprising 65 aviation companies, shown in Table 1, across the globe. Eikon provided comprehensive financial and operational data for each company, which is essential for analyzing the factors influencing stock prices in the aviation industry.

The time frame of 2015-2023 and the selection of 65 companies for this study represent the most comprehensive and reliable dataset available, emphasizing temporal coverage and data integrity. These 65 companies were explicitly chosen for their consistent and high-quality reporting, ensuring robust and valid analysis. This focus on data integrity may result in the exclusion of smaller companies with incomplete records, prioritizing the inclusion of firms with the most accurate and comprehensive data.

Data collection was finalized in 2024, with the latest available data extending to 2023. Significant gaps and inconsistencies were observed in records before 2015, which would have compromised the analysis's robustness and comparability. By contrast, the period from 2015 onwards provides the most extensive and complete records for operational and financial variables, ensuring consistency across the selected companies.

The dataset included operational and financial variables used as predictors in the model. As seen in Table 2, the critical variables selected for this study were:

Table 1. Aviation Companies

#	Identifier	Company Name	#	Identifier	Company Name
1	LHAG.DE	Deutsche Lufthansa AG	34	CAPI.KL	Capital A Berhad
2	0293.HK	Cathay Pacific Airways Ltd	35	JET.NS	Jet Airways (India) Ltd
3	ALK.N	Alaska Air Group Inc	36	REX.AX	Regional Express Holdings
4	AIRF.PA	Air France KLM SA	37	CPA.N	Copa Holdings SA
5	9201.T	Japan Airlines Co Ltd	38	CHR.TO	Chorus Aviation Inc
6	PAL.PS	PAL Holdings Inc	39	UAL.OQ	United Airlines Holdings Inc
7	600115.SS	China Eastern Airlines Corp	40	ALGT.OQ	Allegiant Travel Co
8	SKYW.OQ	SkyWest Inc	41	601111.SS	Air China Ltd
9	LUV.N	Southwest Airlines Co	42	AC.TO	Air Canada
10	THYAO.IS	Turk Hava Yollari AO	43	ICEAIR.IC	Icelandair Group hf
11	HA.OQ	Hawaiian Holdings Inc	44	AIRA.DU	Air Arabia PJSC
12	SIAL.SI	Singapore Airlines Ltd	45	DAL.N	Delta Air Lines Inc
13	THAI.BK	Thai Airways International	46	AGNr.AT	Aegean Airlines SA
14	AIR.NZ	Air New Zealand Ltd	47	CEB.PS	Cebu Air Inc
15	FIA1S.HE	Finnair Oyj	48	JAZK.KW	Jazeera Airways Co KSCP
16	9202.T	ANA Holdings Inc	49	PGSUS.IS	Pegasus Hava Tasimaciligi
17	2610.TW	China Airlines Ltd	50	AIRX.KL	AirAsia X Bhd
18	003490.KS	Korean Air Lines Co Ltd	51	SAVE.N	Spirit Airlines Inc
19	AFLT.MM	Aeroflot-Rossiyskiye Avialinii PAO52	52	ICAG.L	International Consolidated Airlines Group SA
20	SPJT.BO	Spicejet Ltd	53	601021.SS	Spring Airlines Co Ltd
21	QAN.AX	Qantas Airways Ltd	54	GIAA.JK	Garuda Indonesia (Persero)
22	LTM.SN	LATAM Airlines Group SA	55	AVT_p.CN	Avianca Holdings SA
23	RYA.I	Ryanair Holdings PLC	56	BA.BK	Bangkok Airways PCL
24	UTAR.MM	Aviakompaniya UTair PAO	57	AQZ.AX	Alliance Aviation Services
25	2618.TW	Eva Airways Corp	58	AAV.BK	Asia Aviation PCL
26	EZJ.L	Easyjet PLC	59	603885.SS	JUNYAO AIRLINES Co Ltd
27	600221.SS	Hainan Airlines Holding Co Ltd	60	VOLARA.MX	Controladora Vuela Compania de Aviacion SAB de
28	020560.KS	Asiana Airlines Inc	61	AAL.OQ	American Airlines Group Inc
29	JBLU.OQ	JetBlue Airways Corp	62	WIZZ.L	Wizz Air Holdings PLC
30	ELAL.TA	El Al Israel Airlines Ltd	63	AZUL.N	Azul SA
31	600029.SS	China Southern Airlines Co	64	INGL.NS	Interglobe Aviation Ltd
32	NAS.OL	Norwegian Air Shuttle ASA	65	089590.KS	JejuAir Co Ltd
33	GOLL4.SA	Gol Linhas Aereas Inteligentes SA			

Table 2. Variables

Variables	Definiton	Literature Reference
Total Revenue per ASM (USD)	Refers to the total operating revenue (which may include passenger, cargo, and other revenues) divided by the available seat miles, providing a measure of revenue generation relative to capacity provided (Zou et al., 2015).	Lee (2019) explored the effect of operational performance on financial performance, focusing on revenue per available seat mile (ASM) as a significant factor. This variable captures the operational revenue efficiency of airlines.
Passenger Load Factor	Calculated as the total Revenue Passenger Miles (RPMs) divided by the Available Seat Miles (ASMs), expressed as a percentage. It indicates the efficiency of an airline in filling available seating capacity (Zou et al., 2015).	Alici & Sevil (2022) found that the passenger load factor significantly influences stock prices, indicating that operational efficiency impacts financial performance. Yılmaz & Köse (2023) also highlighted the passenger load factor as a critical driver of profitability in air transportation.
Quick Ratio	The Quick Ratio is a stringent test of liquidity that considers assets most easily convertible to cash, excluding inventories. The formula: Quick Ratio = (Cash + Marketable Securities + Accounts Receivable) / Current Liabilities. It measures the ability to meet short-term obligations without relying on inventory (Subramanyam and Wild, 2014).	Tanrıverdi <i>et al.</i> (2023) analyzed financial performance, including the quick ratio, as part of sustainability evaluations in airlines, showing its role in liquidity assessment. Sumerli Sarıgül <i>et al.</i> (2023) used the quick ratio to assess the financial stability of European airlines.
Current Ratio	Measures a company's ability to meet short-term liabilities with short-term assets. Formula: Current Ratio = Current Assets / Current Liabilities. It provides a safety margin for covering potential shortfalls in non-cash current assets (Subramanyam and Wild, 2014).	Tanrıverdi <i>et al.</i> (2023) emphasized the importance of the current ratio in assessing airline liquidity and operational sustainability. Sumerli Sarıgül <i>et al.</i> (2023) incorporated the current ratio in evaluating European airlines' financial health.
Tot Debt/Tot Assets, %	Indicates the proportion of a company's assets financed by debt. Formula: Debt to Total Assets Ratio = Total Debt / Total Assets. A higher ratio reflects greater financial leverage and potential insolvency risk (Subramanyam and Wild, 2014).	Tanrıverdi <i>et al.</i> (2023) utilized the debt-to-asset ratio to assess airlines' financial leverage and its impact on sustainability during the COVID-19 pandemic. Sumerli Sarıgül <i>et al.</i> , (2023) included this variable in their financial performance analysis of European airlines.
Return On Assets	Measures the efficiency of using assets to generate profits. Formula: ROA = Net Profit/ Total Assets. ROA provides insight into profitability relative to the company's asset base (Subramanyam and Wild, 2014).	Alici & Sevil (2022) demonstrated that return on assets (ROA) directly influences stock prices, making it a critical variable in operational and financial performance evaluations. Lopes <i>et al.</i> , (2016) examined the role of ROA as a profitability driver among the top 30 global airlines.
Asset Turnover	Reflects the efficiency of utilizing assets to generate sales. Formula: Asset Turnover = Sales / Average Total Assets. High turnover indicates the effective use of assets in generating revenue (Subramanyam and Wild, 2014).	Sumerli Sarıgül <i>et al.</i> , (2023) considered asset turnover a vital indicator of operational efficiency in European airlines' financial performance. Lee <i>et al.</i> (2019) also included asset turnover in their operational and financial performance analysis post-IPO.
Beta	Beta measures a stock's volatility or systematic risk relative to the overall market. A beta of 1 indicates that the stock moves in line with the market; greater than 1 indicates higher volatility and less than 1 indicates lower volatility (Fama and French, 1992).	Alici & Sevil (2022) analyzed the Beta of airline stocks as a measure of volatility and its relation to operational efficiency, further linking it to stock price movement.
Net Profit Margin, %	Measures the profit generated per dollar of sales (operating revenues). Formula: Net Profit Margin = Net Profit/ Net Sales (Operating Revenues). A higher ratio indicates greater efficiency in generating profits from revenues and controlling expenses (Subramanyam and Wild, 2014).	Yılmaz & Köse (2023) identified net profit margin as a significant determinant of profitability in the airline industry, highlighting the influence of internal and external factors. Pamungkas & Suhadak (2017) explored how jet fuel prices and macroeconomic variables impact net profit margins in the Asian airline sector.
Number of Planes, Prd-Prd Diff	This refers to the difference in the number of planes (fleet size) operated by an airline between two consecutive periods (Zou et al., 2015).	Lopes & Beuren (2017) examined the influence of fleet size changes (number of planes, Prd-Prd Diff) on operational efficiency, linking it to cost behavior in Brazilian airline companies.

Following Table 2, the selected variables were chosen to provide a balanced assessment of operational and financial factors crucial to airline performance. Return on Assets (ROA) and Net Profit Margin were key profitability indicators, highlighting how effectively airlines utilize assets and control costs to generate income. ROA is particularly relevant in the asset-intensive aviation sector, offering a clear measure of asset management efficiency. Liquidity ratios, including the Quick Ratio and Current Ratio, were selected to evaluate the ability to meet short-term financial obligations, a critical factor in maintaining stability during economic fluctuations. The Debt-to-Assets Ratio was included to assess financial leverage and long-term solvency, while Asset Turnover was chosen to measure how effectively revenue is generated relative to assets. Although other indicators, such as Return on Equity (ROE), were considered, ROA was prioritized for its direct relevance to operational efficiency. The variables were selected based on their relevance to airline operations, prevalence in prior literature, and ability to collectively provide a comprehensive view of financial health and operational efficiency.

The preservation of data integrity is of paramount importance. The application of interpolation techniques maintains the continuity and integrity of datasets by estimating missing values based on known data points, thus preventing abrupt changes that could mislead analyses (Arp et al., 2022; Huang, 2021). In this study, linear interpolation was performed using the 'interpolate' method from the pandas library (McKinney, 2010). This

method estimates missing values by fitting a straight line between adjacent data points, ensuring a seamless integration of missing values into the dataset while maintaining data trends and consistency. This process enhances the precision of statistical models and analytical procedures by incorporating missing values. For example, linear interpolation has been demonstrated to optimize the performance of models such as ARIMA and multivariate regression, resulting in more accurate predictions and reduced errors (Xu & E, 2020).

To ensure the integrity and continuity of the time-series data, interpolation was selected as the preferred method for handling missing values. Interpolation is particularly effective in maintaining the consistency of trends over time, which is essential for time-series analysis. After cleaning, the individual datasets for each of the 65 airlines were aggregated into a single unified dataset. A "Company" identifier was introduced as a categorical variable for company-specific factors. This addition ensures that the model can distinguish between different airlines and capture any variations in performance or stock price trends unique to each company. This aggregation allowed for constructing a panel dataset, combining cross-sectional and time-series data, facilitating more comprehensive analyses across both dimensions.

Descriptive statistics for the dataset are shown in Table 3, highlighting the robust structure and integrity of the data used in this study.

Table 3. Descriptive Statistics

Variable	Mean	Std Dev	Min	25%	50%	75%	Max
Beta	1,226	0,597	-0,192	0,798	1,169	1,563	3,398
Asset Turnover	0,668	0,329	0,055	0,438	0,642	0,841	2,214
Return On Assets	0,012	0,086	-0,531	-0,019	0,030	0,063	0,196
Net Profit Margin, (%)	-0,04	2,112	-29,73	-0,060	0,030	0,078	40,30
Tot Debt/Tot Assets	0,456	0,260	0,000	0,311	0,433	0,578	3,480
Current Ratio	0,850	0,463	0,010	0,516	0,781	1,078	2,975
Quick Ratio	0,790	0,443	0,010	0,470	0,713	1,013	2,676
Combined Alpha Model Rank	53,41	32,22	1,000	23,000	57,00	82,00	100,00
Passenger Load Factor	0,787	0,105	0,133	0,764	0,816	0,843	0,960
Number of Planes, Prd-Prd Diff	8,348	33,06	-250,0	0,000	6,000	17,00	317,00
Total Revenue per ASM (USD)	0,135	0,097	0,000	0,097	0,121	0,148	1,915
Price Close (USD)	20,24	68,02	0,004	0,722	3,603	18,98	986,99

Catboost Model

CatBoost is an advanced implementation of gradient boosting on decision trees designed to handle categorical features efficiently and mitigate prediction biases. Unlike traditional gradient boosting models, CatBoost introduces innovative mechanisms like ordered boosting and specialized categorical feature handling to address issues of target leakage and prediction shift (Prokhorenkova et al., 2019)

CatBoost improves efficiency and reduces sensitivity to noise in target variables by discretizing continuous targets into quantized categories. This approach enhances the model's stability during training and minimizes overfitting risks (Prokhorenkova et al., 2019). Similar mechanisms are employed in related frameworks like LightGBM, which utilizes gradient-based one-side sampling (GOSS) to prioritize instances with large gradients, achieving comparable improvements in computational efficiency (Ke et al., 2017)

The model's automated handling of categorical features eliminates the need for extensive preprocessing, streamlining the modeling pipeline. CatBoost uses ordered target encoding, which assigns unique numerical representations to categorical variables based on historical data without introducing target leakage. This approach aligns with methods like target statistics in other gradient boosting frameworks but incorporates permutations to ensure data consistency (Prokhorenkova et al., 2019; Dorogush et al., 2018)

CatBoost incorporates intrinsic feature prioritization through its tree-based structure, automatically selecting the most relevant features during training. Similarly, LightGBM employs a gradient-based split criterion to dynamically adjust feature relevance across iterations, showcasing a shared emphasis on optimizing feature utilization (Ke et al., 2017; Prokhorenkova et al., 2019)

CatBoost's automation of preprocessing tasks, such as encoding categorical variables and handling missing data, is another key feature. CatBoost's tree-based structure inherently handles numerical data magnitudes, unlike methods that require normalization or scaling. This characteristic simplifies preprocessing while preserving model performance. LightGBM similarly accelerates training processes through feature bundling techniques, such as exclusive feature bundling (EFB), which groups sparse features into bins to optimize computational efficiency (Ke et al., 2017)

By leveraging these techniques, CatBoost strives to balance performance and interpretability, making it a strong candidate for handling heterogeneous and noisy datasets. Its focus on automating preprocessing, reducing prediction bias, and improving computational efficiency positions it as a promising solution for addressing complex machine learning challenges.

Modeling Process

In building the predictive model, CatBoost was selected due to its superior handling of categorical features without requiring extensive preprocessing. CatBoost employs an innovative algorithm that prevents prediction shifts caused by target leakage, making it highly effective in dealing with categorical data (Panigrahi et al., 2022). One of its main advantages is its ability to automatically manage categorical features and missing values during training, rather than relying on preprocessing, which streamlines the overall modeling process (Zhao et al., 2021).

The initial CatBoost model was trained with the default hyperparameters. The results from the baseline model are summarized in Table 4, which reports the mean squared error (MSE), mean absolute error (MAE), and mean absolute percentage error (MAPE). These metrics are critical for evaluating the model's overall performance.

The MSE measures the quality of a model by calculating the average squared difference between predicted and actual values. It evaluates how close predictions are to the observed outcomes and is minimized by the regression function, which provides the best fit for squared error. The MAE measures the average absolute difference between predictions and actual values, offering a more straightforward and interpretable error assessment by focusing on the magnitude of discrepancies without squaring them. The MAPE evaluates the average percentage difference between predicted and actual values, making it particularly useful for comparing errors across different scales or datasets. MAPE normalizes errors relative to the actual values, emphasizing relative accuracy rather than absolute differences (De Myttenaere et al., 2016).

The current model configuration, summarized in Table 2, characterized by a depth of 6, L2 leaf regularization of 3, and a learning rate of 0.06, demonstrates a balance between model complexity, regularization to mitigate overfitting, and stability in learning. MSE of 285.79 suggests that the squared prediction errors are notable, indicating some variability in model accuracy. MAE of 9.42 points to an average prediction deviation of 9.42 units, which provides a more interpretable measure of performance but also signals room for potential improvement. MAPE of 4.7% suggests that, on average, predictions deviate by 4.7% from actual values, indicating relatively strong performance in terms of proportional accuracy. While these results demonstrate reasonable effectiveness, particularly in percentage-based metrics, the magnitude of absolute errors suggests opportunities for further optimization.

Table 4. Baseline Model Results

depth	l2 leaf reg	Learning rate	MSE	MAE	MAPE
6	3	0,06	285,788057	9,42244375	4,7034661

Table 5. Hyperparameter Search Space

Hyperparameter	Values
Depth	[4, 6, 8]
Learning Rate	[0,01 0,02 0,03 0,04 0,05 0,06 0,07 0,08 0,09 0,1]
L2 Leaf Reg	[1, 3, 5]

After performing hyperparameter tuning, the following hyperparameters were found to yield better results:

Table 6. Optimized Model Results

depth	l2 leaf reg	Learning rate	MSE	MAE	MAPE
8	5	0,02	281,7407	9,383539	3,107654

Hyperparameter Tuning

Hyperparameter tuning was employed to explore multiple combinations of key parameters efficiently and enhance the predictive capabilities of the CatBoost model. The primary hyperparameters tuned included the learning rate, L2 leaf regularization, and tree depth. Each parameter is critical in balancing model complexity, generalization, and convergence.

The learning rate determines the magnitude of model parameter updates during training. Proper tuning is essential, as a meager learning rate can lead to slow convergence, while a high learning rate risks divergence from the optimal solution (Konar et al., 2020). A smaller learning rate allows the model to converge more gradually, exploring the solution space in finer increments, thereby improving generalization. However, this approach often requires an increase in the number of iterations to achieve satisfactory performance. In contrast, a larger learning rate accelerates convergence but may overshoot the optimal solution, degrading model performance. CatBoost recommends a smaller learning rate combined with more iterations for most tasks to achieve a stable and accurate model (Dorogush et al., 2017).

L2 leaf regularization, controlled by the `l2_leaf_reg` parameter, is applied to penalize large leaf weights in the decision trees. This constraint smooths predictions by encouraging the model to focus on general patterns rather than dataset-specific nuances, thereby reducing the risk of overfitting (Satter et al., 2023). Larger values of L2 regularization strengthen this effect, improving generalization on noisy datasets, but excessively high values may lead to underfitting. Optimal tuning of this parameter involves a trade-off between bias and variance, typically achieved through experimentation and cross-validation (Dorogush et al., 2017). Additionally, CatBoost's use of "oblivious trees" (where all nodes at the same level test the same feature) enhances regularization effects, improving efficiency and robustness.

The depth of the decision trees, determined by the `depth` parameter, controls the model's complexity and ability to capture feature interactions. A greater depth allows the model to represent more intricate patterns in the training data, which can improve performance on complex datasets. However, deeper trees also increase the risk of overfitting, mainly when training data contains noise or has limited samples (Astrup et al., 2008). Conversely, a smaller depth leads to simpler trees that may generalize better but risk underfitting the training data. Striking the right balance in tree depth is crucial, as it depends on the dataset's complexity. CatBoost defaults to a depth of 6, often serving as a practical starting point for many tasks (Dorogush et al., 2017).

The hyperparameter tuning search space was defined in Table 5:

As seen in Table 6, the optimized model configuration, with a depth of 8, L2 leaf regularization of 5, and a reduced learning rate of 0.02, reflects an approach aimed at enhancing the model's performance through more complex representation, stronger regularization, and finer-grained updates during training. MSE of 281.74 indicates a slight improvement in the average squared prediction error compared to the initial configuration, suggesting better precision in some predictions. MAE of 9.38 represents a modest reduction in the average absolute error, implying an incremental improvement in overall prediction accuracy. Notably, MAPE has decreased to 3.11%, reflecting a substantial enhancement in the model's proportional accuracy and effectiveness in capturing relative differences. These results suggest that the hyperparameter adjustments have improved predictive performance, particularly in percentage-based evaluations while maintaining reasonable absolute error metrics. This highlights the model's increased reliability in predicting stock prices across diverse companies.

SHAP (SHapley Additive exPlanations)

SHAP (SHapley Additive exPlanations) enhances the interpretability of machine learning models, addressing the need for transparency in AI systems. SHAP is a robust framework for interpreting machine learning models, grounded in game theory. It applies to the SHAP value concept, a measure from cooperative game theory, to attribute the contribution of individual features to model predictions in a mathematically sound and interpretable manner (Lundberg & Lee, 2017).

The SHAP value quantifies a feature's contribution by evaluating its marginal impact on the prediction. This involves calculating the difference in the model's output with and without the feature across all possible subsets of features that exclude the one being analyzed. This comprehensive approach ensures that the feature's influence is contextualized relative to all potential feature combinations (Lundberg & Lee, 2017).

To achieve a fair allocation of contributions, the computation incorporates:

- **Subset Evaluation:** Marginal contributions are determined by treating subsets of features as coalitions and comparing model outputs with and without the feature for each subset.
- **Permutational Averaging:** Contributions are averaged over all permutations of feature orderings, guaranteeing that the evaluation sequence does not influence the results.

- **Combinatorial Weighting:** Each subset's influence is scaled based on its size relative to the total feature set, ensuring a proportional representation of the feature's impact.

While this approach is rigorous, calculating exact SHAP values involves factorial computational complexity, which limits scalability for datasets with many features. To address this, SHAP incorporates model-specific optimizations, such as tailored algorithms for tree-based models and neural networks, to enhance efficiency. For general models, techniques like Kernel SHAP use local approximations to estimate contributions while preserving theoretical integrity (Lundberg & Lee, 2017).

SHAP's foundation in fairness and consistency makes it a cornerstone of explainable AI, particularly valued for its ability to provide transparent feature attributions. However, practical challenges remain, particularly in managing computational demands for high-dimensional data (Lundberg & Lee, 2017).

Feature Importance

Feature importance helps interpret machine learning models by quantifying the contribution of each feature to the model's predictions. However, traditional methods like gain, commonly used in tree-based models, must be more consistent and reliable in specific contexts (Nohara *et al.*, 2021). This inconsistency can lead to misleading interpretations of the model's behavior, especially when dealing with complex datasets.

To address these issues, Lundberg *et al.* (2018) proposed SHAP values, which offer a more robust and consistent approach to feature importance. SHAP values are grounded in game theory and provide a unified framework for local explanations by considering all possible feature combinations and their marginal contributions to the outcome. This method ensures that feature importance is calculated fairly and consistently, making it easier to interpret the impact of each variable on the model's predictions. SHAP is particularly valuable for high-stakes industries, such as aviation, where accurate interpretability of models is essential for decision-making.

The SHAP decision plot provides an in-depth visualization of how individual feature values contribute to a single prediction, offering valuable insights into the model's behavior for specific companies. It effectively allows analysts to explore the influence of different variables on the model's predictions, enhancing interpretability.

In Figure 1, the Y-axis lists the features, ranked by their importance in the model. Features higher on the axis impact the model's predictions more. For instance, the company variable is the most significant feature, followed by Total Revenue per ASM, Passenger Load Factor, and other features. On the X-axis, SHAP values represent the influence of each feature on the model's output, such as stock price predictions. Positive SHAP values indicate that a feature increases the prediction, pushing it higher, while negative SHAP values suggest that the feature lowers the prediction.

Another critical aspect of the decision plot is the color bar, which visually represents the feature values. Red points indicate higher feature values, while blue points represent lower values. This color scheme helps quickly identify feature values' impact on the model's predictions. For example, high values of Total Revenue per ASM, represented in red, generally push the model's output higher, while lower values (in blue) tend to decrease it. Similarly, higher values increase the predicted output for the Passenger Load Factor, and lower values reduce it.

Some features, such as Total Debt to Total Assets and Current Ratio, exhibit a more complex relationship with the model's target variable. Their high or low values can influence the predictions in either direction, indicating that their impact is more complex. In contrast, the Net Profit Margin demonstrates a more precise pattern, where higher values (red) push the prediction upward, while lower values (blue) decrease the predicted outcome.

The SHAP summary, shown in Table 7, plot shows how each feature contributes to the model's predictions. Features at the top, like Company and Total Revenue per ASM (USD), are the most influential. The colors indicate how feature values interact with SHAP values and help understand whether high or low feature values drive higher or lower predictions.

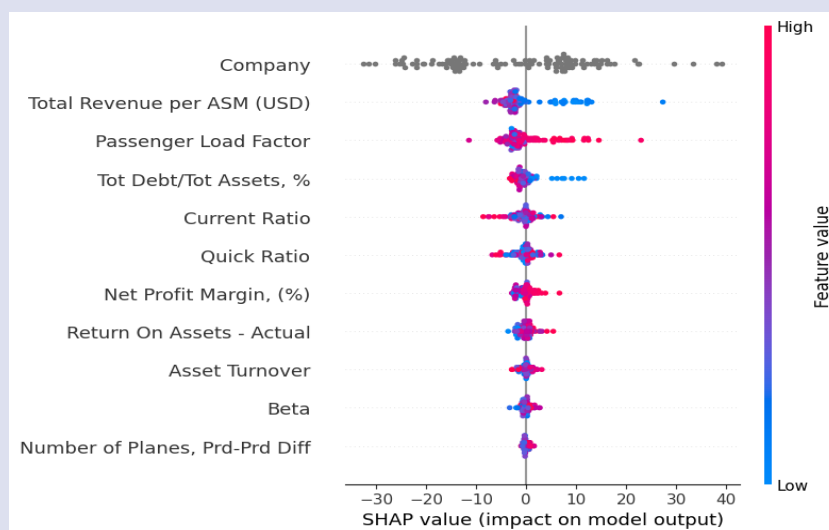


Figure 1. SHAP Values

Table 7. Model Importance Values

Feature	Importance %
Company	30,899796
Total Revenue per ASM (USD)	28,454733
Passenger Load Factor	15,601517
Quick Ratio	5,530049
Current Ratio	4,610544
Tot Debt/Tot Assets, %	4,498126
Return On Assets	2,944894
Asset Turnover	2,659982
Beta	2,306306
Net Profit Margin, (%)	1,358261
Number of Planes, Prd-Prd Diff	1,135791

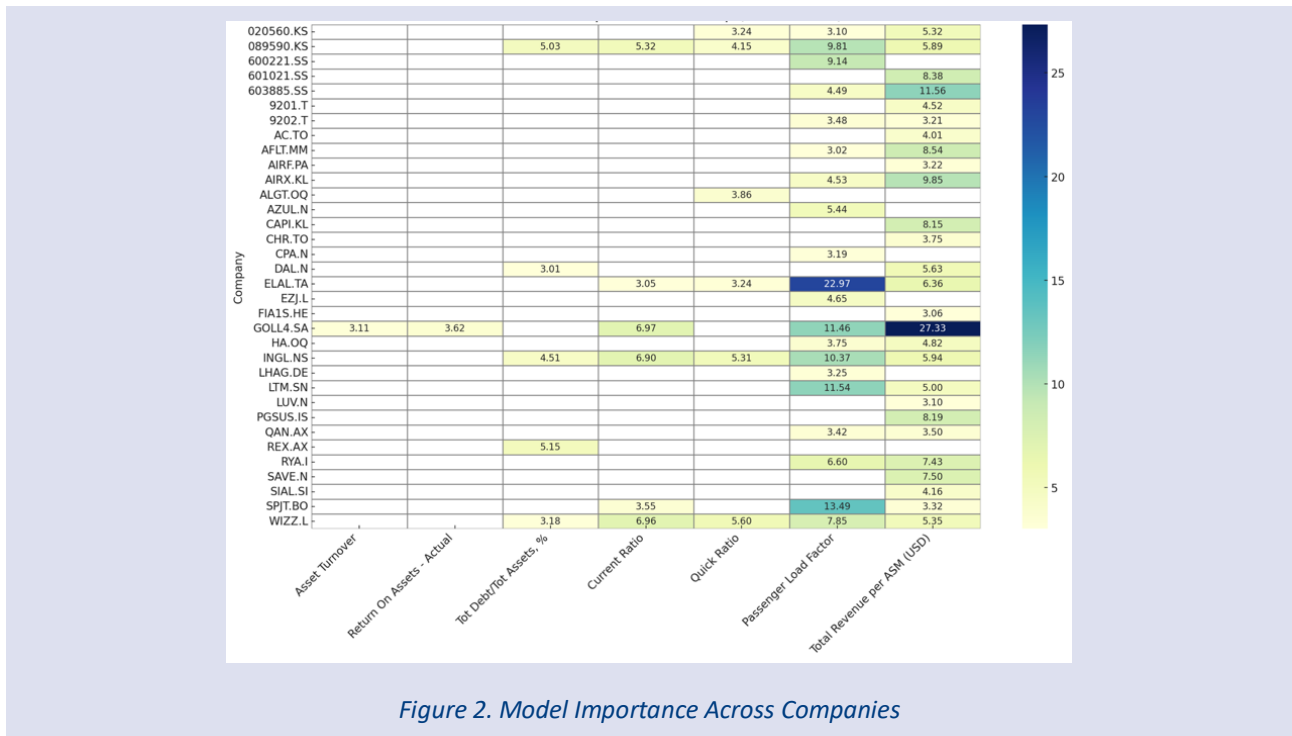


Figure 2. Model Importance Across Companies

This section examines the importance of features derived from the machine learning model in predicting airline stock prices. By leveraging SHAP values, we can quantify each feature's contribution to the model's predictions, offering a transparent view of how operational and financial metrics influence stock prices in the aviation industry. Additionally, a feature importance heatmap provides a granular breakdown of how these variables impact individual airlines.

The Company variable is the most influential feature, with an importance value of 30.90%. This highlights substantial airline stock price behavior variations driven by management strategies, market conditions, and operational practices. These company-specific differences underscore the need for granular analysis, as internal and external factors unique to each airline significantly impact stock performance.

Total revenue per ASM and passenger load factor are critical indicators of revenue generation and operational efficiency, with values of 28.45% and 15.60%, respectively. Revenue per ASM reflects an airline's ability to maximize earnings relative to its seating capacity,

signaling strong financial and operational health. Similarly, high passenger load factors indicate efficient fleet utilization, directly contributing to profitability and robust stock performance. These metrics collectively emphasize that operational success is pivotal in determining stock prices.

Financial health metrics assess short-term liquidity and stability, particularly the Quick Ratio (5.53%) and Current Ratio (4.61%). The Quick Ratio's focus on immediate financial solvency is especially valuable during economic uncertainty, while the Current Ratio offers a broader perspective on financial resilience. These indicators highlight the importance of liquidity management in an industry prone to cash flow volatility and external disruptions.

Debt-to-Assets Ratio (4.50%) reflects that debt management plays a moderate role. While debt can fuel growth and expansion, excessive reliance on borrowing introduces financial risk, affecting investor confidence. This suggests a nuanced impact, where the context of debt levels and operational success determines its effect on stock prices.

Supporting metrics such as ROA (2.94%), Asset Turnover (2.66%), and Net Profit Margin (1.36%) provide insights into profitability and asset utilization. Although these metrics contribute to understanding financial health, their lower importance than liquidity and operational efficiency suggests that investors prioritize revenue generation and financial stability over short-term profitability.

Market risk, represented by Beta (2.31%), holds a minor yet notable role. While Beta informs on stock price volatility, its relatively low importance indicates that aviation investors focus more on operational and financial fundamentals than market risk.

Finally, the Number of Planes (Prd-Prd Diff) has the least impact (1.14%). While fleet size changes reflect strategic decisions, they are overshadowed by more immediate factors like revenue generation, operational efficiency, and financial stability.

In Figure 2, the feature importances for individual companies reveal insightful patterns regarding the predictive power of various metrics. Among these, operational efficiency indicators such as Total Revenue per ASM (Available Seat Mile) and Passenger Load Factor emerge as dominant features for several companies. These metrics indicate how effectively airlines manage their capacity and revenue generation, and they are essential for companies like Gol Linhas Aéreas Inteligentes and El Al Israel Airlines Ltd. The prominence of these features underscores the central role that efficient capacity utilization and revenue management play in predicting stock price movements for these firms. Such insights highlight the strong relationship between operational performance and financial outcomes in the aviation sector.

In addition to operational metrics, financial health indicators, particularly liquidity ratios like the Current Ratio and Quick Ratio, are shown to be highly influential for other companies such as InterGlobe Aviation Ltd. and Gol Linhas Aéreas Inteligentes. These features suggest that short-term financial stability is crucial for investors when assessing stock price performance. Liquidity ratios provide a snapshot of a company's ability to meet its short-term liabilities, which likely informs investor confidence and risk perception. The fact that such financial health metrics are more critical for some companies than others reflects the aviation sector's varying business models and financial structures.

The analysis also reveals a nuanced landscape where the importance of specific features varies across companies. For instance, while the Passenger Load Factor is crucial for predicting stock performance in SpiceJet Ltd, it holds significantly less weight for El Al Israel Airlines Ltd. This variation suggests that certain companies may depend more heavily on operational metrics, such as how efficiently they manage seat occupancy. In contrast, others may rely more on financial health or asset management indicators. This company-specific variation in feature importance suggests that different strategic

priorities drive stock price performance across the aviation industry.

Overall, the analysis indicates that operational efficiency—mainly revenue per ASM and Passenger Load Factor—plays a critical role in stock price prediction for many companies within the aviation sector. This finding suggests that investors highly value airlines' ability to maximize asset utilization and revenue generation. At the same time, financial health metrics, particularly liquidity ratios, also hold substantial importance for specific companies, signaling that the ability to meet short-term obligations is a crucial factor influencing investor sentiment. The heterogeneity in feature importance across companies emphasizes the need for tailored strategies when analyzing stock performance, as some firms may prioritize operational efficiency. In contrast, others focus on maintaining financial stability. This complexity underscores the diverse drivers of stock price performance in the aviation sector, reflecting a blend of operational and financial considerations.

Discussion

This study aimed to explore how operational and financial efficiency metrics impact stock prices in the aviation industry. The results from the machine learning model indicate that operational efficiency, particularly Total Revenue per Available Seat Mile (ASM) and Passenger Load Factor, significantly influences stock prices. Financial metrics, such as the Quick Ratio and Debt-to-Assets Ratio, also play a role, though their influence is secondary to operational factors. The prominence of operational efficiency in predicting stock prices suggests that airlines' ability to maximize revenue generation and asset utilization is a crucial determinant of their market performance. This finding aligns with the research question, confirming that operational and financial health are essential, but operational efficiency provides a stronger, more immediate signal to the market.

The choice of the CatBoost model in this study provided a significant advantage in handling categorical variables and managing missing data without extensive preprocessing. CatBoost's inherent ability to minimize prediction shifts caused by target leakage ensured a robust training process, mainly when dealing with heterogeneous and multivariate datasets typical of the aviation industry. This feature made it well-suited for analyzing stock price determinants, where operational and financial metrics often vary in structure and scale. Moreover, the model's hyperparameter tuning—focusing on depth, L2 leaf regularization, and learning rate—improved prediction accuracy, reducing MSE and MAPE in the optimized model compared to the baseline. The tuning process demonstrated that a balanced combination of tree depth (8), regularization (5), and a learning rate (0.02) delivered the most accurate predictions with lower prediction errors, enhancing the model's reliability in identifying the critical drivers of stock price performance.

The interpretability of the CatBoost model, augmented by SHAP values, further validated its relevance in this context. SHAP analysis revealed that key operational metrics such as Total Revenue per ASM and Passenger Load Factor influenced predictions most. In contrast, financial metrics like Quick Ratio and Debt-to-Assets Ratio played complementary roles. This aligns with previous literature emphasizing operational efficiency as a major driver of stock prices but adds an essential layer of transparency to the model's predictions. The visualization of SHAP values clarified individual feature contributions and facilitated company-specific insights, demonstrating the flexibility and utility of the CatBoost model in complex, real-world scenarios.

The study also relates to the Efficient Market Hypothesis (EMH), particularly its semi-strong form, which posits that stock prices reflect all publicly available information. The findings suggest that operational and financial metrics are indeed integrated into stock prices, providing support for the semi-strong form of EMH. However, the study's ability to identify specific metrics, such as Total Revenue per ASM and Passenger Load Factor, as dominant predictors raises questions about whether all publicly available information is equally weighted or efficiently processed by the market. While the results do not explicitly challenge EMH, they suggest that machine learning models can extract nuanced patterns from operational and financial data, potentially uncovering inefficiencies or underutilized information. This perspective complements existing discussions in finance about the degree of market efficiency and highlights the need for further research to determine whether these insights represent true inefficiencies or are within the bounds of market behavior under EMH.

The findings of this study align with prior research emphasizing the critical role of operational efficiency in influencing stock price performance. Studies by Alici and Sevil (2022) and Labantová and Begera (2014) highlight a positive correlation between higher operational metrics, such as Revenue Passenger Kilometers and Load Factor, and stock prices. This study extends these findings using machine learning to demonstrate that operational metrics, mainly revenue per ASM, remain dominant predictors in a more complex, data-driven framework. However, the results diverge from those of (Yadav & Goriet, 2022; Yilmaz & Köse, 2023), who emphasized external factors like macroeconomic conditions and regulatory influences as primary drivers of stock prices. This study emphasizes company-specific operational and financial performance, suggesting that internal metrics may play a more significant role in determining stock valuation in the aviation sector, although macroeconomic factors remain relevant.

The study's findings carry important implications for both investors and airline management. For investors, operational efficiency metrics, such as Total Revenue per ASM and Passenger Load Factor, provide valuable insights into stock performance and should be prioritized when assessing aviation stocks. The significance of these metrics

indicates that airlines that optimize revenue generation and fleet utilization are better positioned for favorable stock price performance, making these critical areas for investment analysis. The results suggest that maintaining operational efficiency is crucial for ensuring positive market responses for airline management. The importance of liquidity, reflected by metrics such as the Quick Ratio, underscores the need for airlines to manage short-term obligations effectively to maintain investor confidence, especially during volatile economic periods. These findings highlight the significance of focusing on internal efficiency to bolster market value and financial stability.

This study contributes to the existing literature by introducing a machine learning framework that aims to improve the accuracy of stock price prediction while offering more interpretable insights through SHAP values. Previous studies, such as those by Amankwah-Amoah (2018), & Singh et al., (2019), explored operational and financial efficiency but often relied on traditional statistical methods, which limited their predictive power and interpretability. This study addresses this gap by showing that machine learning models, combined with SHAP analysis, can offer a more nuanced understanding of how specific operational and financial metrics influence stock prices. The research advances the literature by providing a transparent, data-driven approach that investors and management can use to assess the performance of airlines, addressing a critical need for interpretability in machine learning-based financial models.

While this study provides valuable insights, it has limitations. First, the dataset covers only 65 aviation companies from 2015 to 2023, which may limit the generalizability of the findings to airlines operating in different economic environments or geographical regions. Expanding the dataset to include a broader range of airlines or extending the time frame could enhance the robustness of the results. Second, the model primarily focuses on internal operational and financial metrics, leaving external factors such as fuel prices, geopolitical risks, and regulatory changes that must be explored. Future research could incorporate these external variables to develop a more comprehensive model that captures both internal and external influences on stock prices. This study does not examine potential interactions between operational and financial metrics. Investigating these interactions in future research could provide deeper insights into how operational performance and financial health jointly influence stock prices.

Lastly, while the machine learning model offers solid predictive capabilities, it inherently relies on historical data. As a result, its ability to anticipate future market disruptions, such as sudden economic shocks or industry-wide regulatory changes, may be limited. Future studies should explore incorporating real-time data or developing models that can adapt to changing market conditions to enhance predictive accuracy in the aviation sector further.

Conclusion

This study aimed to examine the influence of operational and financial efficiency on aviation stock prices using a machine learning model—specifically CatBoost enhanced by SHAP interpretability. The findings suggest that operational metrics such as Total Revenue per ASM and Passenger Load Factor may be among the most influential factors in predicting stock prices, potentially surpassing financial metrics like the Quick Ratio and Debt-to-Assets Ratio. These results indicate that, in this study, aviation investors might prioritize operational efficiency over short-term financial performance when evaluating stock value. Airlines with higher revenue generation per available seat mile and optimized fleet utilization tend to see favorable stock market performance. At the same time, liquidity and debt management are also considered necessary, albeit secondary, factors. The findings from this study highlight the potential significance of operational efficiency and financial health for airline management aiming to maintain or enhance stock price performance.

The research addressed the question: How do operational and financial efficiency metrics impact airlines' stock prices? The primary objective was to develop a predictive model that could accurately forecast stock prices based on a combination of these metrics, offering insights into the most influential factors. Additionally, the study sought to interpret the model's predictions using SHAP values to provide transparent explanations of how different metrics contribute to stock price fluctuations. This research achieved these objectives by showing that operational efficiency plays a significant role in stock price performance and that machine learning, coupled with SHAP, can provide meaningful, interpretable insights into stock price prediction.

This study makes several contributions to finance and operational efficiency, particularly in the aviation sector.

First, it introduces a machine learning model that aims to improve the accuracy of stock price prediction and offers transparency through SHAP values, addressing a shared concern about the opacity of machine learning models. Second, the study adds to the growing body of literature highlighting the potential importance of operational efficiency in stock market performance, providing empirical evidence that operational metrics may be more influential than financial ones in driving stock prices in the aviation industry. Third, by focusing on operational and financial metrics, this study bridges a gap in the literature, offering a more comprehensive understanding of how these two domains influence stock prices. Finally, the study offers practical insights for investors and airline management by highlighting specific operational and financial metrics that could be important for improving stock performance.

While this study provides valuable insights, several avenues for future research could enhance the understanding of stock price determinants in the aviation industry. Future studies could expand the dataset to include a broader range of airlines and extend the analysis to different economic conditions, regions, or business models, such as low-cost versus full-service carriers. This would provide a more comprehensive understanding of how these factors influence stock prices across different market contexts. Additionally, incorporating external macroeconomic factors such as oil prices, interest rates, and geopolitical risks could provide a more holistic view of the forces driving stock price movements. Future studies could also explore the interactions between operational and financial metrics, examining how these variables jointly influence stock prices. Lastly, incorporating real-time data and developing models that adapt to sudden economic shifts could enhance predictive accuracy and relevance in volatile market conditions.

Katkı Oranları ve Çıkar Çatışması / Contribution Rates and Conflicts of Interest

Etik Beyan	Bu çalışmanın hazırlanma sürecinde bilimsel ve etik ilkelere uyulduğu ve yararlanılan tüm çalışmaların kaynakçada belirtildiği beyan olunur.	Ethical Statement	It is declared that scientific and ethical principles have been followed while carrying out and writing this study and that all the sources used have been properly cited
Yazar Katkıları	Çalışmanın Tasarlanması: AA (%100) Veri Toplanması: AA (%100) Veri Analizi: AA (%100) Makalenin Yazımı: AA (%100) Makale Gönderimi ve Revizyonu: AA (%100)	Author Contributions	Research Design: AA (%100) Data Collection: AA (%100) Data Analysis: AA (%100) Writing the Article: AA (%100) Article Submission and Revision: AA (%100)
Etik Bildirim	iibfdergi@cumhuriyet.edu.tr	Complaints	iibfdergi@cumhuriyet.edu.tr
Çıkar Çatışması	Çıkar çatışması beyan edilmemiştir.	Conflicts of Interest	The author(s) has no conflict of interest to declare.
Finansman	Bu araştırmayı desteklemek için dış fon kullanılmamıştır.	Grant Support	The author(s) acknowledge that they received no external funding in support of this research.
Telif Hakkı & Lisans	Yazarlar dergide yayınlanan çalışmalarının telif hakkına sahiptirler ve çalışmalarını CC BY-NC 4.0 lisansı altında yayımlanmaktadır.	Copyright & License	Authors publishing with the journal retain the copyright to their work licensed under the CC BY-NC 4.0
Etik Kurul	Etik kurul iznine ihtiyaç bulunmamaktadır	Ethics Committee	Ethics committee approval is not required.

References

- Aldabbas, M., Arabyat, Y. A., Al-Shawawreh, T. B., Alfalayeh, G. A., & Alqudah, M. Z. (2023). The role of information technology in raising the efficiency of Amman Stock Exchange mediated by the behavior of the stock prices. *WSEAS Transactions on Business and Economics*, 20, 1129–1143. <https://doi.org/10.37394/23207.2023.20.101>
- Alici, A., Alici, A., & Sevil, G. (2022). Analysis of sector-specific operational performance metrics affecting stock prices of traditional airlines. *Independent Journal of Management & Production*, 13(2), 488–506. <https://doi.org/10.14807/ijmp.v13i2.1777>
- Amankwah-Amoah, J. (2018). Why are so many African companies uncompetitive on the global stage? Insights from the global airline industry. *Africa's Competitiveness in the Global Economy*, 195–216. https://doi.org/10.1007/978-3-319-67014-0_8
- Arp, L., Baratchi, M., & Hoos, H. H. (2022). VPint: Value propagation-based spatial interpolation. *Data Mining and Knowledge Discovery*, 36(5), 1647–1678. <https://doi.org/10.1007/s10618-022-00843-2>
- Astrup, R., Coates, K. D., & Hall, E. (2008). Finding the appropriate level of complexity for a simulation model: An example with a forest growth model. *Forest Ecology and Management*, 256(10), 1659–1665. <https://doi.org/10.1016/j.foreco.2008.07.016>
- Babu, B. S., Venkat, K. M., Reddy, J. M., & Sai, K. R. (2022). Airline ticket price prediction. *International Journal for Research in Applied Science and Engineering Technology*.
- Bhargav, B., & Prabu, R. T. (2023). Airline passenger satisfaction prediction using novel hybrid random forest model comparison with K-nearest neighbour model. *2023 Eighth International Conference on Science Technology Engineering and Mathematics (ICONSTEM)*, 1–6.
- Bissessur, A., & Alamdari, F. (1998). Factors affecting the operational success of strategic airline alliances. *Transportation*, 25(4), 331–355. <https://doi.org/10.1023/A:1005081621754>
- Briec, W., & Kerstens, K. (2004). A Luenberger-Hicks-Moorsteen productivity indicator: Its relation to the Hicks-Moorsteen productivity index and the Luenberger productivity indicator. *Economic Theory*, 23(4), 925–939. <http://www.jstor.org/stable/25055794>
- Choudhary, A., Jagadeesh, R., Giriya, E., Madhuri, M., & Shrivani, N. (2023). Flyhigh: Machine learning-based airline fare prediction model. *2023 6th International Conference on Information Systems and Computer Networks (ISCON)*, 1–8.
- De Myttenaere, A., Golden, B., Le Grand, B., & Rossi, F. (2016). Mean absolute percentage error for regression models. *Neurocomputing*, 192, 38–48. <https://doi.org/10.1016/j.neucom.2015.12.114>
- Dewikristi Siallagan, S., & Prijadi, R. (2020). The impact of operational and financial hedging to the airline operating performance. *KnE Social Sciences*. <https://doi.org/10.18502/kss.v4i6.6635>
- Dorogush, A. V., Ershov, V., & Gulin, A. (2017). CatBoost: Gradient boosting with categorical features support. *Workshop on ML Systems at NIPS 2017*. Retrieved from <https://github.com/>
- Evans, A., & Schäfer, A. W. (2014). Simulating airline operational responses to airport capacity constraints. *Transport Policy*, 34, 5–13. <https://doi.org/10.1016/j.tranpol.2014.02.013>
- Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. *The Journal of Finance*, 25(2), 383–417.
- Gimerská, V., Šoltés, M., & Mirdala, R. (2023). Improving operational efficiency through Quality 4.0 tool: Blockchain implementation and subsequent market reaction. *Quality Innovation Prosperity*, 27(2), 16–32. <https://doi.org/10.12776/qip.v27i2.1877>
- Hancock, J. T., & Khoshgoftaar, T. M. (2020). CatBoost for big data: an interdisciplinary review. *Journal of big data*, 7(1), 94.
- Hong, A. C. Y., Khaw, K. W., Chew, X., & Yeong, W. C. (2023). Prediction of US airline passenger satisfaction using machine learning algorithms. *Data Analytics and Applied Mathematics (DAAM)*.
- Huang, G. (2021). Missing data filling method based on linear interpolation and LightGBM. *Journal of Physics Conference Series*, 1754(1), 012187. <https://doi.org/10.1088/1742-6596/1754/1/012187>
- Ke, G., Meng, Q., Finley, T., Wang, T., Chen, W., Ma, W., ... & Liu, T. Y. (2017). Lightgbm: A highly efficient gradient boosting decision tree. *Advances in neural information processing systems*, 30.
- Konar, J., Khandelwal, P., & Tripathi, R. (2020). Comparison of various learning rate scheduling techniques on convolutional neural network. *2020 IEEE International Students' Conference on Electrical, Electronics and Computer Science (SCEECS 2020)*. <https://doi.org/10.1109/SCEECS48394.2020.94>
- Köse, Y., & Yılmaz, E. (2023). An empirical research on the factors affecting profitability in air transportation. *Sosyoekonomi*, 31(58), 43–60. <https://doi.org/10.17233/sosyoekonomi.2023.04.02>
- Kumar, D. S., Prem, S., Ashfaq, S. M., Rafiq, P. M., & Varma, C. N. (2023). Airline fare prediction using machine learning.
- Labantová, L., & Begeera, V. (2014). Financial, operational and economic indicators of airline operators. *Faculty of Aeronautics, Technical University of Košice*, 16(2).
- Lee, B. L., Wilson, C., Pasurka, C. A., Fujii, H., & Managi, S. (2017). Sources of airline productivity from carbon emissions: An analysis of operational performance under good and bad outputs. *Journal of Productivity Analysis*, 47(3), 223–246. <https://doi.org/10.1007/s11123-016-0480-4>
- Lee, J. (2019). Effects of operational performance on financial performance. *Management Science Letters*, 9(1), 25–32.
- Lee, K. (2023). Airline operational disruptions and loss-reduction investment. *Transportation Research Part B: Methodological*, 177, 102817. <https://doi.org/10.1016/j.trb.2023.102817>
- Lee, S., & Park, S.-B. (2013). A study on the association between operating leverage and risk: The case of the airline industry. *International Journal of Economics and Finance*, 6(3), 120. <https://doi.org/10.5539/ijef.v6n3p120>
- Lee, S., Kim, H., & Lee, N. (2019). A comparative analysis of financial and operational performance pre-and post-IPO: With a focus on airline companies. *Academy of Accounting and Financial Studies Journal*, 23(3), 1–14.
- Lopes, I. F., & Beuren, I. M. (2017). Comportamento dos custos e sua relação com medidas de eficiência operacional em companhias aéreas. *BASE - Revista de Administração e Contabilidade Da Unisinos*, 14(1), 30–46. <https://doi.org/10.4013/base.2017.141.03>
- Lopes, I. T., Ferraz, D. P., & Rodrigues, A. M. G. (2016). The drivers of profitability in the top 30 major airlines worldwide. *Measuring Business Excellence*, 20(2), 26–37. <https://doi.org/10.1108/mbe-09-2015-0045>
- Lundberg, S. M., & Lee, S.-I. (2017). A unified approach to interpreting model predictions. In *Advances in Neural Information Processing Systems*, 30 (pp. 4765–4774). Curran Associates, Inc.
- Lundberg, S., Erion, G., & Lee, S.-I. (2018). Consistent individualized feature attribution for tree ensembles. *ArXiv Preprint*. <https://doi.org/10.48550/arxiv.1802.03888>
- Mantin, B., & Wang, J.-H. (2012). Determinants of profitability and recovery from system-wide shocks: The case of the airline industry. *Journal of Airline and Airport Management*, 2(1), 1–33. <https://doi.org/10.3926/jairm.2>
- McKinney, W. (2010). Data structures for statistical computing in Python. *Proceedings of the 9th Python in Science Conference*, 56–61. <https://doi.org/10.25080/Majora-92bf1922-00a>
- McLean, D. (2005). Operational efficiency of commercial transport aircraft. *Measurement and Control*, 38(8), 243–248. <https://doi.org/10.1177/002029400503800803>

- Nagesh, P., Naidu, K. B. J., Kowshik, P., & Sekhar, P. C. (2023). Airline ticket price prediction model. *International Journal for Research in Applied Science and Engineering Technology*.
- Nohara, Y., Matsumoto, K., Soejima, H., & Nakashima, N. (2021). Explanation of machine learning models using Shapley additive explanation and application for real data in hospitals. *ArXiv Preprint*. <https://doi.org/10.48550/arxiv.2112.11071>
- Okur, M., & Gurbuz, A. O. (2015). Behavioral finance in theory and practice. In *Banking, Finance, and Accounting: Concepts, Methodologies, Tools, and Applications* (pp. 18). IGI Global. <https://doi.org/10.4018/978-1-4666-6268-1.ch016>
- Pamungkas, D. P., & Suhadak, S. (2017). The effect of jet fuel price and macroeconomics variables on profitability of airline industry in Asia (Study at airline companies in Indonesia, India, and China period 2006–2015). *Jurnal Ekonomi Bisnis dan Kewirausahaan*, 50(3), 208–217.
- Panigrahi, R., Patne, N. R., Pemmada, S., & Manchalwar, A. D. (2022). Regression model-based hourly aggregated electricity demand prediction. *Energy Reports*, 8, 16–24. <https://doi.org/10.1016/j.egyr.2022.10.004>
- Piranti, M. (2021). The impact of fuel price fluctuation and macroeconomic variables to airlines performance. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, 12(3), 5486–5494.
- Prokhorenkova, L., Gusev, G., Vorobev, A., Dorogush, A. V., & Gulina, A. (2018). CatBoost: unbiased boosting with categorical features. *Advances in neural information processing systems*, 31.
- Putra, R. A. K., Persada, S. F., Kumalasari, R. D., Herdina, A. M., Sekardhani, M., & Razif, M. (2024). Operational cost efficiency and profitability effects on companies' distribution stock prices during COVID-19. *Jurnal Manajemen Teknologi*, 23(1), 76–90. <https://doi.org/10.12695/jmt.2024.23.1.5>
- Rossi, M. (2015). The efficient market hypothesis and calendar anomalies: A literature review. *International Journal of Managerial and Financial Accounting*, 7(3/4), 285. <https://doi.org/10.1504/IJMF.2015.074905>
- Sachdeva, T. (2020). Managing shareholders in turbulent times: Evidence from Indian stock market. *International Journal of Business and Globalisation*, 25(3), 265. <https://doi.org/10.1504/IJBG.2020.109005>
- Şahinbaş, K. (2022). Price prediction model for restaurants in Istanbul by using machine learning algorithms. *Ekonomi İşletme ve Maliye Araştırmaları Dergisi*, 4(2), 159–171.
- Saranga, H., & Nagpal, R. (2016). Drivers of operational efficiency and its impact on market performance in the Indian airline industry. *Journal of Air Transport Management*, 53, 165–176. <https://doi.org/10.1016/j.jairtraman.2016.03.001>
- Satter, S., Kwon, T.-H., & Kim, K.-D. (2023). A comparative analysis of various machine learning algorithms to improve the accuracy of HbA1c estimation using wrist PPG data. *Sensors*, 23(16), 7231. <https://doi.org/10.3390/s23167231>
- Seufert, J. H., Arjomandi, A., & Dakpo, K. H. (2017). Evaluating airline operational performance: A Luenberger-Hicks-Moorsteen productivity indicator. *Transportation Research Part E: Logistics and Transportation Review*, 104, 52–68. <https://doi.org/10.1016/j.tre.2017.05.006>
- Singh, J., Sharma, S. K., & Srivastava, R. (2019). What drives Indian airlines' operational expense: An econometric model. *Journal of Air Transport Management*, 77, 32–38. <https://doi.org/10.1016/j.jairtraman.2019.03.003>
- Slater, P. J. (2023). Mind the GAAP: Determinants of U.S. airline operating cash flows. *Journal of Academy of Business and Economics*, 23(1), 74–84. <https://iabe.org/IABE-DOI/article.aspx?DOI=IABE-23-1.6>
- Subramanian, R., Murali, M. S., Deepak, B., Deepak, P., Reddy, H. N., & Sudharsan, R. R. (2022). Airline fare prediction using machine learning algorithms. *2022 4th International Conference on Smart Systems and Inventive Technology (ICSSIT)*, 877–884.
- Subramanyam, K. R., & Wild, J. J. (2016). *Financial statement analysis* (11th ed.). McGraw-Hill Education.
- Sumerli Sangül, S., Ünlü, M., & Yaşar, E. (2023). Financial performance analysis of airlines operating in Europe: CRITIC-based MAUT and MARCOS methods. *International Journal of Business and Economic Studies*, 5(2), 76–97. <https://doi.org/10.54821/uiecd.1257488>
- Sun, Y., Wong, A. K., & Kamel, M. S. (2009). Classification of imbalanced data: A review. *International journal of pattern recognition and artificial intelligence*, 23(04), 687–719.
- Tannverdi, G., Merkert, R., Karamaşa, Ç., & Asker, V. (2023). Using multi-criteria performance measurement models to evaluate the financial, operational and environmental sustainability of airlines. *Journal of Air Transport Management*, 112, 102456. <https://doi.org/10.1016/j.jairtraman.2023.102456>
- Wang, W.-K., Lu, W.-M., & Tsai, C.-J. (2011). The relationship between airline performance and corporate governance amongst U.S. listed companies. *Journal of Air Transport Management*, 17(2), 148–152. <https://doi.org/10.1016/j.jairtraman.2010.06.005>
- Woo, K.-Y., Mai, C., McAleer, M., & Wong, W.-K. (2020). Review on efficiency and anomalies in stock markets. *Economies*, 8(1), 20. <https://doi.org/10.3390/economies8010020>
- Wulansari, T., Suwardi, F., Firdaus, F., Purwanto, D., Hibatullah, Z., & Marganis, V. C. (2024). The influence of liquidity, productive asset quality and operational efficiency on company stock prices: Study of banks going public for the 2016–2020 period. *International Journal of Economics and Management Sciences*, 1(2), 19–28. <https://doi.org/10.61132/ijems.v1i2.18>
- Xu, Y., & E, X. (2020). ARIMA based on linear interpolation for SO2 monitoring data's calibration. *Journal of Physics Conference Series*, 1616(1), 012044. <https://doi.org/10.1088/1742-6596/1616/1/012044>
- Yadav, D. K., & Goriet, M. O. (2022). An illustrative evaluation of external factors that affect performance of an airline. *Journal of Aerospace Technology and Management*, 14, 1122. <https://doi.org/10.1590/jatm.v14.1253>
- Yılmaz, E., & Köse, Y. (2023). An empirical research on the factors affecting profitability in air transportation. *Sosyoekonomi*, 31(58), 43–60. <https://doi.org/10.17233/sosyoekonomi.2023.04.02>
- Yongxin, L. (2009). Discussing on trend to efficient market hypothesis of securities and futures market. *2009 International Conference on Information Management, Innovation Management and Industrial Engineering*, 3, 149–152.
- Yüksel, B. (2023). Zaman serilerinde talep tahmini (Demand prediction in time series). *YBS Ansiklopedi*, 11(2), 1–18.
- Zhang, Q., Koutmos, D., Chen, K., & Zhu, J. (2021). Using operational and stock analytics to measure airline performance: A network DEA approach. *Decision Sciences*, 52(3), 720–748. <https://doi.org/10.1111/deci.12363>
- Zhao, Q., Wang, H., Luo, J.-C., Luo, M., Li, L., Yu, S.-J., Li, K., Zhang, Y., Sun, P., Tu, G.-W., & Luo, Z. (2021). Development and validation of a machine-learning model for prediction of extubation failure in intensive care units. *Frontiers in Medicine*, 8. <https://doi.org/10.3389/fmed.2021.676343>
- Zou, L., Yu, C., & Dresner, M. (2015). Fleet standardization and airline performance. *Journal of Transport Economics and Policy*, 49(1), 149–166. <https://www.jstor.org/stable/jtranseconpoli.49.1.0149>



An Assessment of Academicians' Concerns About Artificial Intelligence by Generations: The Case of Faculty Members in Business Administration Departments

Mustafa Özkan^{1,a,*}, Esra Gökçen Kaygısız^{2,b}

¹Business Administration, Faculty of Economics and Administrative Sciences, Giresun University, Giresun, Türkiye

²Business Administration, Faculty Of Economics And Administrative Sciences, Giresun University, Giresun, Türkiye

*Corresponding author

Research Article

History

Received: 08/10/2024

Accepted: 13/12/2024

JEL Codes C12, M10, D23

ABSTRACT

This study aims to examine the anxiety of academicians from different generations regarding the evolving and diversifying field of artificial intelligence (AI). The rapid development of AI technologies has led to concerns about security, job loss, cultural degeneration, and even a future like in science fiction-themed works for employees in every sector. These concerns are likely to impact academics as well, who must engage in ongoing research and analysis while also being responsible for sharing their findings with their students. From this point of view, the study aims to compare the concerns and degrees of these concerns of academicians from different generations, such as Generation X, Generation Y, and Generation Z, who are currently working in business administration in higher education, regarding AI. The study collected data through a survey, evaluating participants' perspectives on the potential impacts of AI on the workforce, education, and research processes. The data was examined with statistical analyses to determine whether there were significant differences in anxiety levels between generations. According to the findings, it was observed that Generation X generally had higher concerns about the negative effects of AI, while there was no difference between the anxiety levels of Generations Y and Generation Z.

Keywords: Artificial intelligence, Artificial intelligence anxiety, Generation, Quantitative Decision Making

Akademisyenlerin Yapay Zekâ Kaygılarının Nesillere Göre Değerlendirilmesi: İşletme Bölümü Öğretim Elemanları Örneği

Süreç

Geliş: 08/10/2024

Kabul: 13/12/2024

Jel Kodları: C12, M10, D23

Öz

Bu çalışma, farklı kuşaklardaki akademisyenlerin gelişen ve çeşitlenen yapay zekâ (YZ) ile ilgili kaygılarını incelemeyi amaçlamaktadır. YZ teknolojilerinin hızla gelişmesi, her sektördeki ve her özellikteki çalışmada güvenlik, işini kaybetme, kültürel yozlaşma ve hatta bilim kurgu temalı eserlerdeki gibi bir geleceğin olması gibi endişelere yol açmıştır. Bu endişelerin, sürekli araştırma ve analiz yapmak durumunda olan ve elde ettikleri bulguları öğrencilere aktarmakla yükümlü olan akademisyenleri de etkilemesi muhtemeldir. Bu noktadan hareketle çalışma, şu an yükseköğretim içinde işletme fakültelerinde görev yapan X Kuşağı, Y Kuşağı ve Z Kuşağı gibi farklı kuşaklardaki akademisyenlerin YZ ile ilgili endişelerini ve bu endişelerin derecelerini karşılaştırmayı amaçlamaktadır. Çalışmada, anket aracılığıyla kullanılarak veri toplanmış ve katılımcıların YZ'nin iş gücü, eğitim ve araştırma süreçleri üzerindeki potansiyel etkilerine ilişkin görüşleri değerlendirilmiştir. Veriler, kuşaklar arasında kaygı düzeylerinde anlamlı farklar olup olmadığını belirlemek amacıyla istatistiksel analizlerle incelenmiştir. Elde edilen bulgulara göre X Kuşağı'nın genellikle YZ'nin olumsuz etkilerine yönelik daha yüksek kaygılar taşıdığı, Y ve Z kuşaklarının kaygı düzeyleri arasında bir fark olmadığı gözlemlenmiştir.

Anahtar Kelimeler: Yapay Zekâ, Yapay Zekâ Kaygısı, Kuşak, Nicel Karar Verme

Copyright



This work is licensed under
Creative Commons
Attribution-NonCommercial 4.0
International License

^a mstf.ozknn@hotmail.com

^b [0000-0002-4439-2531](tel:0000-0002-4439-2531)

^b esgokk@hotmail.com

^b [0000-0002-4950-9508](tel:0000-0002-4950-9508)

How to Cite: Özkan M, Kaygısız EG (2025) An Assessment of Academicians' Concerns About Artificial Intelligence by Generations: The Case of Faculty Members in Business Administration Departments, Journal of Economics and Administrative Sciences, 26(1): 183-195, DOI: [10.37880/cumuiibf.1563751](https://doi.org/10.37880/cumuiibf.1563751)

Giriş

Son yıllarda adından sıklıkla bahsedilen YZ teknolojileri, en basit tanımıyla insan davranışlarını taklit etme fikri üzerine şekillenen ve öğrenme temelinde gelişen karmaşık sistemlerin genel adıdır. YZ, günümüzde farklı alanlarda geniş uygulama potansiyeli sunarken, akademik dünyada da derin yankılar uyandırmaktadır. YZ; veri analitiği, öğrenme yönetim sistemleri, kişiselleştirilmiş eğitim içeriklerinin oluşturulmasında, araştırma süreçlerinde veri toplama ve analize kadar geniş bir yelpazede akademisyenlerin hayatına dâhil olmuştur. Bununla birlikte, YZ ile gelen yeniliklerin getirdiği fırsatlar kadar, çeşitli kaygı ve endişeleri ortaya çıkmıştır.

Akademik dünyada, bugün YZ'nin potansiyel etkileri üzerine yapılan tartışmalar, teknolojiye karşı duyulan kaygıların yanı sıra, bu etkilerin eğitim, araştırma ve toplumsal etkileşim üzerinde nasıl bir değişim yaratacağına dair belirsizliklerle de şekillenmektedir. Bu bağlamda, farklı kuşaklara mensup akademisyenlerin, YZ teknolojilerine yönelik tutum ve endişelerinin anlaşılması, gelecekteki eğitim politikalarının ve akademik araştırmaların yönlendirilmesi açısından da önem taşımaktadır. Söz konusu tartışmaların farklı kuşakların YZ'e farklı tepkileriyle şekillenmesi de muhtemeldir.

Bilindiği üzere; Baby Boomer, X Kuşağı, Y Kuşağı ve Z Kuşağı gibi farklı kuşaklar, teknolojik gelişmelerle farklı derecelerde etkileşimde bulunmuş ve bu etkileşimler onların YZ konusundaki kaygılarını da şekillendirmiştir. Örneğin, Baby Boomer kuşağı, dijital devrimin ilk evrelerini deneyimlemiş ve teknolojik yeniliklere daha temkinli yaklaşırken; Y ve Z kuşakları, dijital dünyada doğup büyüyen bireyler olarak teknolojiye daha aşina ve uyumlu olabilmektedirler. Dolayısıyla bu kuşaklar arasındaki deneyim ve perspektif farkları, YZ'nin akademik dünyada nasıl algılandığını ve değerlendirildiğini anlamada kritik rol oynamaktadır.

İşletme bölümü akademisyenleri, YZ'nin en fazla etkileşimde bulunduğu alanlardan biri olan işletme ve yönetim bilimlerinde, bu teknolojinin eğitim ve araştırmalara etkisini hem teorik hem de pratik açıdan yakından gözlemlemektedir. Ayrıca işletme bölümü, Türkiye'de erken kurulan bölümlerden olduğu için özellikle X, Y ve Z kuşaklarının bir arada olabildiği bir bölümdür. Bu bağlamda çalışma, kuşak farklılıklarının akademisyenlerin YZ teknolojilerine yönelik kaygılarında etkisi olup olmadığını belirlemeyi amaçlanmaktadır. Çalışma, ayrıca cinsiyet, deneyim, unvan, eğitim seviyesi gibi demografik değişkenlerin YZ kaygısını etkileyip etkilemediğini ele almaktadır. YZ'nin yaygınlaşmasına paralel olarak yapay zekâ kaygısı (YZK) üzerine yapılan çalışmalar da son yıllarda yoğunlaşmıştır. Bu çalışmaların bir kısmı YZK seviyesini ile ilişkili olduğu kavramlara odaklanmakta bir kısmı da demografik değişkenler ile YZK arasında bir ilişki olup olmadığını belirlemeye yöneliktir. Örneğin matematik öğretmenliği öğrencilerinin cinsiyetten bağımsız yüksek düzeyde YZK yaşadıkları (Falebita, 2024); ise turizm çalışanlarının YZ kaygı düzeylerinin düşük olduğu (Çetiner ve Çetinkaya, 2023); farklı bölümlerde öğrenim gören öğretmenlik bölümü öğrencilerinin YZ'nin istihdam oranları ve sosyal yaşam üzerindeki etkisi konusunda endişe duyduklarını (Hopcan vd., 2024); muhasebe meslek mensuplarının yaş ve cinsiyetleri ile YZK arasında anlamlı bir

fark olmadığı (Özbek, 2024); kadın diş hekimlerinin YZ kaygılarının erkeklerden daha yüksek olduğu; YZK değişkeni ile yaş veya çalışma süresi ile anlamlı bir ilişki olmadığı (Bulut vd., 2024), liderliğin YZK'yı azalttığı (Tarsuslu vd., 2024) sonuçları elde edilmiştir. Ancak, özellikle kuşakların YZ'ye ilişkin kaygı düzeylerini inceleyen bir çalışmaya rastlanmamıştır. Dolayısıyla söz konusu çalışma kuşakların YZK düzeyleri konusunda literatüre katkı vermesi bakımından önemlidir.

Söz konusu çalışmanın çıkış noktası ise güçlü YZ'nin iş kollarının geleceğini etkilemesi ve bu doğrultuda özellikle çalışanlarda çeşitli kaygılara neden olması ihtimalidir. Çalışma, giderek yaygınlaşan bu tüm YZ tür ve uygulamalarının akademisyenlerde yaratacağı kaygıyı kuşaklar bağlamında değerlendirmeyi amaçlamaktadır. Bu bağlamda çalışma, işletme bölümü akademisyenlerinin YZ teknolojilerinin tehditlerine dair kaygılarının nesillere göre değerlendirilmesine katkı sağlayacaktır. Bununla birlikte, ayrıca farklı sosyo-demografik grupların YZ'ye karşı olan tutumlarının belirlenmesi ve bu tutumların karşılaştırılmalarında referans olması da beklenmektedir. Bunlara ek olarak, yakın gelecekte çalışma hayatına dâhil olacak alfa kuşağının önceki kuşaklar ile karşılaştırılmasında referans olma potansiyeline sahiptir. Çalışmada dört bölümden bulunmaktadır. İlk bölümde YZ ve YZK kavramlarına ilişkin literatür taramasına yer verilmektedir. İkinci bölümde kuşak kavramı ve kuşaklara göre YZK, üçüncü bölümde çalışmanın yöntemi ele alınmaktadır. Dördüncü bölümde ise bulguların değerlendirilmekte ve sonuç bölümü yer almaktadır.

Yapay Zekâ ve Yapay Zekâ Kaygısı

21. yüzyılda, dünya genelinde ortaya çıkan tüm gelişmeler, tüm insanlık tarihine kıyasla çok daha hızlı bir devrim göstermiştir. Bilgi ve iletişim teknolojileri (BT) temelli gelişen bu büyük gelişim ve dönüşüm, son yıllarda kendi başlarına karar verme yeteneğine sahip teknolojileri ortaya çıkarmıştır. YZ olarak adlandırılan bu teknolojiler, genel olarak BT üzerinde insan kontrolünün azalmasını ve buna paralel olarak insana benzer düşünce ve davranışları taklit eden yazılım temelli teknolojilerinin genel adıdır. YZ, hem akıllı makineler ve bunların yapıma biçimlerine hem de bu makinelerin incelendiği disiplinler ötesi çalışma alanına atıfta bulunan bir kavramdır (Dörfler, 2023). Bu bağlamda; YZ, zekasının algoritma üretebilme yetisini otomatik olarak üretebilen sistemler (Koroğlu, 2017) ya da insan zekâsı gerektiren çeşitli görevleri yerine getirmek için akıllı makineler ve bilgisayar programları oluşturan ve bir insanın yapabileceği çeşitli işlevleri taklit eden bir bilim ve teknoloji dalı (Bhbosale vd., 2020) olarak tanımlanabilir.

YZ; zayıf (kısıtlı) yapay zekâ, güçlü (genel) yapay zekâ ve süper yapay zekâ olmak üzere üç ana kategoriye ayrılmaktadır. Zayıf YZ, dijital asistanlar ve e-posta filtreleme sistemleri gibi belirli görevlerde insan zekâsını taklit edebilen ancak geniş çaplı zekâ ve öğrenme yeteneklerine sahip olmayan sistemlerdir (Kurtuluş, 2023). Güçlü yapay zekâ, anlama, yorumlama ve değer verme gibi insanın üst bilişsel süreçlerini gerçekleştirme yeteneğine sahip YZ sistemlerini ifade etmektedir (İlaslan, 2023). Bugün kullanılan farklı dil modelleri ile geliştirilen üretken YZ uygulamaları, derin öğrenme algoritmalarını ve farklı özelliklerdeki otonom

araçlar güçlü yapay zekâya örnek olarak gösterilebilir (Göklüberk Özlü, Ekici Demir, 2024). Süper yapay zekâ, bilimsel alanlardaki yaratıcılığıyla, evrensel konu hakimiyetiyle ve sosyal alanlardaki yetenekleriyle hemen hemen her alanda en yetenekli ve en donanımlı insan beyninden yüksek ölçüde daha iyi performans gösterebileceği düşünülen sistemlerdir (Kurçer ve Civelek, 2023). Ancak bu YZ türleri arasında net bir ayrımın olmadığı bilinmektedir (Ünal ve Kılınç, 2020).

Bugün özellikle finans, eğitim, sağlık, teknoloji, savunma sanayii, uzay teknolojileri, bilgisayar bilimi gibi alanlarda güçlü YZ uygulamaları yaygın olarak kullanılmaktadır. Bununla birlikte, her geçen gün gelişerek, farklılaşarak yaygınlaşmaya ve kullanım alanlarını da genişletmeye devam etmektedir. Bu nedenle, YZ'ye ilişkin çok çeşitli tanımlamalar, etkilerine, avantaj ve dezavantajlarına ilişkin çeşitli çalışmalar yapılmaktadır.

YZ aslında insanların yerine geçmek için değil, insan yeteneklerini ve katkılarını önemli ölçüde geliştirebilmek umuduyla tasarlanmıştır (Dönmez, 2020). Bugün gelinen noktada ise Acemoğlu'na (2022) göre, YZ'nin mesleklerin geleceğini etkilemesi ve demokrasi ile bireysel özgürlükleri baltalaması sebepleriyle toplumsal bir karışıklık yaratması muhtemeldir. YZ'nin çeşitli sektörlerde istihdam arz ve talep dengelerini değiştirmesi, iş yapma biçimlerini etkilemesi gibi sektörel değişimlerin yanında beceri ve yetkinlikleri değiştirmesi gibi bireysel değişimlere de neden olacak ve tüm bu değişimler çalışanlarda uyum sağlamama, işsiz kalma, pasif konuma itilme, terfi edememe gibi çeşitli stres faktörlerine dönüşecektir. Diğer sektörlerde olduğu gibi eğitim sektörü çalışanları için de çeşitli kaygılar yaratması olasılık dâhilindedir.

YZK, YZ konusundaki tartışmaların ve çalışmaların artmasıyla gündeme gelen kavramlardan bir tanesidir. YZK, genel olarak insanların YZ'nin istihdam, ekonomi, güvenlik, etik ve gizlilik konularındaki olası tehdit ve belirsizlikleri karşısında hissettikleri kaygıyı ifade etmektedir. YZK, YZ'nin mahremiyete müdahalesi ve insanı şartlandırması karşısında oluşan kaygı, YZ'nin insan işini değiştirmesine dolaylı olarak maruz kalmanın neden olduğu kaygı, YZ bilim kurgusunun bilgi aktarımı olarak neden olduğu kaygı ve YZ'nin opaklığıyla ilgili doğuştan gelen kaygılara dayanan, insanın YZ üzerindeki kontrolün kaybıyla ilgili korku ve endişelerin tamamıdır (Li ve Huang, 2020). Akkaya vd.(2021), YZK'yı, kontrol dışı YZ'ye ilişkin ifade edilen korku ve endişeye ifade etmek için kullanılabilen kavram olarak belirtmişlerdir. Wang ve Wang (2019) ise YZK'yı, bir bireyin YZ ile etkileşime girmesini engelleyen, operasyonel olarak çoklu boyutlara sahip, duygusal bir kaygı veya korku tepkisi olarak tanımlamışlardır.

Kuşaklar ve Kuşaklara göre Yapay Zekâ Kaygısı

Kuşak kavramı, doğdukları ve yetiştikleri zaman dilimi içerisindeki sosyal, politik, kültürel ve teknolojik gelişmelerle bakış açıları ve davranışları şekillenen; bu değişimle de atalarından belirgin çizgilerle ayıran toplulukları ifade etmek için kullanılmaktadır.

Kuşaklar aralarındaki yıllar kesin olmasa da bu çalışmanın hazırlandığı 2024 yılı itibarıyla Türkiye'de ve dünyada hayatta olan beş kuşak aşağıdaki gibi adlandırılmaktadırlar (Göksel ve Güneş, 2017; Bağcı ve İçöz, 2019). Ancak kuşakların başlangıç ve bitiş süreleri üzerinde hala tam bir ittifak sağlanmamıştır.

- Gelenekselciler – Sessiz Kuşak (1925-1945), ikinci Dünya Savaşı ve Ekonomik Buhan dönemlerine tanıklık eden ve disiplinli, çok çalışkan, fedakâr, otoriteye saygılı ve takım çalışmasına yatkın olan bireyleri temsil etmektedir (Bilgili ve Çetin, 2019).
- Bebek Patlaması Kuşağı (1946- 1964), mensupları İkinci Dünya Savaşı'ndan hemen sonra oluşan nüfus patlamasında doğan ve sayısı 1 milyarı bulan bebekten dolayı “Baby Boomers” kuşağı olarak adlandırılmışlar; dünya genelinde, insan hakları çalışmaları, Türkiye'de ise tek partiliden çok partili sürece geçiş, ihtilal ve radyonun altın çağı gibi olaylara tanıklık etmişlerdir (Mücevher ve Erdem, 2018).
- X Kuşağı (1965-1979), geleneklerine bağlı bir kuşak ile teknolojiyle büyüyen bir kuşak arasında bulunmaktadırlar (Kaleli ve Yalçın, 2021). Bebek patlaması yöneticileri ile yetişen bu kuşak temsilcileri, iş yaşamındaki disiplini, yetinmeyi bilmeyi, sadakat duygusunu öğrenmiş; genellikle üretim ekonomisinden hizmet sektörüne geçiş yapmışlardır (Alay Demirel ve Yıldız Bağdoğan, 2023).
- Y Kuşağı (1980–2000), teknoloji dostu ve özgürlük tutkunu olup, aynı zamanda yenilik ve yaratıcılığın öneminin farkında, değişen koşullara kolay uyum sağlayabilen, risk üstlenebilen, teknolojik yeterlilikleri, sosyalleşme düzeyleri ve yeniliğe olan inançları yüksek olan ancak önceki kuşaklara göre daha fazla bireysel davranan, otoriteyi zor kabullenen ve bağlılık duyguları daha az olan bireyleri ifade etmektedir (Kaygısız ve Sipahi, 2019).
- Z Kuşağı (2000-2012), iş gücüne yeni katılmış ya da katılacak, şimdinin ve geleceğin iş tutumlarını değiştirebilecek, oy verme yaşına gelmiş ya da yakında gelecek, siyaseti ve siyasi tutumları değiştirebilecek olan nesildir (Görmez, 2021). Z kuşağı, teknoloji çağının jenerasyonu olup, teknolojisiz bir döneme hiç tanıklık etmemişlerdir (Hafızoğlu, 2021). Z kuşağı, Tek bir kimlik tanımlamayı reddeden, iletişim-kolik, diyaloga açık, gerçekçi ve hayata pragmatik biçimde bakmaktadırlar (Kuran, 2019).
- Alfa Kuşağı (2013-2030), henüz çocukluk yaşlarında bulunmalarına karşın, dijital teknolojilere fazlasıyla aşina olan ve dijital ortamların adeta onların yaşamlarının ayrılmaz bir parçası durumuna geleceği düşünülen kuşaktır (Bağcı ve İçöz, 2019).

Kuşakların sınıflandırılmasına etki eden birçok unsur bulunmakla birlikte her kuşak kendine özgü çeşitli özellikleri taşımakta ve teknolojik gelişmelerin çok hızlı olduğu 1965 ile 2000'li yıllara tanıklık eden X, Y, Z kuşakları arasında belirgin farklar bulunmaktadır (Kaygısız ve Sipahi, 2019). Genel olarak, daha genç yaş grupları, yeni teknolojilerin kullanımını kolay olarak algılama eğilimindedirler (Venkatesh vd., 2012). Bu doğrultuda alfa kuşağı ile özellikle X ve Y kuşakları arasındaki farklılıkların da zamanla daha çok olacağı söylenebilir.

Bununla birlikte, kuşakların teknolojiye ve değişimlere uyumları da farklılaşmaktadır. Baby boomers ve X kuşağı teknoloji güvenliği konusunda daha fazla kaygılı iken Z kuşağı genellikle temel güvenlik uygulamalarını ihmal

etmekte ve internette oldukça fazla kişisel bilgi paylaşmaktadırlar (Debb vd., 2022). Z ve Alfa kuşaklarının teknolojiye olan uyumları ve iş yaşamındaki davranışları önceki kuşaklara göre oldukça farklıdır (Szymkowiak vd., 2021). Örneğin Shams vd.(2020) Z kuşağının mobil bankacılık teknolojilerini X kuşağına göre daha kolay olduğunu düşündüklerini belirtmişlerdir. Dalimunte vd.(2022) gençlerin yaşlılara göre mobil ödeme uygulamalarını daha kullanışlı bulduklarını ifade etmişlerdir.

Kuşakların teknolojiye karşı uyum düzeyleri, şüphesiz teknoloji konusundaki kaygılarını da etkileyecektir. Son zamanların popüler teknolojisinden birisi olan YZ ve dolayısıyla YZK da bunlardan birisidir. Dolayısıyla YZ konusundaki kaygıların yaş gruplarına göre değiştiği söylenebilir. Akkaya vd.'nin(2024) hemşire adaylarından oluşan örneklem ile yaptıkları çalışmada yaş değişkeni YZK'yı etkileyen en önemli değişken olarak belirlenmiştir. Örneğin Sevimli Deniz (2022), genç katılımcıların YZK ortalamalarının diğer katılımcılara göre önemli bir ölçüde düşük olduğunu belirtmektedir. Chan ve Lee (2023), Z kuşağı öğrenciler ve onların X ve Y kuşağı öğretmenleriyle yaptıkları çalışmada, Z kuşağı öğrencilerin gelişmiş üretkenlik, verimlilik ve kişiselleştirilmiş öğrenme dâhil olmak üzere YZ'nin potansiyel faydaları konusunda genel olarak iyimser olduklarını ve YZ'yi çeşitli eğitim amaçları için kullanma eğiliminde olduklarını ancak X ve Y kuşağı öğretmenlerinin, YZ'nin potansiyel faydalarını kabul etmelerine rağmen aşırı bağımlılık, etik ve pedagojik etkiler konusunda artan endişeleri olduğunu bulgusuna ulaşmışlardır. Türkiye'deki kamu sektörü çalışanlarının YZK düzeylerinin belirlemeye yönelik çalışmada, yaş değişkeni ile YZK düzeyi arasında istatistiksel olarak anlamlı bir farklılık olduğunu belirtilmiştir (Şen, 2024). Hopcan ve diğerlerinin öğretmen adaylarından, oluşan örneklemle yaptıkları çalışmalarında yaş arttıkça YZK'nın azaldığı sonucuna ulaşmışlardır. Hizmet öncesi eğitimleri devam eden öğretmenlerle yapılan bir çalışmada ise 19-20 yaş aralığındakilerin YZK düzeylerinin 23 ve üzeri yaştakilerden daha yüksek olduğu ifade edilmiştir (Ayduğ ve Altınpulluk, 2023). Cantaş vd.,(2024) lisans öğrencilerini YZK ölçmeye odaklandıkları çalışmalarında ise 21-23 yaş arasındaki öğrencilerin YZK düzeylerinin diğer yaş gruplarına göre daha yüksek olduğu sonucu elde edilmiştir. Alkhalifah vd.'nin Suudi Arabistan'da yaptıkları çalışmada ise 51-60 yaş aralığındaki katılımcıların en yüksek ortalama kaygı düzeyine sahip olduklarını, 20 yaş altındaki katılımcıların YZK seviyelerinin düşük olduğunu belirtmişlerdir.

Bu çalışmalar, yaş ile YZK arasındaki ilişkiyi belirtmekte ancak hangi yaş gruplarının ne derece etkilediğini belirtmemektedirler. Bu eksiklikten yola çıkarak çalışma H₁ ana hipotezi çerçevesindedir.

H₁: İşletme bölümü akademisyenlerinin ait oldukları kuşak ile YZK düzeyleri arasında istatistiksel olarak anlamlı bir ilişki vardır.

Çalışma ayrıca diğer demografik değişkenler ile YZK düzeyleri düzeyini de incelemektedir.

H₂: İşletme bölümü akademisyenlerinin cinsiyet ile YZK düzeyleri arasında istatistiksel olarak anlamlı bir ilişki vardır.

H₃: İşletme bölümü akademisyenlerinin toplam iş deneyimi ile YZK düzeyleri arasında istatistiksel olarak anlamlı bir ilişki vardır.

H₄: İşletme bölümü akademisyenlerinin eğitim seviyesi ile YZK düzeyleri arasında istatistiksel olarak anlamlı bir ilişki vardır.

H₅: İşletme bölümü akademisyenlerinin unvanı ile YZK düzeyleri arasında istatistiksel olarak anlamlı bir ilişki vardır.

Materyal ve Yöntem

Çalışmanın evrenini farklı üniversitelerde İktisadi ve İdari Bilimler Fakültelerinin İşletme bölümlerinde görev yapan akademisyenler oluşturmaktadır. Evrenin bu şekilde belirlenmesinin nedeni, işletme bölümlerinin hem kamu hem de özel sektörde birçok farklı pozisyonda görev alabilecek, bilgi ve iletişim teknolojileri konusunda yetkinliklere sahip nitelikte insan kaynağı yetiştirmelerinin beklenmesidir. Dolayısıyla bu bölümde görev yapan akademisyenlerin birçok sektörde iş yapma biçimlerini değiştirecek olan YZ'ye karşı bilgi edinmeleri, teknolojik yenilikler ve değişen yönetim tarzları konusunda yetkinliklerini arttırmaları önemlidir. Dolayısıyla bu bölümde görev yapan akademisyenlerin YZ gibi günümüzün gelişen teknolojisi hakkında kaygı düzeylerinin belirlenmesi oldukça önemlidir. Bu amaçla, devlet ve vakıf üniversitelerinde görev yapan 2400 işletme bölümü akademisyenine anket gönderilmiş, 740 tane geri dönüş alınmış, 39 tanesi eksik cevaplar nedeniyle değerlendirme dışı bırakılmıştır. Sonuç olarak 721 adet anket formu kabul edilmiş ve değerlendirilmiştir.

Araştırma soruları iki bölümden oluşmaktadır. İlk bölüm örneklemin demografik özelliklerini belirlemeye yönelik sorulardan oluşmaktadır. İkinci bölüm ise Wang ve Wang (2019) tarafından geliştirilen Akkaya vd.'nin(2021) Türkçe'ye uyarladığı ve "Yapay Zekâ Kaygı Ölçeği" ile ölçülmektedir. Ölçek ifadelerinde, ifadelere verilecek olan yanıtlar, 5'li Likert şeklinde; "1-Hiç katılmıyorum, 2-Katılmıyorum, 3-Kararsızım, 4-Katılıyorum, 5-Kesinlikle katılıyorum" şeklinde sınırlarına göre cevaplandırılmıştır.

Bulgular ve Tartışma

Çalışmada, veri toplama yöntemi olarak, olasılık dışı örnekleme yöntemlerinden kolayda örnekleme kullanılmıştır. Bu amaçla, Türkiye'de halen bir işletme fakültesinde görev ifa eden akademisyenlerin kurumsal e-posta adreslerine anket formları gönderilmiş ve geri dönüşler alınmıştır. Anket soruları tüm örnekleme iletilmeden önce, pilot olarak 100 akademisyene gönderilerek ön test yapılmıştır. Ön test için yapılan güvenilirlik analizine göre, ölçeğin Cronbach Alfa değeri p=0,942 olarak ölçülmüş ve böylece ölçek iç tutarlılığın yüksek olduğu tespit edilmiştir. İç tutarlılık sağlandıktan sonra, ölçeğe ait soru formu, araştırma örneklemine e-posta yoluyla uygulanmıştır. Elde edilen cevaplardan oluşan veri seti, SPSS paket programı ile analiz edilmiştir. Çalışma örneklemine ilişkin demografik bulgular Çizelge 1'de görülmektedir.

Çizelge 1. Demografik bulgular

Table 1. Demographic findings

	Grup	Frekans	Geçerli %	Kümülatif %
Cinsiyet	Kadın	284	39,4	39,4
	Erkek	437	60,6	100
	Toplam	721	100	
Medeni Durum	Evli	566	78,5	78,5
	Bekâr	155	21,5	100,0
	Toplam	721	100,0	
Kuşak	X Kuşağı	51	7,1	7,1
	Y Kuşağı	273	37,9	44,9
	Z Kuşağı	397	55,1	100,0
	Toplam	721	100,0	
Eğitim	Lisans	2	0,3	0,3
	Yüksek Lisans	62	8,6	8,9
	Doktora	657	91,1	100,0
	Toplam	721	100,0	
	Profesör	103	14,3	14,3
Unvan	Doçent	170	23,6	37,9
	Doktor Öğretim Üyesi	223	30,9	68,8
	Öğretim Görevlisi	128	17,8	86,5
	Araştırma Görevlisi	87	12,1	98,6
	Okutman	10	1,4	100,0
	Toplam	721	100,0	
	Toplam İş Deneyimi	5 Yıl ve Altı	39	5,4
6-10 Yıl Arası		111	15,4	20,8
11-15 Yıl Arası		171	23,7	44,5
16-20 Yıl Arası		144	20,0	64,5
21 Yıl ve Üzeri		256	35,5	100,0
Toplam		721	100,0	
Toplam Akademisyenlik Deneyimi	5 Yıl ve Altı	77	10,7	10,7
	6-10 Yıl Arası	196	27,2	37,9
	11-15 Yıl Arası	192	26,6	64,5
	16-20 Yıl Arası	97	13,5	77,9
	21 Yıl ve Üzeri	159	22,1	100,0
Mevcut Kurumda Geçirilen Süre	Toplam	721	100,0	
	5 Yıl ve Altı	159	22,1	22,1
	6-10 Yıl Arası	253	35,1	57,1
	11-15 Yıl Arası	138	19,1	76,3
	16-20 Yıl Arası	75	10,4	86,7
	21 Yıl ve Üzeri	96	13,3	100,0
Aitlik Hissedilen Kuşak	Toplam	721	100,0	
	Gelenekçiler	94	13,0	13,0
	Baby Boomer	17	2,4	15,4
	X Kuşağı	1	0,1	15,5
	Y Kuşağı	597	82,8	98,3
	Z Kuşağı	2	0,3	98,6
Alfa Kuşak	Alfa Kuşak	10	1,4	100,0
	Toplam	721	100,0	

Çizelge 1’den görüldüğü gibi örnekleme oluşturan 721 kişinin, %39,4’ü (284 kişi) kadın ve %60,6’sı (437 kişi) erkek katılımcılardan oluşmaktadır. Bu kişilerin %78,5’i evli (566 kişi) ve %21,5’i de (155 kişi) bekâr bireylerden oluşmaktadır. Katılımcıların, %7,1’i (51 kişi) X kuşağı, %37,9’u (273 kişi) Y kuşağı ve %55,1’i (397 kişi) Z kuşağıdırlar. Örneklemin %0,3’ü (2 kişi) lisans mezunu, %8,6’sı (62 kişi) yüksek lisans mezunu ve %99,1’i (657 kişi) doktora derecesinden mezun bireylerden oluşmakta ve %14,3’ü (103 kişi) profesör,

%23,6’sı (170 kişi) doçent, %30,9’u (223 kişi) doktor öğretim üyesi, %17,8’i (128 kişi) öğretim görevlisi, %12,1’i (87 kişi) araştırma görevlisi ve %1,4’ü (10 kişi) okutman kadrosundadır. Ayrıca %5,4’ü (39 kişi) “5 yıl ve altı” süre, %15,4’ü (111 kişi) “6-10 yıl arası” süre, %23,7’si (171 kişi) “11-15 yıl arası” süre, %20’si (144 kişi) “16-20 yıl arası” süre ve %35,5’i (256 kişi) 21 yıl ve üzeri süre iş deneyimine sahiptir. Örneklemin %10,7’si (77 kişi) “5 yıl ve altı”, %27,2’si (196 kişi) “6-10 yıl arası”, %26,6’sı (192 kişi) “11-15 yıl arası”,

%13,5'i (97 kişi) "16-20 yıl arası" süre ve %22,1'i (159 kişi) 21 yıl ve üzeri süre akademisyenlik olarak görev yapmaktadırlar. Katılımcıların; %13'ü (94 kişi) kendilerini gelenekçi, %2,4'ü (17 kişi) kendilerini Baby boomer, %0,1'i (1 kişi) kendilerini X kuşağı, %82,8'i (597 kişi) kendilerini Y Kuşağı, %0,3'ü (2 kişi) kendilerini Z kuşağı ve %1,4'ü (10 kişi) kendilerini alfa kuşak olarak hissetmektedirler.

Bulgular

Çalışmada, veri grubu içinde aykırı gözlem değerleri olup olmadığının test edilmesi amacıyla, öncelikle veri grubu dal-yaprak grafiği ile incelenmiş (Grafik 1) ve 16 verinin "aykırı gözlem değeri" durumunda olduğu tespit edilmiştir.

"Aykırı gözlem değeri" durumunda olan verilerin, sıra numaraları Grafik 2'de görüldüğü gibi saplı kutu grafiği ile belirlenmiş ve bu cevaplar veri setinden çıkarılmıştır. Böylece, analizlere 705 anket cevabı ile devam edilmiştir.

16 adet aykırı gözlem değeri, analizden çıkarıldıktan sonra ön testler tekrar yapılmıştır. Ölçek cevaplarına ait ortalamaların genel olarak basıklık (0,184) ve çarpıklık(0,092)

katsayıların makul sınırlar içinde olduğu Çizelge 2'de görülmektedir. Hesaplanan basıklık ve çarpıklık değerlerinin $\pm 1,96$ olması normallik varsayımı için ideal sınırları oluşturmaktadır (Çevik ve Özkan; 2024: 103-104).

Araştırma hipotezlerine ilişkin çıktı ve değerlendirmeleri aşağıda görüldüğü gibidir.

"H₁: İşletme bölümü akademisyenlerinin ait oldukları kuşak ile YZK düzeyleri arasında istatistiksel olarak anlamlı bir ilişki vardır."

hipotezi için öncelikle kuşak gruplarına göre YZK ölçeği verilerinin normal dağılıp dağılmadığına bakılmıştır. Yapılan analiz sonucu Çizelge 3'te sunulmuştur. Ölçek cevaplarının ortalaması incelendiğinde tüm kuşaklar için çarpıklık ve basıklık katsayılarına ideal sınırlar içinde olduğu görülmekte ve verilerin normal dağılım gösterdiği söylenebilmektedir.

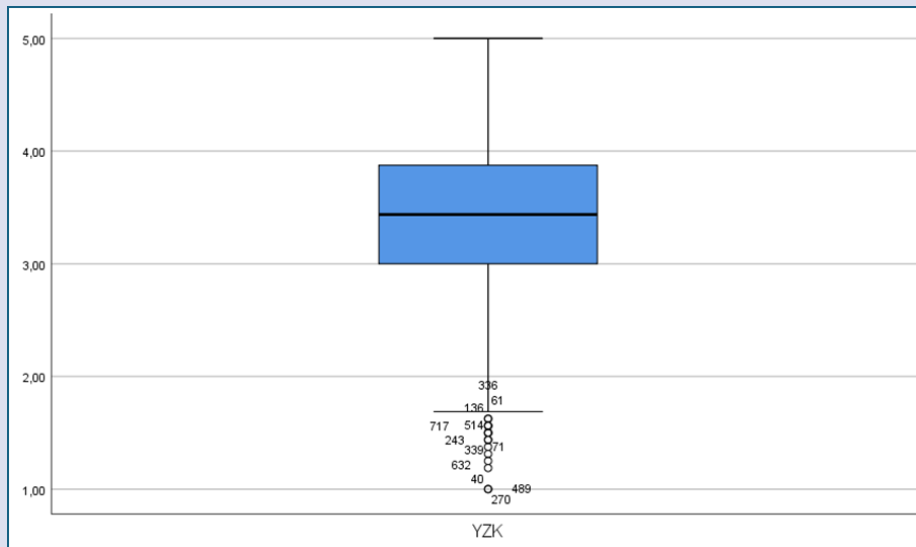
Çizelge 3'te görüldüğü üzere, veriler normal dağılım göstermektedir. İki den fazla grup olduğu ve veriler normal dağılıma uyduğu için tek yönlü varyans analizi ile hipotez test edilmiş ve analiz sonucu Çizelge 4'te sunulmuştur.

```

16,00 "Extreme" (= <1,6)
20,00 1. 6788899
51,00 2. 000001112233333444
93,00 2. 5555566666667777888888899999
197,00 3. 000000000000000111111111111122222333333333333333333334444444444444
190,00 3. 555555555555555556666666666666666666666677777778888888888888999999
106,00 4. 000000000000000111111111111122223333334
30,00 4. 5566677889
18,00 5. 000000
Stem width: 1,00
Each leaf: 3 case(s)

```

Resim 1. YZK Dal-Yaprak Grafiği
Figure 1. YZK Stem and Leaf Graph



Resim 2. YZK saplı-kutu grafiği
Figure 2. YZK Box Plot

Çizelge 2. YZK için basıklık ve çarpıklık değerleri

Table 2. Skewness and kurtosis values for YZK

	İstatistik	Standart Hata
Ortalama	3,4279	0,02658
Çarpıklık	-0,115	0,092
Basıklık	-0,073	0,184

Çizelge 3. Cinsiyet gruplarına göre YZK basıklık ve çarpıklık değerleri

Table 3. Skewness and kurtosis values of YZK according to gender groups

		İstatistik	Standart Hata
X Kuşağı	Ortalama	3,7132	0,09336
	Çarpıklık	-0,126	0,333
	Basıklık	0,6560	0,656
Y Kuşağı	Ortalama	3,4268	0,04077
	Çarpıklık	0,145	0,149
	Basıklık	-0,076	0,296
Z Kuşağı	Ortalama	3,3909	0,03713
	Çarpıklık	-0,238	0,124
	Basıklık	-0,167	0,248

Çizelge 4. Tek yönlü varyans analizi sonuçları

Table 4. One-way ANOVA findings

	Kareler. Toplamı	df	Ortalama Kare	F	Sig.
Gruplar Arası	4,679	2	2,340	4,748	0,009
Grup İçi	345,904	702	0,493		
Toplam	350,584	704			

Çizelge 5. Varyansların homojenliği test sonuçları

Table 5. Results of test of homogeneity of variances

	Levene İstatistiği	df1	df2	Sig.
Ortalamaya Göre	1,664	2	702	0,190
Medyana Göre	1,458	2	702	0,233
Medyan ve Düzeltilmiş df'ye Göre	1,458	2	697,068	0,233
Budanmış Ortalamaya Göre	1,604	2	702	0,202

Çizelge 7. H₂ için çarpıklık ve basıklık analizi sonuçlarıTable 7. Skewness and kurtosis analysis results for H₂

Cinsiyet		İstatistik	Standart Hata	
Kadın	Ortalama	3,2817	0,04173	
	95% Güven Aralığında	Alt Sınır	3,1996	
		Üst Sınır	3,3639	
	5% Budanmış Ortalama		3,2878	
	Medyan		3,3750	
	Varyans		0,474	
	Standart Sapma		0,68820	
	Minimum		1,69	
	Maksimum		5,00	
	Ranj		3,31	
	Kartiller arası Ranj		0,92	
	Çarpıklık		-0,204	0,148
	Basıklık		-0,261	0,294
	Ortalama		3,5198	0,03373
	95% Güven Aralığında	Alt Sınır	3,4535	
	Üst Sınır	3,5861		
5% Budanmış Ortalama		3,5233		
Medyan		3,5000		
Varyans		0,493		
Standart Sapma		0,70179		
Minimum		1,69		
Maksimum		5,00		
Ranj		3,31		
Kartiller arası Ranj		,88		
Çarpıklık		-0,082	0,117	
Basıklık		-0,015	0,234	

Çizelge 4'te özetlenen tek yönlü varyans analizi (One-Way ANOVA) sonuçlarına göre 0,05 anlamlılık düzeyinde, grup ortalamaları arasında istatistiksel olarak anlamlı bir fark olduğu görülmektedir. Yani, YZK ile kuşaklar arasında istatistiksel olarak anlamlı bir fark olduğu tespit edilmiştir. Bu farkın, hangi grup ya da gruplardan kaynakladığının tespiti için Post-Hoc testlerden faydalanılmıştır. Post-Hoc testlerden hangisinin kullanılacağına belirlenmesi için öncelikle, varyansların homojenliği test edilmiş ve test sonuçları Çizelge 5'te sunulmuştur. Çizelge 5'e göre, veri grupları için varyansların homojen dağıldığı ($p=0,190$) görülmüştür.

Varyanslar homojen olduğu için, Post-Hoc testlerinden Scheffe ve LSD yöntemleri ile fark grupları belirlenmeye çalışılmış ve sonuçlar Çizelge 6'da özetlenmiştir.

Scheffe ve LSD testlerinin ikisinde de Y ve Z kuşakları arasında bir fark olmadığı görünürken ($p_{Scheffe}=0,813$ ve $p_{LSD}=0,520$), X kuşağına mensup akademisyenlerin istatistiksel olarak Y ve Z kuşaklarından farklı olduğu görülmüştür. Buradan elde edilen bilgilere göre, X kuşağı akademisyenlerinin YZ kaygılarının Y ve Z kuşaklarına göre daha yüksek olduğu söylenebilir.

"H₂: İşletme bölümü akademisyenlerinin cinsiyet farkları ile YZK düzeyleri arasında istatistiksel olarak anlamlı bir ilişki vardır." şeklinde kurulan hipotez için cinsiyet gruplarına göre YZK için normal dağılım gösterip göstermediği test edilmiş ve Çizelge 7'de gösterilmiştir.

Kadın ve erkek akademisyenlerin YZK ölçeği ortalamalarının çarpıklık ve basıklık katsayılarından sınırlar içinde olduğu görülmektedir. Bu nedenle, t-testi ile hipotez test edilmiş ve Çizelge 8'de sunulmuştur.

Çizelge 8'de görülen t-testi sonucuna göre, kadın ve erkek akademisyenlerin YZK değerleri arasında istatistiksel olarak anlamlı bir farklılık bulunmaktadır ($p=0,000$). Çizelge 8 incelendiğinde erkek akademisyenlerin kadın akademisyenlerin YZK ortalamalarından daha yüksek olduğu görülmektedir.

"H₃: İşletme bölümü akademisyenlerinin toplam iş deneyimi ile YZK düzeyleri istatistiksel olarak anlamlı bir ilişki vardır." şeklinde kurulan hipotez için, farklı toplamdaki iş deneyimi sürelerine göre YZK değerlerinin normallik analizi yapılmıştır. İlgili analiz sonuçları Çizelge 9'da görülmektedir.

Tüm gruplar nezdinde çarpıklık ve basıklık katsayılarının ideal sınırlar içinde olduğu Çizelge 9'da olduğu gibi görülmektedir. Bu sebeple H₃, tek yönlü varyans analizi ile test edilmiş ve sonuçlar Çizelge 10'da sunulmuştur.

Çizelge 10'da, grup varyansları arasında istatistiksel olarak anlamlı bir fark olmadığı hesaplanmış, toplam iş tecrübesine göre YZK düzeyleri arasında istatistiksel olarak anlamlı bir farklılık olmadığı görülmüştür ($p=0,570$).

"H₄: İşletme bölümü akademisyenlerinin eğitim seviyesi ile YZK düzeyleri istatistiksel olarak anlamlı bir ilişki vardır."

şeklinde kurulan hipotez için, eğitim seviyesine göre YZK ölçeğinin normallik analizi yapılmıştır. Örneklemde 2 tane lisans mezunu akademisyen olduğu için bu 2 veri sansürlenerek, analiz sadece yüksek lisans ve doktora seviyesinde eğitim görmüş olanlarla gerçekleştirilmiştir. İlgili analiz sonuçları Çizelge 11'de görülmektedir.

Çizelge 11'de ölçek cevaplarının ortalamasına bakıldığında; çarpıklık ve basıklık katsayılarına ideal sınırlar içinde olduğu görülmekte ve böylece verilerin normal dağılım gösterdiği söylenebilmektedir. Bu nedenle H₄, bağımsız örneklem t-testi ile analiz edilmiş ve sonuçlar Çizelge 12'de gösterilmiştir.

Çizelge 12'de görülen, bağımsız örneklem t-testi sonuçlarına göre 0,05 anlamlılık düzeyinde, eğitim seviyesi ortalamaları arasında istatistiksel olarak anlamlı bir fark olmadığı sonucuna ulaşılmaktadır ($p=0,207$). Böylelikle akademisyenlerin eğitim düzeyleri ile YZK düzeyleri arasında istatistiksel olarak anlamlı bir fark olmadığı söylenebilir.

"H₅: İşletme bölümü akademisyenlerinin unvanı ile YZK düzeyleri arasında istatistiksel olarak anlamlı bir ilişki vardır."

olarak kurulan hipotez için unvanlar nezdinde YZK'nın normallik analizi yapılmıştır. Verilere ait çarpıklık ve basıklık değerleri normal sınırlar içinde olduğu görülmüştür ve bu Çizelge 13'te görülmektedir.

H₅'te, grup sayısı ikiden fazla olduğu için tek yönlü varyans analizi ile hipotez test edilmiş ve analiz sonuçları Çizelge 14'te özetlenmiştir.

Çizelge 14 incelendiğinde 0,05 anlamlılık düzeyinde, farklı unvanlara göre YZK'ları arasında istatistiksel olarak anlamlı bir fark olmadığı görülmektedir ($p=0,088$). Yani, akademisyenlerin unvanlar farklı olsa da YZK'ları arasında istatistiksel olarak anlamlı bir farklılık olmadığı görülmüştür.

Çizelge 8. Bağımsız örneklem t-testi sonuçları

Table 8. Independent samples t-test results

Cinsiyet	Frekans	Ortalama	Standart Sapma	Standart Hatanın Ortalaması
Kadın	272	3,2817	0,68820	0,04173
Erkek	433	3,5198	0,70179	0,03373
Varyansların eşitliği için Levene testi				
	F	Sig.	T	df
Eşit Varyansta	0,035	0,852	-4,417	703
Eşit Olmayan Varyansta			-4,437	584,286
Eşit Ortalamalar için t-Testi				
95% güven aralığının farkları				
	Sig. (2 kuyruklu)	Ortalama Fark	Standart Hatanın Farkı	Alt sınır Üst sınır
Eşit Varyansta	0,000	-0,23807	0,05389	-0,34388 -0,13225
Eşit Olmayan Varyansta	0,000	-0,23807	0,05365	-0,34344 -0,13269

Çizelge 9. H₃ için çarpıklık ve basıklık sonuçlarıTable 9. Skewness and kurtosis results for H₃

		İstatistik	Standart Hata
5 Yıl ve Altı	Ortalama	3,4408	0,11945
	Çarpıklık	-0,217	0,383
	Basıklık	0,269	0,750
6-10 Yıl Arası	Ortalama	3,3627	0,06665
	Çarpıklık	-0,118	0,234
	Basıklık	-0,035	0,463
11-15 Yıl Arası	Ortalama	3,4295	0,05842
	Çarpıklık	-0,189	0,189
	Basıklık	-0,127	0,376
16-20 Yıl Arası	Ortalama	3,3802	0,06208
	Çarpıklık	-0,218	0,203
	Basıklık	-0,242	0,403
21 Yıl ve Üzeri	Ortalama	3,4797	0,04134
	Çarpıklık	0,103	0,153
	Basıklık	-0,067	0,306

Çizelge 10. H₃ için tek yönlü varyans analizi sonuçlarıTable 10. One-Way ANOVA results for H₃

	Kareler Toplamı	df	Ortalama Kare	F	Sig.
Gruplar Arası	1,461	4	0,365	0,732	0,570
Grup İçi	349,123	700	0,499		
Toplam	350,584	704			

Çizelge 10. Eğitim düzeylerine göre YZK düzeylerinin çarpıklık ve basıklık değerleri

Table 10. Skewness and kurtosis values of YZK levels according to education levels

		İstatistik	Standart Hata
Yüksek Lisans	Ortalama	3,4279	0,02658
	Çarpıklık	-0,115	0,092
	Basıklık	-0,073	0,184
Doktora	Ortalama	3,4372	0,02788
	Çarpıklık	-0,112	0,096
	Basıklık	-0,043	0,193

Çizelge 12. Bağımsız örneklem t-testi sonuçları

Table 12. Independent samples t-test results

Eğitim Düzeyi	Frekans	Ortalama	Standart Sapma	Standart Hatanın Ortalaması	
Yüksek Lisans	61	3,3176	0,70131	0,08979	
Doktora	642	3,4372	0,70650	0,02788	
Varyansların Eşitliği için Levene Testi					
	F	Sig.	T	df	
Eşit Varyansta	0,195	0,659	-1,264	701	
Eşit Olmayan Varyansta			-1,272	72,066	
Eşit Ortalamalar için t-Testi 95% Güven Aralığının Farkları					
	Sig. (2 kuyruklu)	Ortalama Fark	Standart Hatanın Farkı	Alt Sınır	Üst Sınır
Eşit Varyansta	0,207	-0,11958	0,09460	-0,30532	0,06615
Eşit Olmayan Varyansta	0,208	-0,11958	0,09402	-0,30701	0,06784

Çizelge 13. Unvanlara göre YZK düzeylerinin çarpıklık ve basıklık değerleri

Table 13. Skewness and kurtosis values of YZK levels according to titles

		İstatistik	Standart Hata
Profesör	Ortalama	3,4553	0,06297
	Çarpıklık	-0,187	0,239
	Basıklık	0,291	0,474
Doçent	Ortalama	3,3780	0,05594
	Çarpıklık	-0,024	0,188
	Basıklık	-0,240	0,374
Doktor Öğretim Üyesi	Ortalama	3,5220	0,04776
	Çarpıklık	-0,163	0,164
	Basıklık	-0,023	0,327
Öğretim Görevlisi	Ortalama	3,2925	0,06765
	Çarpıklık	-0,139	0,219
	Basıklık	-0,281	0,435
Araştırma Görevlisi	Ortalama	3,4338	0,07389
	Çarpıklık	0,087	0,261
	Basıklık	0,241	0,517
Okutman	Ortalama	3,5250	0,17658
	Çarpıklık	0,056	0,687
	Basıklık	2,165	1,334

Çizelge 14. Tek yönlü varyans analizi sonuçları

Table 14. One-way ANOVA results

	Kareler. Toplamı	df	Ortalama Kare	F	Sig.
Gruplar Arası	4,764	5	0,953	1,926	0,088
Grup İçi	345,820	699	0,495		
Toplam	350,584	704			

Sonuç

Kuşak farklılıklarına göre akademisyenlerin YZK düzeylerinin belirlemeyi amaçlayan bu çalışmada elde edilen bulgular doğrultusunda X kuşağının YZK düzeyinin Y ve Z kuşaklarına göre yüksek olduğu ancak Y ve Z kuşağının YZK düzeyleri arasında herhangi bir fark olmadığı söylenebilir. Bu sonuç, kuşaklar arasındaki teknolojik adaptasyon farklılıkları ve deneyimlerin etkileri hakkında bazı ipuçları sunmaktadır. X kuşağı akademisyenlerin YZ kaygılarının yüksek çıkmasının birkaç nedeni vardır. Özellikle bu kuşağın son dönemlerinde doğanlar, bilgi ve iletişim teknolojilerinin hızlı gelişimine tanıklık etmiş ve bu değişimin ekonomik ve sosyal etkilerini yaşamışlardır. Bu nedenle X kuşağının YZK düzeyinin yüksek olması, geçmişteki teknolojik değişimlerin ve belirsizliklerin etkisiyle ilişkili olması muhtemeldir. X kuşağı akademisyenlerinin, iş ve sosyal yaşamlarında birçok yıkıcı teknolojiyle karşılaşmaları geçmişte yaşadıkları teknoloji kaygılarına benzer olabilir. Bu bulgular, teknolojik gelişmelerin toplumsal ve bireysel düzeydeki etkilerinin kuşaklar arasında nasıl farklılık gösterebileceğini ortaya koymaktadır. Ayrıca YZ ve otomasyonun iş gücünü etkileyebileceği endişesi, tanıklık edilen güvenlik ve güvenilirlik sorunları da X kuşağında daha fazla göze çarpıyor olabilir.

Diğer yandan, Y ve Z kuşaklarının daha düşük kaygı düzeyleri, bu teknolojilere olan aşinalık ve entegrasyonları ile açıklanabilir. Y ve Z kuşakları ise teknolojinin daha evrimleşmiş ve entegre bir parçası olarak yaşamaktadırlar. Y kuşağı, ilk gençlik dönemlerinden itibaren BT ile entegre olmaya başlamış, yetişkinlik döneminde BT'nin yaygın kullanımına tanıklık etmiştir. Z kuşağı ise çocukluktan itibaren BT ile

tanışmıştır. Dolayısıyla bu kuşaklar, dijital teknolojilerin getirdiği yenilikleri doğal bir şekilde benimsemiş ve adaptasyon süreçlerini X kuşağından daha rahat geçirmiştir. Bu durumun, onların YZ'ye adaptasyon sürecini hızlandırması ve YZ'ye yönelik kaygılarının daha düşük olmasına katkıda bulunması muhtemeldir. Özellikle Z kuşağı, teknolojiyi doğrudan deneyimleyerek büyüdüğü için, YZ'nin avantajlarını ve potansiyelini daha açık bir şekilde görebiliyor olabilir.

Bununla birlikte katılımcıların cinsiyet, deneyim, unvan ve eğitim seviyelerinin YZK düzeyini etkilemediği bulgusuna ulaşılmıştır. Bu doğrultuda YZ kaygısının, tüm unvan ve deneyimdeki kadın ve erkek akademisyenlerde görüleceği söylenebilir. Çalışmanın sınırlılıkları arasında örneklemin sadece işletme bölümlerindeki akademisyenlerle sınırlı tutulması ve değerlendirilmesi, YZ'ye hızlıca entegre olması gereken işletmelere istihdam sağlayan bu bölümün akademisyenlerinin ve bakış açılarının geleneksel bakış açılarından daha farklı olacağı inancıdır. Bu fakültelerde, teorik bilgilerin yanında YZ ve diğer teknolojik yeniliklerin bir arada harmanlanmış olması, iş hayatına yeni katılan tüm bireylerin verimliliklerinin yüksek ve katma değerlerinin de büyük olmasına olanak sağlayacaktır. Bu özelde, YZ ile ilgili kaygıların giderilebilmesi için hem müfredatın hem de üniversite teknoloji iş birliklerinin daha da artırılması fayda sağlayacaktır. Bu çerçevede öncelikle çeşitli mühendislik ve fen bilimleri gibi alanlarda çalışan akademisyenlerle ve akademisyenler dışındaki farklı örneklem gruplarındaki farklı kuşakların YZ düzeyleri incelenebilir. Gelecekte, YZ'nin toplumsal etkilerini daha iyi anlamak ve kuşaklar arası bu tür farklılıkları ele almak, teknolojik adaptasyon süreçlerinin daha verimli yönetilmesine katkıda bulunabilir.

Extended Abstract

This study aims to examine the anxiety levels of academicians from different generations regarding the evolving and diversifying field of artificial intelligence (AI). The rapid development of AI technologies has led to concerns about security, job loss, cultural degeneration, and even a future like in science fiction-themed works for employees in every sector. These concerns are also likely to affect academicians who are required to conduct continuous research and analysis and who are obliged to convey their findings to their students. From this point of view, the study aims to compare the concerns and degrees of these concerns of academicians from different generations, such as Generation X, Generation Y and Generation Z, who are currently working in higher education, regarding AI. In the study, data was collected using a survey, and the participants' views on the potential effects of AI on the workforce, education and research processes were evaluated.

The concept of generation is used to express communities whose perspectives and behaviours are shaped by the social, political, cultural, and technological developments in the time period in which they were born and raised, and who are clearly separated from their ancestors by this change. There are many factors that affect the classification of generations, but each generation has its own unique characteristics, and there are significant differences between generations X, Y, and Z, who witnessed the rapid technological developments between 1965 and 2000 (Kaygısız and Sipahi, 2019). Generally, younger age groups tend to perceive the use of new technologies as easy (Venkatesh et al., 2012). In this context, it can be said that the differences between the alpha generation and especially generations X and Y will be very significant. However, generations also differ in their adaptation to technology and changes. While baby boomers and Generation X are more concerned about technology security, Generation Z generally neglects basic security practices and shares a lot of personal information on the internet (Debb et al., 2022). Generation Z and Alpha's adaptation to technology and their behavior in business life are quite different from previous generations (Szymkowiak et al., 2021). For example, Shams et al. (2020) stated that Generation Z thinks mobile banking technologies are easier than Generation X. Dalimunte et al. (2022) stated that young people find mobile payment applications more useful than older people. Generations' adaptation levels to technology will undoubtedly affect their concerns about technology. One of the most popular technologies of recent times is AI, and therefore artificial intelligence anxiety. Therefore, it can be said that concerns about AI vary according to age groups.

The universe of the study consists of academicians working in the Business Administration departments of the Faculties of Economics and Administrative Sciences at different

universities. The reason for determining the universe in this way is that business administration departments train human resources that can play a role in the service dimension of both the public and private sectors. Business administration departments are expected to train students with competencies in information and communication technologies. Therefore, it is very important to determine the anxiety levels of academicians working in this department about today's developing technology such as AI.

The survey statements containing the research questions consist of two parts. The first part consists of questions aimed at determining the demographic characteristics of the sample. The second part is measured with the "Artificial Intelligence Anxiety Scale" developed by Wang and Wang (2019) and adapted into Turkish by Akkaya et al. (2021).

According to findings, which aim to determine the AI anxiety levels of academics according to generational differences, it can be said that the AI anxiety level of Generation X is higher than Generations Y and Z, but there is no difference between the AI anxiety levels of Generations Y and Z. This result provides some clues about the technological adaptation differences between generations and the effects of experiences. There are several reasons why Generation X academics have high AI anxiety. First, this generation has experienced the swift advancement of information and communication technologies and witnessed the economic and social impacts of these changes. The fact that Generation X academicians have encountered many disruptive technologies in their business and social lives may have caused various concerns. It is possible that these concerns are also felt for AI. In addition, the concern that AI and automation may affect the workforce, and the security and reliability problems witnessed may be more prominent in Generation X. These findings reveal how the effects of technological developments on the social and individual levels can differ between generations. Generation X's high AI is related to the effects of past technological changes and uncertainties. On the other hand, the lower anxiety levels of Generations Y and Z can be explained by their familiarity and integration with these technologies. In the future, better understanding the social effects of AI and addressing such differences between generations can contribute to more efficient management of technological adaptation processes. However, it was found that the gender, experience, title and education levels of the participants did not affect the level of AI anxiety. In this direction, it can be said that AI anxiety will be seen in female and male academicians of all titles and experience.

Among the limitations of the study is that the sample was confined to academicians in business administration departments. I assumed that academicians in this field, which caters to businesses needing to quickly adapt to AI, would have perspectives different from those in more traditional disciplines.

Katkı Oranları ve Çıkar Çatışması / Contribution Rates and Conflicts of Interest

Etik Beyan	Bu çalışmanın hazırlanma sürecinde bilimsel ve etik ilkelere uyulduğu ve yararlanılan tüm çalışmaların kaynakçada belirtildiği beyan olunur.	Ethical Statement	It is declared that scientific and ethical principles have been followed while carrying out and writing this study and that all the sources used have been properly cited.
Yazar Katkıları	Çalışmanın Tasarlanması: MÖ(%50),EGK(%50) Veri Toplanması: MÖ(%80),EGK (%20) Veri Analizi: MÖ(%100) Makalenin Yazımı: MÖ(%40),EGK(%60) Makale Gönderimi ve Revizyonu: MÖ(%100)	Author Contributions	Research Design: MÖ(%50),EGK(%50) Data Collection: MÖ(%80),EGK(%20) Data Analysis: MÖ(%100) Writing the Article: MÖ(%40),EGK(%60) Article Submission and Revision: MÖ(%100)
Etik Bildirim	iibfdergi@cumhuriyet.edu.tr	Complaints	iibfdergi@cumhuriyet.edu.tr
Çıkar Çatışması	Çıkar çatışması beyan edilmemiştir.	Conflicts of Interest	The author(s) has no conflict of interest to declare.
Finansman	Bu araştırmayı desteklemek için dış fon kullanılmamıştır.	Grant Support	The author(s) acknowledge that they received no external funding in support of this research.
Telif Hakkı & Lisans	Yazarlar dergide yayınlanan çalışmalarının telif hakkına sahiptirler ve çalışmaları CC BY-NC 4.0 lisansı altında yayımlanmaktadır. Bu çalışmada kullanılan veriler, Giresun Üniversitesi Sosyal Bilimler Fen ve Mühendislik Bilimleri Araştırmaları Etik Kurulu tarafından 02.09.2024 tarihinde 09/GD-2 numaralı karar ile onaylanmıştır.	Copyright & License	Authors publishing with the journal retain the copyright to their work licensed under the CC BY-NC 4.0 The data used in this study were approved by the Social Sciences and Engineering Sciences Research Ethics Committee of Giresun University with the decision numbered 09/GD-2, dated September 2, 2024.
Etik Kurul		Ethics Committee	

Kaynakça

- Acemoğlu, D. (2022). Yapay zekayı yeniden tasarlamak. Efil Yayınevi.
- Akkaya B, Kırkibir İ.B., & Üstgörül S.(2024). Evaluation of artificial intelligence anxiety status of generation Z candidate nurses using machine learning in perspective of leadership. *Environment and Social Psychology* 2024; 9(7): 6136. DOI: 10.59429/esp.v9i7.6136
- Akkaya, B., Özkan, A. & Özkan, H. (2021). Yapay zekâ kaygı (YZK) ölçeği: Türkçeye uyarlama, geçerlik ve güvenilirlik çalışması. *Alanya Akademik Bakış*, 5(2), Sayfa No.1125-1146.
- Alay Demirel, B., & Yıldız Bağdoğan, S. (2023). İş yaşamında kuşaklar ve motivasyon farklılıkları. *Bursa Uludağ Journal of Economy and Society*, 42(2), 129-141
- Alkhalifah, J.M., Bedaiwi, A.M., Shaikh, N., Seddiq, W. & Meo, S.A. (2024). Existential anxiety about artificial intelligence (AI)- is it the end of humanity era or a new chapter in the human revolution: questionnaire-based observational study. *Front. Psychiatry* 15:1368122. DOI: 10.3389/fpsy.2024.1368122
- Ayduğ, D., & Altınpulluk, H. (2023). Investigation of pre-service teachers' artificial intelligence anxiety levels. 36th Asian Association of Open Universities Conference, 28-30 Eylül, 2023, İstanbul 17(18), 14.
- Bağcı, E., & İçöz, O. (2019). Z ve Alfa kuşağı ile dijitalleşen turizm. *Güncel Turizm Araştırmaları Dergisi*, 3(2), 232-256. <https://doi.org/10.32572/guntad.578926>
- Bhbosale, S., Pujari, V., & Multani, Z. (2020). Advantages and disadvantages of artificial intelligence. *Aayushi International Interdisciplinary Research Journal*, 227-230
- Bilgili, H., & Çetin, B., (2020). Siyasi liderlerden beklenen liderlik özellikleri: X ve Y kuşağı bağlamında nitel bir araştırma. *LAÜ Sosyal Bilimler Dergisi*, 10(2), 135-151.
- Bulut H, Kınoğlu NG, Karaduman B.(2024). The fear of artificial intelligence: Dentists and the anxiety of the unknown. *Journal of Advanced Research in Health Sciences* 7(1):55-60. <https://doi.org/10.26650/JARHS2024-1302739>
- Cantas, Ç., Soyer, C., & Batur, Ö., (2024). Examination of undergraduate students' artificial intelligence anxiety, multidimensional 21st century skills, and lifelong learning levels in terms of various variables. *Turkish Online Journal of Educational Technology-TOJET*, 23(3), 29-53.
- Chan, C.K.Y., & Lee, K.K.W.(2023). The AI generation gap: Are Gen Z students more interested in adopting generative AI such as ChatGPT in teaching and learning than their Gen X and millennial generation teachers?. *Smart Learn. Environ.* 10, 60 (2023). <https://doi.org/10.1186/s40561-023-00269-3>
- Çetiner, N., & Çetinkaya, F. Ö. (2024). Çalışanların yapay zekâ kaygısı ile motivasyon düzeyleri arasındaki ilişki: Turizm çalışanları üzerine bir araştırma. *Alanya Akademik Bakış*, 8(1), 159-173. <https://doi.org/10.29023/alanyaakademik.1297394>
- Çevik, O & Özkan, M.(2023). SPSS ile istatistiksel analizler. Nobel Akademik Yayıncılık.
- Dalimunte, I., Miraja, B. A., Persada, S. F., Prasetto, Y. T., Belgiawan, P. F., & Redi, A. A. N. P. (2019). Comparing generation Z's behavior intention in using digital wallet for online and in-store transaction: A unified theory of acceptance and use of technology 2 approach. *Journal of Applied Economic Sciences*, 14(3), 660-672. [https://doi.org/10.14505/jaes.v14.3\(65\).04](https://doi.org/10.14505/jaes.v14.3(65).04)
- Debb, S. M., Schaffer, D. R., & Colson, D. G. (2020). A reverse digital divide: comparing information security behaviors of generation Y and generation Z adults. *The International Journal of Cybersecurity Intelligence and Cybercrime*, 3(1), 42-55. https://doi.org/10.52306/03010420g_xuv5876

- Dönmez, S. (2020). Felsefi bağlamda yapay zekâ ve 2025 sendromu. Çukurova Üniversitesi İlahiyat Fakültesi Dergisi, Cilt: 20 Sayı:2
- Dörfler, V. (2023). Yöneticiler için yapay zeka. Çev: Cihan Alyat. Türkiye İş Bankası Yayınları
- Göklüberk Özlü, P., & Ekici Demir, N. (2024). Moda tasarımı sürecinde üretken yapay zekâ destekli sistemler. STAR Sanat ve Tasarım Araştırmaları Dergisi, 5(8), 110-122.
- Göksel, A., & Güneş, G. (2017). Kuşaklar arası farklılaşma: X ve Y kuşaklarının örgütsel sessizlik davranışı bağlamında analizi. Gazi Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, 19(3), 807-828.
- Görmez, A. B. (2021). Neoliberal özne olarak z kuşağı. Ankara Hacı Bayram Veli Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, 23(2), 509-530.
- Hafizoğlu, Y. (2021). Z kuşağı seçmen davranışları. International Journal of Education and New Approaches, 4(2), 141-164. <https://doi.org/10.52974/jena.1035189>
- Hopcan, S., Türkmen, G., & Polat, E. (2024). Exploring the artificial intelligence anxiety and machine learning attitudes of teacher candidates. Education and Information Technologies, 29(6), 7281-730
- Falebita, O. S. (2024). Assessing the relationship between anxiety and the adoption of Artificial Intelligence tools among mathematics preservice teachers. Interdisciplinary Journal of Education Research, 6, 1-13. <https://doi.org/10.38140/ijer-2024.vol6.201>.
- Kavalcı, K. & Ünal, S. (2016). Y ve Z Kuşaklarının Öğrenme Stilleri ve Tüketici Karar Verme Tarzları Açısından Karşılaştırılması, Atatürk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 20 (3), 1033-1050.
- Kaygısız, E. G., & Sipahi, H. (2019). Y Kuşağı Üniversite Öğrencilerinin Bireysel Yenilik ve Endüstri 4.0 Bilgi Düzeyleri Arasındaki İlişkinin İncelenmesi. Gaziantep University Journal of Social Sciences, 18(2), 922-936. <https://doi.org/10.21547/jss.44287928/smryj.64393>
- Köroğlu, Y. (2017). Yapay zeka'nın teorik ve pratik sınırları. Bogaziçi Üniversitesi Yayınevi, 1-10.
- Kuran, E. (2019). Z bir kuşağı anlamak. Mundi Kitap.
- Kurçer, D. & Civelek, M. (2023). Smart systems in tourism enterprises within the scope of artificial intelligence. İçinde Dalgın, T. & Civelek, M. (ed.), Change and New Search in Tourism. Özgür Yayımcılık. DOI: <https://doi.org/10.58830/ozgur.pub286.c1130>
- Kurtuluş, Ö. (2023). Yapay zeka ve sivil toplum: İyi amaçlar için yapay zeka. Dijital Pro.
- Li, J., & Huang, J. S. (2020). Dimensions of artificial intelligence anxiety based on the integrated fear acquisition theory. *Technology in Society*, 63, 101410.
- İlaslan, E. (2023). Yapay zeka sohbet robotları ve ChatGPT'nin hemşirelik eğitimde kullanılması. Akdeniz Hemşirelik Dergisi 2023; 2(2): 73-80
- Mücevher, M. H., & Erdem, R. (2018). X kuşağı akademisyenler ile y kuşağı öğrencilerin birbirlerine karşı algıları. Süleyman Demirel Üniversitesi Vizyoner Dergisi, 9(22), 60-74. <https://doi.org/10.21076/vizyoner.391745>
- Sevimli Deniz, S. (2022). Yapay zekâ kaygısının incelenmesine ilişkin bir araştırma. International Social Mentality and Researcher Thinkers Journal, <http://dx.doi.org/10.292>
- Shams, G., Rehman, M. A., Samad, S., & Oikarinen, E. L. (2020). Exploring customer's mobile banking experiences and expectations among generations X, Y & Z. Journal of Financial Services Marketing, 25(1-2), 1-13. <https://doi.org/10.1057/s41264-020-00071-z>
- Szymkowiak, A., Melović, B., Dabić, M., Jeganathan, K., & Kundi, G. S. (2021). Information technology and Gen Z: The role of teachers, the internet, and technology in the education of young people. *Technology in Society*, 65, 101565.
- Şen, A. T. (2024). Kamu çalışanlarının yapay zeka kaygı düzeylerinin belirlenmesi: Kastamonu örneği. Ömer Halisdemir Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, 17(2).
- Tarsuslu, S., Agaoglu, F. O. & Bas, M. (2024). Can digital leadership transform AI anxiety and attitude in nurses? Journal of Nursing Scholarship, 00, 1-11. <https://doi.org/10.1111/jnu.13008>
- Özbek, A. (2024). Muhasebe meslek mensuplarının yapay zekâ kaygılarının gelecekte istihdam edilebilirlik algıları üzerine bir çalışma. Alanya Akademik Bakış, 8(1), 254-267. <https://doi.org/10.29023/alanyaakademik.1329511>
- Ünal, A., & Kılınc, İ. (2020). Yapay zekâ işletme yönetimi ilişkisi üzerine bir değerlendirme. Yönetim Bilişim Sistemleri Dergisi, 6(1), 51-78.
- Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. MIS Quarterly: Management Information Systems, 36(1), 157-178. <https://doi.org/10.2307/41410412>
- Wang, Y. Y., & Wang, Y. S. (2019). Development and validation of an artificial intelligence anxiety scale: An initial application in predicting motivated learning behavior. Interactive Learning Environments, 30(4), 619-634. <https://doi.org/10.1080/10494820.2019.1674887->



Intra-Industry Trade in High-Tech Product Groups within the South Korean Manufacturing Industry

Muhammed Fatih Aydemir^{1,a,*}, Osman Barbaros Kemer^{2,b}

¹Department of Foreign Trade, Vocational School of Social Sciences, Bursa Uludağ University, Bursa, Türkiye

²Department of International Trade and Business, Faculty of İnegöl Business, Bursa Uludağ University, Bursa, Türkiye

*Corresponding author

Research Article

History

Received: 15/10/2024

Accepted: 29/12/2024

JEL Codes: F10, F11, F14

ABSTRACT

This article aims to determine the degree of similarity between South Korea and its foreign trade partners in terms of manufacturing industries producing high-tech products. To achieve this, the article analyses the intra-industry trade (IIT) of South Korea's manufacturing industry producing high-tech (high value-added) products. To this end, calculations were made using the Grubel-Lloyd index, which is the most widely used in the literature, with 3-digit (SITC-Rev.3) foreign trade data within the manufacturing sector for the period 2010-2022. With regard to South Korea's high-tech manufacturing industry and its foreign trade partners, it has been observed since 2010 that the IIT values in question exceed 0,57, with a value of 0,74 being reached in 2022. Conversely, while standard technology products played a significant role in achieving high IIT values in 2010, the increasing IIT values of high technology products since 2015 have been instrumental in South Korea's attainment of high IIT values. Furthermore, it has been established that this value is particularly concentrated in the machinery and transport sector and the chemical sector. It can thus be concluded that South Korea's foreign trade with other countries in the same or similar product groups is dominated by high-tech exports. Additionally, it has been observed that manufacturing industry products, which were previously included in inter-industry trade, have undergone a transformation towards IIT and have contributed to high IIT values. In order for South Korea to become a more prominent player in intra-industry trade in high-tech products, it is necessary for the country to implement more flexible production strategies and develop more comprehensive supply chains.

Keywords: Manufacturing Industry, High-Tech Products, Intra-Industry Trade, Grubel-Lloyd Index, South Korea

Güney Kore İmalat Sanayiindeki Yüksek Teknolojili Ürün Gruplarında Endüstri-İçi Ticaret

Süreç

Geliş: 15/10/2024

Kabul: 29/12/2024

Jel Kodları: F10, F11, F14

Öz

Bu makalenin amacı, Güney Kore'nin dış ticaret ilişkisi içinde bulunduğu diğer ülkeler ile yüksek teknolojlili ürün üreten imalat sanayi sektörleri açısından birbirlerine ne kadar benzeştiğini tespit etmektir. Bunu gerçekleştirmek için, makalede Güney-Kore'nin yüksek teknolojlili (yüksek katma değerli) ürünler üreten imalat sanayinin Endüstri-İçi Ticareti (EİT) analiz edilmiştir. Bu doğrultuda 2010-2022 yılları arasında imalat sanayi kapsamında 3 basamaklı (SITC-Rev.3) dış ticaret verileri ile literatürde en çok kullanılan Grubel-Lloyd endeksi ile hesaplamalar yapılmıştır. Bunu yaparken, Güney Kore'nin yüksek teknolojlili ürünlerinin EİT verileri çeşitli tablolarda analiz edilmiştir. Güney Kore'nin dış ticaret yaptığı ülkeler ile yüksek teknolojlili imalat sanayii kapsamında 2010 yılından itibaren 0,57 ve üzerinde Endüstri-İçi Ticaret (EİT) oranları ile karşılaşmış ve bu değer 2022 yılında 0,74'e ulaştığı hesaplanmıştır. Diğer taraftan, standart teknoloji ürünler 2010 yılında yüksek EİT değerleri üzerinde önemli rol oynarken, 2015 yılından itibaren yüksek teknoloji ürünlerinin artan EİT değerleri Güney Kore'nin yüksek EİT değerlerine ulaşmasında etkili olmuştur. Ayrıca, bu değer özellikle makine ve ulaşım sektörü ile kimya sektöründe yoğunlaştığı tespit edilmiştir. Dolayısıyla, Güney Kore'nin diğer ülkelerle aynı veya benzer ürün gruplarındaki dış ticaretinin yüksek teknoloji ihracatı ağırlıklı olduğu anlaşılmıştır. Ayrıca daha önce endüstriler-arası ticarete yer alan imalat sanayi ürünlerinin de EİT'e doğru dönüşüm geçirdiği ve yüksek EİT değerlerine katkıda bulunduğu gözlemlenmiştir. Güney Kore'nin yüksek teknoloji ürünleri endüstri-İçi ticaretinde daha fazla öne çıkabilmesi için daha esnek üretim ve daha kapsamlı tedarik zincirleri kurması gerekmektedir.

Anahtar Kelimeler: İmalat Sanayii, Yüksek Teknoloji Ürünleri, Endüstri-İçi Ticaret, Grubel-Lloyd Endeksi, Güney Kore

Copyright



This work is licensed under
Creative Commons
AttributionNonCommercial 4.0
International License

^a mfaydemir@uludag.edu.tr

^{id} [0000-0002-4248-9057](https://orcid.org/0000-0002-4248-9057)

^b bkemer@uludag.edu.tr

^{id} [0000-0002-1118-7507](https://orcid.org/0000-0002-1118-7507)

How to Cite: Aydemir MF, Kemer OB (2025) Intra-Industry Trade in High-Tech Product Groups within the South Korean Manufacturing Indust, Journal of Economics and Administrative Sciences, 26(1): 196-210, DOI: 10.37880/cumuiibf.1567372

Introduction

International trade has been a pivotal factor in the economic prosperity of Asian countries. The export-oriented development strategy adopted by countries such as Japan, South Korea, Taiwan, and Singapore has played a pivotal role in driving their rapid economic growth since the 1960s (Kuznets, 1988). In South Korea, the proportion of exports in gross domestic product (GDP) increased from 3% in 1960 to nearly 37% by 2023. In Taiwan, the figure rose from 10% to 57% over the same period. In China, the ratio rose from 3,15% to nearly 19% (UNCTADstad, 2024; World Bank Group, 2024). China's ascendance from an isolated, closed economy to a prominent trading nation has constituted a pivotal aspect of its reform and growth trajectory over the past four decades. Furthermore, the Free Trade Area (FTA) established by the Association of Southeast Asian Nations (ASEAN) in 1992 to facilitate trade and economic integration among its members has evolved into one of the most significant regional trading blocs in the world (Sawyer, 2010, p. 485).

This study focuses on South Korea, one of the leading Asian nations. South Korea's economic and commercial prominence on the global stage began in the 1990s and became especially notable after the 2000s (Cho, 2019, p. 37). Notwithstanding the contraction in global trade and the sluggishness of major economies, South Korea succeeded in maintaining its status as the seventh largest exporter and ninth largest importer in the world in 2020, representing 2,76% of the global trade volume. In 2023, this figure experienced a slight decline, reaching 2,65% (Trade Map, 2024; UNCTADstad, 2024). South Korea's FTAs with other countries have played a significant role in this regard. Foreign trade in South Korea is consistently promoted through the implementation of free trade agreements (Korea Law Translation Center, 2024). In the present era, the South Korean government has elected to reinforce bilateral and multilateral trade collaboration with the objective of further augmenting export objectives (Ministry of Economy and Finance, 2024, p. 9).

However, this development of Asian countries has been accompanied by the advent of a significant transformation in international trade patterns. Until the 1980s, the typical North-South inter-industry trade patterns that had previously dominated East Asian trade were still in evidence. During this period, the developing countries of East Asia exported raw materials and labor-intensive products, while Japan exported a wide range of finished goods to this vast region. This type of trade pattern, which may also be referred to as traditional trade patterns based on factor abundance, is explained by the Ricardian theory of traditional comparative advantage. This theory assumes that the location of production and the pattern of international trade are largely determined by differences between countries in terms of resource endowments, labor-capital ratios, and technological level (Ando, 2006, p. 257).

The traditional trade model assumes that countries specialize in a few industries, that there are only two

countries, and that this two-country, reciprocal trade is mostly one-way (Van Biesebroeck, 2011, p. 71). It is evident that inter-industry trade is reflective of both Ricardian traditional comparative advantage and Heckscher-Ohlin's Factor Endowment theory (Ruffin, 1988, p. 759). This is because these models suggest that if each country has a different factor endowment pattern, it will specialize in production where it intensively uses relatively abundant factors of production and then gains international trade by opening up (Ergün, 2023, p. 78; Wakasugi, 1997, p. 354). Contrary to stated observations, it is evident that countries with similar industrial structures engage in greater trade in industrial products (Kuçlu & Yenilmez, 2024, p. 104). This is evidenced by the fact that two-way international flows of goods within the same industry exhibit a faster growth rate than international flows of goods between different industrial sectors (Wakasugi, 1997, p. 354).

This unexpected development demonstrated the existence of a new trade model: Intra-Industry Trade (IIT). IIT refers to the phenomenon of numerous countries simultaneously exporting and importing similar goods and services among each other. In other words, IIT refers to the exchange of similar products of the same industry between countries (Root, 1994, p. 104; Van Marrewijk, 2002, p. 182; Ulucan et al., 2014, p. 32).

In contrast to inter-industry trade, IIT does not reflect the principle of comparative advantage (Çeştepe et al., 2017, p. 345). Even if countries have the same "capital/labor" ratio, firms in these countries will continue to produce differentiated products, and consumers' demand for products produced abroad will continue to create IIT (Krugman & Obstfeld, 2003, p. 138; Şahin, 2022, p. 9). Indeed, as evidenced by trade statistics, there are numerous instances of two-way trade of products within the same industry between two parties, which can be defined as IIT. A straightforward explanation for this phenomenon being reflected in the statistics is that the statistics encompass a multitude of products within a unified category. Consequently, what may be perceived as a singular product is, in fact, comprised of numerous products (Grosse & Kujawa, 1992, p. 81). The subject of trade patterns represents the most crucial area of study within the field of international microeconomics. Given that a considerable proportion of global trade comprises products that are similar or even distinct, a phenomenon known as IIT has emerged. This has led to the development of a substantial theoretical and empirical literature on the subject (Bernhofen, 1997, p. 225-226; Sezer & Önder, 2024, p. 2-3). Although the initial studies on IIT were conducted by Balassa (1966), it was Grubel and Lloyd (1971) who developed the most widely used index for measuring IIT (Davis, 1995, p. 225-226; Phan & Jeong, 2014, p. 834).

Grubel and Lloyd's demonstration of intensive IIT among industrialized countries (endowed with similar factor ratios) appeared to contradict traditional theories of comparative advantage. However, this result led to the development of a "new theory of trade" under the

framework of imperfect competition (Adigüzel, 2022, p. 403; Davis, 1995, p. 225-226). Subsequently, numerous other economists have made significant contributions to this field (Aggarwal, 2023, p. 3). The majority of empirical studies to date have been based on the standard Grubel-Lloyd measure (Azhar et al., 2008, p. 338; Azhar & Elliott 2006, p. 479; Egger et al., 2007, p. 1959; Nielsen & Lüthje, 2002, p. 590).

One of the justifications for the use of IIT is the fact that the majority of trade is conducted in differentiated products (Martin-Montaner & Ríos, 2002, p. 340; Şaşmaz, 2024, p. 273). This phenomenon is exemplified by the trade of information technologies (IT) industry products, including cell phones, scanners, and fax machines, between the United States and South Korea or between South Korea and Japan. For instance, the iPhone (Apple) is sold in South Korea and Japan, while Samsung cell phones and Toshiba computers are exported from these countries to the United States. This facilitation of trade in IT industry products reveals that the products of this sector are highly differentiated, which allows for the coexistence of the brands mentioned above in the same market at the same time, despite their differentiation from each other (Grosse & Kujawa, 1992, p. 81).

The key to the development and dissemination of IIT is the existence of intra-industry specialization across countries (Şahin, 2017, p. 230). One of the factors contributing to such specialization is the potential for economies of scale (Davis, 1995, p. 202; Şaşmaz, 2024, p. 273). The process is sequential in nature. The existence of economies of scale encourages the formation of specialized production units, which in turn facilitates the development and dissemination of IIT (Schmitt & Yu, 2001, p. 127-128). Indeed, some economists working on the theory of IIT have even argued that economies of scale are a sine qua non condition for intra-industrial specialization. This is because, in the absence of economies of scale, all types of products can be produced domestically, and IIT cannot be realized (Davis, 1995, p. 223; Doru & Özer, 2022, p. 454).

The fact that the traded products originate from the same industry indicates that the factor intensities of these traded products are comparable. Furthermore, the fact that products from the same industry are subject to foreign trade and the similar demand structures of these products across countries are concurrent. Consequently, the increase in the level of IIT indicates that there are no comparative advantages between countries due to the similarity of their economic structures (Saygın, 2020, p. 103).

Approximately a quarter of global trade is comprised of IIT, which refers to the exchange of goods between two parties within the confines of standard industrial classifications (Thies & Peterson, 2016, p. 37). IIT plays a particularly significant role in trade in manufactured goods between advanced industrialized countries, which account for the majority of global trade. Over time, industrialized countries have become increasingly similar in terms of technology levels and the availability of capital

and skilled labor. It is often the case that large trading nations have no net comparative advantage in an industry, given that they become increasingly similar in terms of technology and resources. Consequently, the majority of international trade is likely driven by economies of scale, with two-way exchanges within industries becoming the dominant form of trade rather than inter-industry specialization based on comparative advantages (Krugman & Obstfeld, 2003, p. 139).

With regard to Asia, the prevailing trade patterns observed in East and Southeast Asia, similar to those observed in Western countries, cannot be fully explained by the traditional theory of comparative advantage (Van Biesebroeck, 2011, p. 258). The rapid growth of Asian countries, their export-oriented industrialization, and the international segmentation of production have increased the importance of IIT in Asia. Asia has emerged as the continent most benefited by the international segmentation of production. While some Asian countries produced intermediate goods, others produced final products, while others produced raw materials (Sawyer, 2010, p. 485).

Although research on IIT has been extensive and sophisticated in Europe, East Asian countries have not demonstrated the same level of interest in IIT as European countries. However, in recent years, IIT has become increasingly important in East Asia's international trade and has started to play a decisive role in South Korea's international trade (Bhattacharyya, 2005, p. 810; Han & Lee, 2012, p. 116). Thus, as the country's economy developed, market size increased, trade barriers decreased, and foreign direct investments increased, South Korea's IIT had to expand from the 1960s onwards. In particular, with the growth of capital accumulation, the proportion of IIT in total trade in capital-intensive sectors has increased over time (Kim & Kim, 1998, p. 175).

The establishment of official diplomatic relations between China and South Korea in 1992 has facilitated enhanced collaboration across a range of sectors (Hwang, 2021, p. 218). One of the most significant areas of cooperation has been trade. Currently, China has become South Korea's largest export and import market. Conversely, South Korea has emerged as China's fourth-largest exporter and second-largest importer (Li et al., 2015, p. 115).

The product structure of exports from China to South Korea has undergone a gradual shift from primary products to manufactured products. In contrast, imports from South Korea are predominantly manufactured products. As trade between China and South Korea has expanded, IIT has gradually supplanted inter-industry trade, becoming the dominant mode of trade between the two countries. In this trade between China and South Korea, manufactured goods have consistently constituted the largest share. It follows that an increase in bilateral trade in manufactured goods between the two countries will contribute to the growth of intra-industry trade (Li et al., 2015, p. 115).

Literature Review

This section presents a discussion of studies on the determination of the level of IIT in South Korea's foreign trade.

Havrylyshyn and Civan (1985) examined the IIT of newly industrializing and developing countries. In 1978, the value of IIT in South Korea's foreign trade was 0,35, the value of IIT in South Korea's trade with developing countries was 0,26 and the value of IIT in South Korea's trade with newly industrializing countries was 0,29. Therefore, the value of IIT in South Korea's foreign trade was slightly higher than the value of IIT in its foreign trade with developing countries and newly industrialized countries.

Kim (1992) conducted an analysis of South Korea's IIT for the period 1978-1987. During this period, an increase in the level of IIT was observed as capital stock increased at a faster rate than labor stock. However, South Korea's level of IIT was found to be relatively high in comparison to other Asian countries and developed countries with which it has foreign trade. Conversely, it was determined that the level of IIT between South Korea and the Organization of Petroleum Exporting Countries (OPEC) member countries is relatively low. Additionally, it was observed that South Korea's level of IIT in the manufacturing sector was higher than in the agricultural sector. Conversely, it was stated that an increase in South Korea's Gross Domestic Product (GDP) per capita would result in a diversification of consumer preferences, thereby leading to an expansion in the level of IIT as firms differentiate their products.

Kim and Kim (1998) conducted an analysis of the IIT in South Korea, Japan, and the USA for the period 1962-1995. Although there has been an increase in the intensity of physical and human capital in South Korea's manufacturing industry sectors, it is stated that labor-intensive sectors are more prominent than in Japan and the USA. From 1980 to 1995, South Korea's level of IIT exhibited a more rapid increase than Japan's level of IIT. Furthermore, it was demonstrated that capital-intensive sectors in South Korea became increasingly prominent over time. Furthermore, it has been demonstrated that South Korea's IIT level is correlated with GDP per capita, free trade, and increased foreign direct investment (FDI).

Lee and Sohn (2004) analyzed the degree of IIT between South Korea and select trading partners over the period 1991-2001 employing the Grubel-Lloyd index. The study revealed that the marginal level of IIT is also high between South Korea and its trading partners with a high level of IIT. Furthermore, the study revealed that trade harmonization arrangements between South Korea and its trading partners exert a positive influence on the level of IIT, whereas trade imbalance and distance to the market exert a negative influence on the level of IIT.

Umamoto (2005) analyzed the IIT of South Korea and Japan in the automotive parts sector was analyzed over the period from 1985 to 2001. The findings revealed that South Korea and Japan exhibited lower IIT values in comparison to those observed in the NAFTA, EU, and MERCOSUR regions. Conversely, the IIT levels in South Korea and Japan were

found to be higher than those observed between Northeast Asian countries and East Asia.

Bhattacharyya (2005) applied the Grubel-Lloyd index to assess South Korea's IIT over the 33-year period from 1963 to 1995. The study demonstrated that enhanced interactions between producers and consumers in countries engaged in trade with South Korea led to a notable expansion in total trade volume. Consequently, vertical IIT was observed to exceed horizontal IIT.

Chemsripong et al. (2005) conducted an analysis of intra-industry trade (IIT) in the manufacturing sector between Thailand and the Asia-Pacific Economic Cooperation (APEC) countries over the period 1980-1999. The study employed a comparative approach, examining the IIT patterns between pre- and post-APEC countries. The findings revealed that the value of IIT between Thailand and South Korea exhibited an increase following the establishment of APEC.

Kim (2005) analyzed the level of IIT between South Korea and the ASEAN in the period 1996-2003. It was found that the level of IIT in the electronics sector increased between South Korea and the ASEAN due to the development in information technologies. In addition, a negative relationship was found between customs tariffs between these countries and the level of IIT.

In a study spanning 1988-2006, Yoshida (2008) examined the extent of IIT between Japan and South Korea. The study revealed that newly traded goods exert a positive influence on IIT, whereas traded goods with high value have a negative impact on IIT. Furthermore, the study revealed that Japan's highest level of economic cooperation with other countries in 2006 was with South Korea.

Kang and Lee (2012) conducted a study to determine the level of IIT between South Korea and 15 member countries of the Organization for Economic Cooperation and Development (OECD) and Taiwan for the period 1996-2003. The study revealed that South Korea's R&D investments are primarily driven by price competition, while FDIs from South Korea are concentrated in productive sectors. Conversely, FDIs from South Korea to the aforementioned countries are directed towards substitute markets within the scope of vertical IIT. Moreover, it has been demonstrated that South Korea has relatively low export prices in the context of vertical IIT among OECD countries. Consequently, it has been demonstrated that South Korea occupies a southern position within the North-South model of IIT.

Han and Lee (2012) analyzed IIT between South Korea and China for 1992-2006 in the textile, chemical, basic metals, machinery, electricity and automobile industries. As a result of the study, it was found that increased FDI expenditures from South Korea to China have a positive impact on vertical integration between the two countries. Conversely, the disparities in per capita income between the two countries are negatively correlated with vertical IIT.

Kien and Heo (2014) focused on bilateral trade between South Korea and Vietnam. The results revealed that there is a low level of intra-industry trade between South Korea and Vietnam, with considerable fluctuations. Furthermore, it

was determined that bilateral trade between the two countries is complementary in nature, rather than competitive.

Li et al. (2015) used Grubel-Lloyd index, Brühlhart index, horizontal and vertical IIT indices to determine the level of IIT in manufacturing industry sectors between South Korea and China. The study found that the expansion of trade between the two countries between 1992 and 2013 had a positive effect on the level of IIT. In the context of foreign trade between the two countries, labor-intensive sectors exhibit a higher level of IIT than capital and technology-intensive sectors.

Haddou and Jang (2018) compared the IIT values between South Korea and selected Middle East and North African countries (MENA) during the period 1995-2015. The study concluded that South Korea reached a high level of IIT values as a result of its FTAs with both the EU and the US. Conversely, no significant change was observed in the IIT values of Algeria with its FTA with the EU during this period. Following the Customs Union with the EU, Turkey's IIT values have increased significantly, and its integration into world trade has increased.

Kim and Cho (2018) examined the fluctuations in the IIT between South Korea and China, the United States, and Japan, which are the countries with which South Korea has the most extensive trade relations in terms of manufacturing, over the period 1994-2011. The study revealed that the IIT between South Korea and China increased due to economies of scale, FDI, the ratio of intermediate costs to total costs, and R&D intensity. However, the study revealed that South Korea's IIT with the United States increased due to economies of scale, FDI, and research and development (R&D) intensity. Moreover, FDI, the ratio of intermediate cost to total cost, and R&D intensity have been identified as crucial variables affecting IIT between South Korea and Japan.

Cheong and Yoo (2020) investigated South Korea's e-commerce with IIT. The analysis revealed that the share of IIT was less than that of general trade in the country's e-commerce sector. In this regard, the theory of comparative advantage may offer a more valid explanation of South Korean e-commerce. The results indicate that South Korea's e-exports exceed the level of IIT with its free trade agreement partners. Conversely, a lower e-commerce rate suggests a greater potential for import growth. Additionally, the export profile of South Korea is characterised by high-quality goods, while its major trading partners import merchandise based on price and commodity choice.

Yuan and Du (2020) examined the IIT between China, Japan and South Korea. The study, which covers the years 2009-2018, revealed that the level of IIT has not yet reached a high level despite the development of trade between the three countries. The study further suggests that the level of IIT with both Japan and South Korea is expected to increase with the development of the Chinese economy.

Neumann and Tabrizy's (2021) study examined the foreign trade of the top exporters in Asia during the period from 2001 to 2015. The study revealed that South Korea exhibited low IIT values in the wood, transportation equipment, and food sectors. Conversely, the manufacturing industry exhibited high levels of IIT,

particularly in the domains of machinery, metal, and paper products.

Wood et al. (2021) conducted an analysis of China's IIT relationships with its Asia-Pacific Economic Cooperation (APEC) partners for the period 2000-2014. The analysis revealed a high level of inter-industry trade in China's trade with South Korea. The analysis revealed that inter-industry trade between China and South Korea has evolved through both horizontal and vertical integration.

Aggarwal et al. (2023) conducted an examination of India's bilateral trade relations, determining that the nation's IIT with Japan and South Korea has undergone an increase. The underlying factors contributing to this phenomenon were identified as the deepening of trade preferences, measures implemented for the facilitation of trade, and the diversification of products.

Baek and Yoon's (2023) analysis of trade between South Korea and Vietnam revealed a notable finding. Their analysis revealed a substantial degree of IIT between the two nations.

Podoba (2023) studied the trade between The Eurasian Economic Union (EAEU) and South Korea for the period 2015-2021. The study revealed that trade between the two regions is predominantly inter-industry trade. A study revealed that IIT between the EAEU and South Korea is particularly prevalent in the iron and steel product group. Furthermore, the possibility of IIT between the two sides in regard to chemical and non-fuel raw material products was identified.

Kurt (2024) examined the nature of IIT between Turkey and South Korea in the automotive industry. The study concluded that the value of IIT between the two countries in the automotive industry is relatively low.

Sezer & Önder (2024) analyzed Turkey's intra-industry trade with selected sectors and countries. The study's findings indicate that the intra-industry trade values in Turkey's foreign trade with South Korea are comparatively low in the product groups that Turkey exports with the highest frequency.

Despite the growing significance of IIT in East Asia's global trade and its emerging role in shaping South Korea's international trade landscape, scholarly attention devoted to the IIT's impact on South Korea's foreign trade has witnessed a notable decline in recent years. Moreover, there has been no analysis of the IIT for high-tech product groups in South Korea. This study differs from previous research in that it aims to analyze the IIT values of high-tech product groups in South Korea's manufacturing industry's foreign trade. Consequently, this study is anticipated to contribute to the existing body of literature.

Material and Method

Material

KITA (2023) SITC (International Code System for Commodity Groups) (Rev. 3) data were used to calculate the IIT in South Korea's manufacturing industry foreign trade. The data period covers 2010-2022. See the Appendix for manufacturing industry product group classification by technology level.

Method

The Grubel-Lloyd Index is the most frequently cited method in the literature for the analysis of IIT (Azhar & Elliott, 2006, p. 479; Azhar et al., 2008, p. 338; Egger et al., 2007, p. 1959; Nielsen & Lüthje, 2002, p. 590). The calculation of the Grubel-Lloyd Index can be demonstrated as follows (Grubel & Lloyd, 1971):

$$IIT^{G-L} = \frac{[(X_i+M_i)-|X_i-M_i|]}{(X_i+M_i)} ; 0 \leq IIT^{G-L} \leq 1 \quad (1)$$

X_i : export value in commodity group i ,
 M_i : import value in commodity group i .

As illustrated above, the IIT^{G-L} scale encompasses a range between 0 and 1. Values of 0,50 and above are indicative of a high level of IIT, while values below 0,50 are indicative of a low level of IIT.

Furthermore, calculations can be made for product groups or sub-sectors on an aggregated basis. In this regard, the average IIT, which is calculated by weighting the export and import ratios of product groups in the total value of international trade across a number of sectors, can be calculated as follows (Grubel & Lloyd, 1971; Grubel & Lloyd, 1975):

$$\overline{IIT}^{G-L} = \frac{\sum_i^n B_i(X_i+M_i)}{\sum_i^n (X_i+M_i)} = \frac{\sum_i^n (X_i+M_i) - \sum_i^n |X_i-M_i|}{\sum_i^n (X_i+M_i)} ; 0 \leq$$

$$\overline{IIT}^{G-L} \leq 1 \quad (2)$$

Table 1 presents the IIT ratings according to the Grubel-Lloyd (G-L) index.

As indicated in Table 1, IIT values vary between 0 and 1 (\overline{IIT}^{G-L}). Values of 0,50 and above are indicative of high IIT, while values below 0,50 are indicative of low IIT. When IIT values are high, it can be inferred that trade between countries is realized bidirectionally in similar commodity groups. Conversely, low IIT values indicate that trade between countries occurs in the form of inter-industry trade. Furthermore, inter-industry trade provides insight into the fact that trade between countries is predominantly based on comparative advantage.

Aggregation levels represent an industrial sector, as they encompass specific product groups (Grubel & Lloyd, 1975, p. 3). Aggregation levels result in elevated IIT values at higher aggregation levels with fewer product groups (Başkol, 2009, p. 6; Bedir, 2023, p. 119). Consequently, the selection of an aggregation level is regarded as a crucial aspect of IIT analysis (Bhattacharyya, 2007, p. 61). In this study, the SITC 3-digit aggregation level was selected as it is a widely used level in the literature (Greenaway & Milner, 1986; McCorrison & Sheldon, 1991).

Results

In 2022, South Korea is projected to rank sixth in the world in exports and eighth in imports (WTO, 2023, p. 60). In this context, South Korea, which is among the most significant countries in global trade, has achieved a considerable proportion of its foreign trade through the manufacturing industry, as evidenced by Table 2.

Table 1. IIT Ratings Based on G-L Value Ranges

G-L Value Ranges	IIT Ratings
$0 < IIT^{G-L}$ or $\overline{IIT}^{G-L} < 0,50$	Low
$0,50 < IIT^{G-L}$ or $\overline{IIT}^{G-L} < 1$	High

Table 2. Share of Manufacturing Industry in South Korea's Foreign Trade

Year	Manufacturing Industry Foreign Trade Values (Thousand \$)		Total Foreign Trade Values (Thousand \$)		Share of Manufacturing Industry in Foreign Trade	
	Export	Import	Export	Import	Export Share	Import Share
2010	420144201	252204660	466383762	425212160	0,90	0,59
2011	484534486	282584877	555213656	524413090	0,87	0,54
2012	473371377	269962126	547869792	519584473	0,86	0,52
2013	491182380	275258301	559632434	515585515	0,88	0,53
2014	506227722	288629977	572664607	525514506	0,88	0,55
2015	480703804	280645676	526756503	436498973	0,91	0,64
2016	454550334	274888959	495425940	406192887	0,92	0,68
2017	522655199	310564212	573694421	478478296	0,91	0,65
2018	541555582	326011729	604859657	535202428	0,90	0,61
2019	484817354	315019598	542232610	503342947	0,89	0,63
2020	470727136	320902647	512498038	467632763	0,92	0,69
2021	584797781	395544806	644400368	615093447	0,91	0,64
2022	598692870	427842083	683584760	731369657	0,88	0,58

Source: Own calculations based on KITA foreign trade statistics (2023).

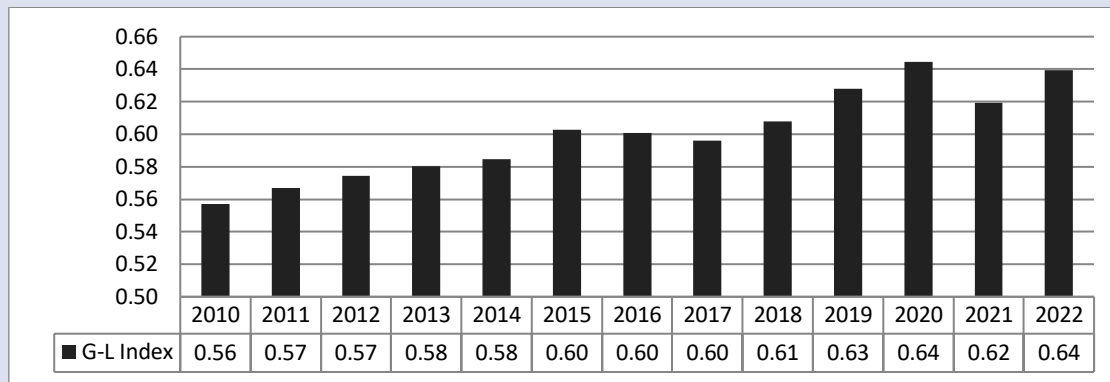


Figure 1. IIT values of the manufacturing industry in South Korea's foreign trade from 2010 to 2022 (Average G-L index)¹

Source: Own calculations based on KITA foreign trade statistics (2023).

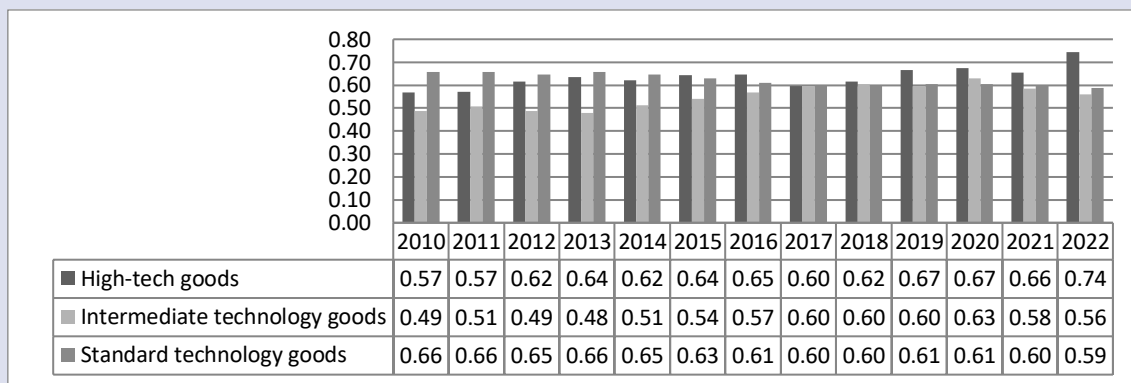


Figure 2. IIT values by technology intensity in South Korea manufacturing industry from 2010 to 2022 (Average G-L index)

Source: Own calculations based on KITA foreign trade statistics (2023).

A review of South Korea's foreign trade data, as presented in Table 2, reveals a notable increase in both total foreign trade and foreign trade in manufacturing industry sectors over time. In general, 90% of total exports consisted of manufacturing industry products, while imports fluctuated between 52% and 69%. In 2012, the proportion of manufactured goods exported fell to 86%, but rose to 92% by 2020 and was recorded at 88% in 2022. With regard to imports, the proportion of manufactured goods in total imports fell from 52% in 2012 to 69% in 2020 and 58% in 2022. In this context, it is evident that the manufacturing industry plays a pivotal role in both South Korea's exports and imports. Although this table provides preliminary information about South Korea's manufacturing industry foreign trade structure in the form of IIT, it does not provide insight into the technology structure.

In the period under review, South Korea has consistently exhibited a positive trade balance with the exception of 2022. A comparison of the foreign trade surpluses of different sectors reveals that the manufacturing industry has a higher surplus than other sectors. In 2022, South Korea exported approximately 684 billion dollars, while importing 731 billion dollars. In this context, the country experienced a foreign trade deficit of 47 billion dollars. In 2022, despite the country's posting of a foreign trade deficit, the

manufacturing industry, which plays a significant role in the country's foreign trade, continued to generate a positive balance of trade.

According to Figure 1, the value of IIT increased from 0,56 in 2010 to 0,60 in 2015. In 2022, the value of IIT in foreign trade was 0,64. In this context, it is evident that the foreign trade structure of South Korea's manufacturing industry is predominantly in the form of IIT. South Korea's foreign trade structure gives the impression of a developed country.

It is necessary to analyze the industry based on technology intensity to better understand the structure of IIT in South Korea's manufacturing foreign trade. This includes high-tech goods, intermediate technology goods, and standard technology goods.

Figure 2 illustrates that in 2010, standard technology products exhibited the highest IIT values, with an IIT value of 0,66. In contrast, medium-technology products exhibited a relatively low IIT value in 2010, but this value increased from 2017 to 2020 and reached 0,56 in 2022. In high-tech products, the value of IIT was 0,57 in 2010, but by 2022 it had increased to 0,74. It can be argued that the main reason for South Korea's high manufacturing industry IIT values is the high IIT values of high-tech products. Furthermore, the arithmetic mean of the annual rates of change of IIT values for the period 2010-2022 indicates an increase of 2,33% for

¹ Equation 2 is employed for the calculation of South Korea's IIT values. In contrast with the foreign trade data presented in Table 2, the calculations are based on foreign trade data pertaining to product groups.

high-tech products, an increase of 1,22% for medium-tech products and a decrease of 0,91% for standard technology products. This demonstrates that the product group exhibiting the most rapid growth in South Korea's IIT values belongs to the high-tech product group.

Figure 3 illustrates the intra-industry trade structure in the chemicals sector (coded 5) until 2013 and in the manufacturing industry products not elsewhere specified sector (coded 8) until 2014. During this period, there was a noteworthy rise in IIT values in the chemical sector,

increasing from 0,47 in 2010 to 0,75 in 2022. The machinery and transportation equipment sector, coded 7, reached the highest level of IIT value (0,77) in 2022.

As demonstrated in Table 3, the IIT value for product group 541, "Medicinal and pharmaceutical products, other than medicaments of group 542," is notably elevated and reached its maximum in 2022.

In terms of high-tech product groups, no IIT was found for processed products coded 6.

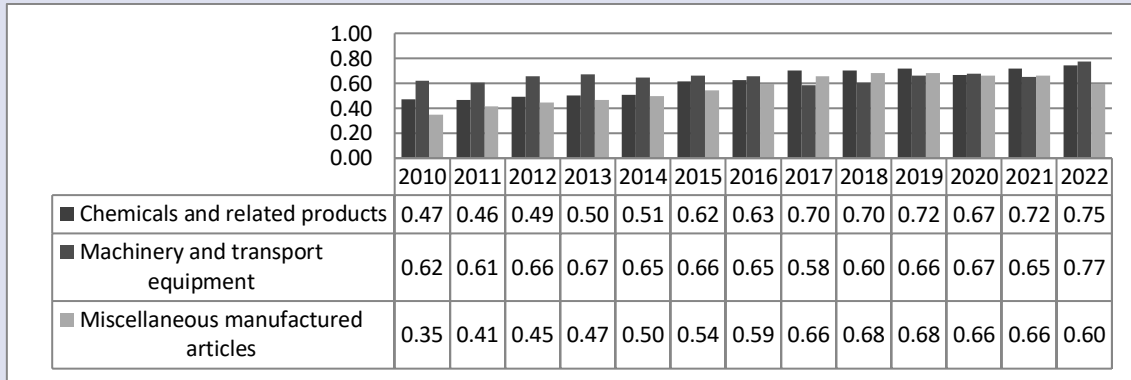


Figure 3. IIT values by sectors consisting of high-tech product groups in the South Korean manufacturing industry from 2010 to 2022 (Average G-L index)

Source: Own calculations based on KITA foreign trade statistics (2023).

Table 3. IIT values of high-tech goods from 2010 to 2022 (Chemicals and related products, n.e.s.) (G-L index)

SITC Code	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
541	0,67	0,64	0,60	0,63	0,62	0,79	0,89	0,95	0,98	0,98	0,81	0,88	1,00

Source: Own calculations based on KITA foreign trade statistics (2023).

Table 4. IIT values of high-tech goods from 2010 to 2022 (Machinery and transport equipment) (G-L index)

SITC Code	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
721	0,73	0,71	0,74	0,84	0,66	0,67	0,57	0,71	0,55	0,47	0,44	0,46	0,43
722	0,64	0,46	0,47	0,59	0,44	0,26	0,51	0,42	0,41	0,43	0,37	0,29	0,23
724	0,28	0,35	0,29	0,30	0,31	0,29	0,36	0,41	0,57	0,66	0,97	0,61	0,57
725	0,57	0,96	0,94	0,93	0,93	0,97	0,89	0,90	0,94	0,92	0,97	0,80	0,94
726	0,46	0,63	0,65	0,69	0,74	0,65	0,67	0,69	0,73	0,73	0,64	0,67	0,65
727	0,72	0,76	0,63	0,72	0,53	0,61	0,59	0,63	0,68	0,53	0,56	0,67	0,64
728	0,62	0,70	0,76	0,91	0,87	0,94	0,87	0,75	0,90	0,90	0,87	0,76	0,79
741	0,70	0,65	0,61	0,64	0,61	0,57	0,58	0,68	0,71	0,59	0,59	0,72	0,75
742	0,74	0,80	0,84	0,80	0,85	0,89	0,99	1,00	1,00	0,96	0,93	0,95	0,97
743	0,90	0,99	1,00	0,98	0,97	0,94	0,91	0,97	0,93	0,91	0,94	0,90	0,93
744	1,00	0,87	0,92	0,98	0,98	0,95	0,88	0,77	0,69	0,71	0,76	0,87	0,79
745	0,86	0,91	0,89	0,97	0,99	1,00	1,00	0,95	0,95	0,98	0,93	0,89	0,94
746	0,60	0,62	0,69	0,78	0,85	0,88	0,94	0,98	0,96	0,96	0,96	0,95	0,97
747	0,79	0,89	0,95	0,82	0,76	0,88	0,96	0,88	0,93	0,93	0,93	0,84	0,83
748	0,81	0,87	0,85	0,88	0,98	0,95	0,86	0,88	0,89	0,85	0,87	0,94	0,96
749	0,89	0,64	0,54	0,54	0,46	0,45	0,43	0,44	0,54	0,42	0,39	0,49	0,56
751	0,88	0,90	0,92	0,97	0,98	0,97	1,00	0,93	0,92	0,91	0,87	0,91	0,91
752	0,80	0,82	0,93	0,92	0,88	0,93	0,89	0,91	0,84	0,27	0,16	0,14	0,15
759	0,54	0,62	0,71	0,61	0,51	0,61	0,79	0,58	0,56	0,70	0,56	0,50	0,66
772	0,91	0,92	0,96	0,90	0,80	0,78	0,74	0,74	0,78	0,79	0,79	0,82	0,84
774	0,97	0,98	0,89	0,82	0,77	0,79	0,79	0,77	0,77	0,79	0,83	0,73	0,74
776	0,80	0,80	0,79	0,77	0,76	0,77	0,74	0,59	0,51	0,65	0,68	0,66	0,92
778	0,81	0,71	0,59	0,57	0,59	0,56	0,52	0,50	0,56	0,73	0,74	0,82	0,89
792	0,61	0,38	0,56	0,75	0,71	0,66	0,63	0,90	0,94	0,80	0,83	0,66	0,82

Source: Own calculations based on KITA foreign trade statistics (2023).

Table 5. IIT values of high-tech goods from 2010 to 2022 (Miscellaneous manufactured articles) (G-L index)

SITC Code	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
871	0,20	0,23	0,24	0,22	0,26	0,30	0,33	0,47	0,53	0,41	0,43	0,45	0,35
872	0,67	0,67	0,72	0,73	0,76	0,74	0,70	0,68	0,66	0,66	0,61	0,72	0,77
873	0,95	0,83	0,79	0,91	0,95	0,90	0,81	0,85	0,78	0,81	1,00	0,86	0,96
874	0,50	0,57	0,60	0,70	0,72	0,73	0,78	0,77	0,78	0,78	0,72	0,67	0,74
881	0,57	0,45	0,43	0,55	0,67	0,82	0,89	0,57	0,80	0,87	0,56	0,59	0,63
882	0,47	0,51	0,57	0,60	0,79	0,90	0,97	1,00	1,00	0,98	1,00	0,97	0,98
884	0,81	0,90	0,93	0,92	0,92	0,93	0,89	0,87	0,83	0,79	0,78	0,80	0,90

Source: Own calculations based on KITA foreign trade statistics (2023).

As illustrated in Table 4, 725 "Paper mill and pulp mill machinery, paper cutting machines and other machinery for the manufacture of paper articles; parts thereof", 727 "Food-processing machines (excluding domestic); parts thereof", 728 "Other machinery and equipment specialized for particular industries; parts thereof, n.e.s.", 741 "Heating and cooling equipment and parts thereof, n.e.s.", 742 "Pumps for liquids, whether or not fitted with a measuring device; liquid elevators; parts for such pumps and liquid elevators", 743 "Other pumps; compressors, fans, ventilating or recycling hoods incorporating a fan, centrifuges, filtering or purifying apparatus; parts thereof", 744 "Mechanical handling equipment and parts thereof, n.e.s.", 745 "Non-electrical machinery, tools and mechanical apparatus and parts thereof, n.e.s.", 746 "Ball or roller bearings", 747 "Taps, cocks, valves and similar appliances", 748 "Transmission shafts", 751 "Office machines", 772 "Electrical apparatus for switching", 774 "Electro-diagnostic apparatus" and 776 "Thermionic, cold cathode or photo-cathode valves and tubes; diodes, transistors, and similar semiconductor devices". Throughout the period, all of these product groups had high rates of IIT. It is evident that the rates for IIT products have declined in recent years in the product groups 721 "Agricultural machinery (excluding tractors) and parts thereof", 722 "Tractors", and 752 "Automatic data processing machines". In the product groups of 724 "Textile and leather machinery and parts thereof, n.e.s.", 726 "Printing and bookbinding machinery and parts thereof", 749 "Non-electric parts and accessories of machinery, n.e.s.", 759 "Parts suitable for use with machines 751 and 752", 778 "Electrical machinery and apparatus, n.e.s." and 792 "Aircraft and associated equipment", low IIT rates were encountered in some years, but they were high in 2022.

Table 5 reveals that the product groups "Measuring, checking, analyzing and controlling instruments and apparatus, n.e.s." (874), "Photographic apparatus and equipment, n.e.s." (881), and "Photographic and cinematographic supplies" (882) exhibited consistently high IIT values throughout the observation period. In the 874 and 882 product groups, high IIT values were observed in all years except 2010. In the 881 product group, IIT values were high and fluctuating in all years except 2011 and 2012. With the exception of 2018, 871 product groups exhibited low IIT values.

Conclusion

IIT, which is the bilateral international trade of similar goods within the same industry and takes place between countries with similar industrial structures, accounts for approximately a quarter of world trade today. IIT is expanding at a faster rate than inter-industry trade, which is the one-sided international trade of dissimilar goods from different sectors based on the theory of comparative advantage. IIT is typically conducted between developed countries. While until the last 35-40 years, the parties to this trade were predominantly Western developed industrialized countries, today Asian countries also engage in this trade to a significant extent. The reasons for the growing importance of IIT in Asia's foreign trade can be attributed to three key factors: the phenomenon of high economic growth, export-oriented industrialization, and the internationalization of production in the countries of this continent.

South Korea is one of the Asian countries in which the IIT has been experiencing an increasing share in its foreign trade. Since the 1960s, South Korea's economy has undergone significant growth, with an expansion in market size, a reduction in trade barriers, and an increase in foreign direct investment. These developments have laid the foundation for the growth of the IIT in Korea's manufacturing industry. In particular, with the growth of capital accumulation, the value of IIT in total trade of high-tech capital-intensive sectors has increased over time.

This article aims to examine the extent of South Korea's intra-industry trade of high-tech (i.e., high-value-added) manufacturing products with other countries. To this end, the development of the share of the manufacturing industry in South Korea's foreign trade is analyzed using 3-digit foreign trade data within the scope of the manufacturing industry (SITC-Rev.3) between 2010 and 2022. The results indicate that this share is 88% in exports and 58% in imports in 2022. It is notable that, despite the manufacturing industry maintaining a relatively constant share of the relevant period, its share in imports declined to its lowest value in 2022.

Subsequently, we proceeded to the analysis of South Korea's IIT. For this purpose, the Grubel-Lloyd Index, which is the most preferred method in the literature, was selected. In 2010, the value of IIT in South Korea's manufacturing industry's foreign trade was 0,56. This value increased to 0,60 in 2015 and 0,64 in 2022. In other words, the values of IIT have been on an upward trend in the 2010-2022 period, with the exception of 2021. By 2022, South Korea's manufacturing IIT values had reached their

highest level. Consequently, in South Korea's manufacturing industry, IIT has become the dominant foreign trade structure.

This study examines the technological change in the structure of South Korea's foreign trade, with a particular focus on the IIT. While standard technology products played an important role in the high IIT values in 2010, the increasing IIT values of high-tech products since 2015 have been effective in maintaining the high IIT values of South Korea. South Korea's prioritization of investments in high-tech products in manufacturing industries and augmented R&D investments have been instrumental in this outcome. Moreover, the predominant opinion is that the promotion of free trade agreements is imperative to maintain regional competitiveness, given the increasing number of free trade agreements between South Korea and Asian countries. Indeed, the fact that South Korea, which previously applied higher tariffs than many other countries, entered into numerous free trade agreements and negotiated lower tariffs, particularly on industrial products, had a beneficial impact on IIT.

The machinery and transportation sector, as well as the chemical sector, have emerged as key contributors to the high value of high-tech products. Additionally, it was observed that manufacturing industry products, which were not previously mentioned, underwent a transformation from inter-industry trade to IIT and also contributed to the high IIT values. In this context, it is understood that the foreign trade of the same or similar products with the countries with which South Korea conducts foreign trade is in high-tech product groups. In this framework, a higher share of IIT in South Korea's foreign trade will enable South Korea to gain more from foreign trade. To this end, South Korea must pursue greater product differentiation and specialization in high-tech or, in other words, high-value-added product groups in its foreign trade. In this regard, South Korea must enhance its regional and bilateral cooperation with

Asian countries, as well as with the broader global community. In order to achieve this objective, it is essential to enhance collaboration in investment domains. Within the scope of these collaborations, it is also necessary to identify and prioritize high-tech companies. Increasing the operational efficiency of these companies can be achieved by strengthening their scale structure. Additionally, it is imperative to augment investment in R&D to ensure the sustained competitiveness and innovation capacity of these companies.

Furthermore, although Korea has experienced less adverse effects from the Russian-Ukrainian conflict and the global pandemic than other Asian countries, it remains susceptible to the repercussions of the prevailing inflationary pressures. Moreover, South Korean industry is reliant on imported raw materials. To prevent these from reducing competitiveness in high-tech products and dragging down the value of IIT, and to mitigate their negative impact on the balance of trade, it is necessary for South Korea to establish more flexible production and more extensive supply chains. In this context, although South Korea has recently signed a supply chain partnership agreement with Singapore in the field of energy, it is thought that the realization of these activities with other sectors and other Asian countries will play an important role in increasing the IIT values of this country. In order for South Korea to become more prominent in IIT in high-tech products, it is necessary to implement the "Mother Factory" strategy. This strategy involves the construction of main factories, which are defined as production facilities characterized by advanced technologies and equipment, domestically, while factories whose functions are mainly related to mass production are located in foreign countries. In addition, South Korea must streamline its bureaucratic processes, particularly in the context of high-tech investments, and augment the magnitude of R&D investments and tax incentives in these domains.

Katkı Oranları ve Çıkar Çatışması / Contribution Rates and Conflicts of Interest

Etik Beyan	Bu çalışmanın hazırlanma sürecinde bilimsel ve etik ilkelere uyulduğu ve yararlanılan tüm çalışmaların kaynakçada belirtildiği beyan olunur.	Ethical Statement	It is declared that scientific and ethical principles have been followed while carrying out and writing this study and that all the sources used have been properly cited.
Yazar Katkıları	Çalışmanın Tasarlanması: MFA (%60) OBK (%40) Veri Toplanması: MFA (%60) OBK (%40) Veri Analizi: MFA (%60) OBK (%40) Makalenin Yazımı: MFA (%60) OBK (%40) Makale Gönderimi ve Revizyonu: MFA (%60) OBK (%40)	Author Contributions	Research Design: MFA (%60) OBK (%40) Data Collection: MFA (%60) OBK (%40) Data Analysis: MFA (%60) OBK (%40) Writing the Article: MFA (%60) OBK (%40) Article Submission and Revision: MFA (%60) OBK (%40)
Etik Bildirim Çıkar Çatışması	iibfdergi@cumhuriyet.edu.tr Çıkar çatışması beyan edilmemiştir.	Complaints Conflicts of Interest	iibfdergi@cumhuriyet.edu.tr The author(s) has no conflict of interest to declare.
Finansman	Bu araştırmayı desteklemek için dış fon kullanılmamıştır.	Grant Support	The author(s) acknowledge that they received no external funding in support of this research.
Telif Hakkı & Lisans	Yazarlar dergide yayınlanan çalışmalarının telif hakkına sahiptirler ve çalışmalarını CC BY-NC 4.0 lisansı altında yayımlanmaktadır.	Copyright & License	Authors publishing with the journal retain the copyright to their work licensed under the CC BY-NC 4.0
Etik Kurul	Etik kurul iznine ihtiyaç bulunmamaktadır	Ethics Committee	Ethics committee approval is not required.

References

- Adıgüzel, M. (2022). Endüstri içi ticaretin rekabet gücüne etkisi; Türkiye bağlamında bir değerlendirme. *İstanbul Ticaret Üniversitesi Sosyal Bilimler Dergisi*, 21(43), 399-418. <https://doi.org/10.46928/iticusbe.1086685>
- Aggarwal, S. (2023). Intra-industry trade: Revisiting theory and literature survey. *Journal of Economics Bibliography*, 10(1-2), 1-12. <https://journals.econsciences.com/index.php/JEB/article/view/2429>
- Aggarwal, S., Chakraborty, D., & Banik, N. (2023). Does difference in environmental standard influence India's bilateral IIT flows? Evidence from GMM results. *Journal of Emerging Market Finance*, 22(1), 7-30. <https://doi.org/10.1177/09726527221088412>
- Ando, M. (2006). Fragmentation and vertical intra-industry trade in East Asia. *The North American Journal of Economics and Finance*, 17(3), 257-281. <https://doi.org/10.1016/j.najef.2006.06.005>
- Azhar, A. K., & Elliott, R. J. (2006). On the measurement of product quality in intra-industry trade. *Review of World Economics*, 142, 476-495. <https://doi.org/10.1007/s10290-006-0077-5>
- Azhar, A. K., Elliott, R. J., & Liu, J. (2008). On the measurement of product quality in intra-industry trade: An empirical test for China. *China Economic Review*, 19(2), 336-344. <https://doi.org/10.1016/j.chieco.2006.10.003>
- Baek, J., & Yoon, J. H. (2023). The Korea-Vietnam trade and the bilateral exchange rate: Asymmetric evidence from commodity trade data. *Australian Economic Papers*, 62(1), 124-148. <https://doi.org/10.1111/1467-8454.12277>
- Balassa, B. (1966). Tariff reductions and trade in manufacturers among the industrial countries. *The American Economic Review*, 56(3), 466-473. <http://www.jstor.org/stable/1823779>
- Başkol, M. O. (2009). Türkiye'nin endüstri-içi ticaretinin analizi. *Bursa Uludağ Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 28(2), 1-24. https://www.uludag.edu.tr/dosyalar/iibfdergi/genel-dokuman/2009_2/ASL01.pdf
- Bedir, A. (2023). Specialization Level and Sectoral Development Trends in Turkish Manufacturing Industry Foreign Trade. *Manisa Celal Bayar Üniversitesi Sosyal Bilimler Dergisi*, 21(3), 116-132. <https://doi.org/10.18026/cbayarsos.1234062>
- Bernhofen, D. M. (1999). Intra-industry trade and strategic interaction: Theory and evidence. *Journal of International Economics*, 47(1), 225-244. [https://doi.org/10.1016/S0022-1996\(97\)90027-1](https://doi.org/10.1016/S0022-1996(97)90027-1)
- Bhattacharyya, R. (2005). Economic development and intra-industry trade in the Republic of Korea. *Journal of Economic Integration*, 809-831. <https://doi.org/10.11130/jei.2005.20.4.809>
- Bhattacharyya, R. (2007). Economic development and intra-industry trade in less developed countries. *Indian Economic Review*, 42(1), 57-75. <http://www.jstor.org/stable/29793875>
- Chemsripong, S., Lee, J., & Agbola, F. W. (2005). Intra-industry trade in manufactures between Thailand and other Asia Pacific economic cooperation (APEC), countries. *Applied Econometrics and International Development*, 5(4), 61-80. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1238663
- Cheong, I., & Yoo, J. (2020). A Study on the characteristics of intra-industry trade for Korea's e-commerce trade. *Journal of International Logistics and Trade*, 18(1), 1-11. <https://doi.org/10.24006/jilt.2020.18.1.001>
- Cho, D. W. (2019). Güney Kore'nin değişen dış politikası ve Güney Kore-AB STA'sına liberal hükümetlerarası bir bakış. *The Turkish Yearbook of International Relations*, 50, 37-60. <https://dergipark.org.tr/tr/pub/tyir/issue/60713/897850>
- Çeştepe, H., Ergün, H., & Zorlu, S. (2017). The level and structure of Turkey's intra-industry trade with countries of organization of the Black Sea Economic cooperation. *Bartın Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 8(15), 343-362. <https://dergipark.org.tr/tr/pub/bartiniibf/issue/30498/329754>
- Davis, D. R. (1995). Intra-industry trade: a Heckscher-Ohlin-Ricardo approach. *Journal of International Economics*, 39(3-4), 201-226. [https://doi.org/10.1016/0022-1996\(95\)01383-3](https://doi.org/10.1016/0022-1996(95)01383-3)
- Doru, Ö., & Özer, Ö. (2022). An Econometric Analysis on Factors Affecting Intra-industry Trade in Turkish Automotive Industry. *Akademik Araştırmalar ve Çalışmalar Dergisi (AKAD)*, 14(27), 453-467. https://doi.org/10.20990/kilis_iibfakademik.1160045
- Egger, H., Egger, P., & Greenaway, D. (2007). Intra-industry trade with multinational firms. *European Economic Review*, 51(8), 1959-1984. <https://doi.org/10.1016/j.euroecorev.2007.01.004>
- Ergün, Ü. R. (2023). Grubel-Lloyd Endeksi ile demir çelik sektöründe endüstri içi dış ticaret: KEİ ülkeleri üzerine bir analiz. *İstanbul Ticaret Üniversitesi Dış Ticaret Dergisi*, 1(4), 75-89. <https://doi.org/10.62101/iticudisticaretdergisi.1340602>
- Greenaway, D., & Milner, C. (1986). *The Economics of Intra-Industry Trade*. Basil Blackwell.
- Grosse, R. E., & Kujawa, D. (1992). *International Business: Theory and Managerial Applications*. Richard D. Irwin Inc.
- Grubel, H. G., & Lloyd, P. J. (1971). The Empirical Measurement of Intra-Industry Trade. *Economic record*, 47(120), 494-517. <https://doi.org/10.1111/j.1475-4932.1971.tb00772.x>
- Grubel, H. G., & Lloyd, P. J. (1975). Intra-Industry Trade: The Theory and Measurement of International Trade in Differentiated Products. *The Economic Journal*, 85(339), 646-648. <https://doi.org/10.2307/2230917>
- Haddou, A., & Jang, J. Y. (2018). Comparative Intra-industry trade analysis on the asymmetric effects of the FTA: Korea and MENA Countries. *Journal of International Trade & Commerce*, 14(4), 49-62. <http://dx.doi.org/10.16980/jitc.14.4.201808.49>
- Han, K., & Lee, J. (2012). FDI and vertical intra-industry trade between Korea and China. *Korea and the World Economy*, 13(1), 115-139. http://www.akes.or.kr/wp-content/uploads/2018/03/13.1.5.-Han_Lee.pdf
- Havrylyshyn, O., & Civan, E. (1985). Intra-industry trade among developing countries. *Journal of Development Economics*, 18(2-3), 253-271. [https://doi.org/10.1016/0304-3878\(85\)90057-4](https://doi.org/10.1016/0304-3878(85)90057-4)
- Hwang, J. (2021). The continuous but rocky developments of Sino-South Korean relations: examined by the four factor model. *Journal of Contemporary East Asia Studies*, 10(2), 218-229. <https://doi.org/10.1080/24761028.2021.1965283>
- Kang, M., & Lee, J. D. (2012). Vertical intra-industry trade and product quality: The case of South Korea, 1996-2003. *Economics and Business Letters*, 1(3), 37-47. <https://doi.org/10.17811/eb1.1.3.2012.37-47>
- KITA (2023). K-Statistics. Retrieved from http://kita.org/kStat/byCom_AllCom.do on [19.08.2023].
- Kien, T. N., & Heo, Y. (2014). Technology, factor proportions and complementarity: Trade relations between Korea and Vietnam. *Journal of International Logistics and Trade*, 12(1), 23-42. <https://doi.org/10.24006/jilt.2014.12.1.23>

- Kim, K. (2005, December). The economic effects of forming Korea-ASEAN free trade agreements: the case of IT industry. In *Korea and the World Economy IV Conference, Seattle*. <https://faculty.washington.edu/karyiu/confer/sea05/papers/kim.pdf>
- Kim, S. J., & Cho, B. T. (2018). Determinants of South Korea's intra-industry trade with her major trading countries in the manufacturing sector. *The Singapore Economic Review*, 63(03), 731-758. <https://doi.org/10.1142/S0217590815500915>
- Kim, T. (1992). Intra-industry trade: the Korean experience. *International Economic Journal*, 6(2), 95-113. <https://doi.org/10.1080/10168739200000014>
- Kim, T., & Kim, S. (1998). Changing Comparative Advantage and Intra-Industry Trade in Korean Manufacturing Industries. *Korean Economic Review*, 14, 173-187. <https://keapaper.kea.ne.kr/RePEc/kea/keappr/KER-199806-14-1-10.pdf>
- Korea Law Translation Center (2024), Statute translation updates, foreign trade act, chapter I general provisions. Retrieved from https://elaw.klri.re.kr/eng_mobile/viewer.do?hseq=67627&type=part&key=28 on [30.11.2024].
- Krugman, P. R., & Obstfeld, M. (2003). *International Economics: Theory and Policy* (6 ed.). Addison Wesley.
- Kuçlu, N., & Yenilmez, F. (2024). Çin'in pandemi öncesi/sonrası dönemde Türkiye ile olan endüstri içi ticaretinin seyri. *Optimum Ekonomi ve Yönetim Bilimleri Dergisi*, 11(1), 101-120. <https://dergipark.org.tr/en/pub/optimum/issue/82627/1312332>
- Kurt, A. (2024). Grubel-Lloyd endeksi ile endüstri-içi ticaret analizi: Türkiye ile Güney Kore otomotiv sektörü. *Uluslararası İktisadi Ve İdari Çalışmalar Dergisi*, 2(1), 50-64. <https://dergipark.org.tr/en/pub/ulic/issue/86191/1508506>
- Kuznets, P. W. (1988). An East Asian model of economic development: Japan, Taiwan, and South Korea. *Economic Development and Cultural Change*, 36(3), 11-43. <http://www.jstor.org/stable/1566537>
- Lee, H. H., & Sohn, C. H. (2004). South Korea's marginal intra-industry trade and the choice of preferential partners. *Asian Economic Papers*, 3(3), 94-116. <https://doi.org/10.1162/1535351054825265>
- Li, Y., Dai, Q. L., & Huang, Q. B. (2015). Analysis of the influential factors of manufactured products intra-industry trade between China-South Korea and China'Policy. *Theoretical Economics Letters*, 5(1), 114-124. <https://doi.org/10.4236/tel.2015.51016>
- Martin-Montaner, J. A., & Ríos, V. O. (2002). Vertical specialization and intra-industry trade: The role of factor endowments. *Weltwirtschaftliches Archiv*, 138(2), 340-365. <https://doi.org/10.1007/BF02707748>
- McCorriston, S., & Sheldon, I. M. (1991). Intra-industry trade and specialization in processed agricultural products: The case of the US and the EC. *Applied Economic Perspectives and Policy*, 13(2), 173-184. <https://doi.org/10.2307/1349635>
- Ministry of Economy and Finance (2024). 2024 economic policy directions. Retrieved from https://www.moef.go.kr/upload/file/2024_Economic_Policy_Directions.pdf on [05.12.2024].
- Neumann, R., & Tabrizy, S. S. (2021). Exchange rates and trade balances: Effects of intra-industry trade and vertical specialization. *Open Economies Review*, 32(3), 613-647. <https://doi.org/10.1007/s11079-020-09612-4>
- Nielsen, J. U. M., & Lüthje, T. (2002). Tests of the empirical classification of horizontal and vertical intra-industry trade. *Weltwirtschaftliches Archiv*, 138(4), 587-604. <https://doi.org/10.1007/BF02707653>
- Phan, H. T., & Jeong, Y. J. (2014). An empirical analysis of intra industry trade in manufactures between Korea and ASEAN. *Journal of Economic Studies*, 41(6), 833-848. <https://doi.org/10.1108/JES-01-2013-0006>
- Podoba, Z. (2023). Analysis of trade pattern between the EAEU and South Korea. *KIEP Research Paper, World Economy Brief (WEB)*, 23-16. <http://dx.doi.org/10.2139/ssrn.4535864>
- Root, F. R. (1994). *International Trade and Investment* (7 ed.). South-Western Publishing Co.
- Ruffin, R. J. (1988). The missing link: The Ricardian approach to the factor endowments theory of trade. *The American Economic Review*, 759-772. <http://www.jstor.org/stable/1811173>
- Sawyer, W. C., Sprinkle, R. L., & Tochkov, K. (2010). Patterns and determinants of intra-industry trade in Asia. *Journal of Asian Economics*, 21(5), 485-493. <https://doi.org/10.1016/j.asieco.2010.04.001>
- Saygin, S. Ü. (2020). Demir çelik sektöründe endüstri içi ticaret: Türkiye ve AB ülkeleri üzerine bir analiz. *Süleyman Demirel Üniversitesi Vizyoner Dergisi*, 11(Ek), 102-116. <https://doi.org/10.21076/vizyoner.716209>
- Schmitt, N., & Yu, Z. (2001). Economies of scale and the volume of intra-industry trade. *Economics Letters*, 74(1), 127-132. [https://doi.org/10.1016/S0165-1765\(01\)00519-5](https://doi.org/10.1016/S0165-1765(01)00519-5)
- Sezer, Ş., & Önder, K. (2024). Türkiye'nin seçilmiş sektör ve ülkelerle endüstri içi ticaretinin analizi. *Anadolu İktisat ve İşletme Dergisi*, 8(1), 1-16. <https://doi.org/10.59293/anadoluiid.1451174>
- Şahin, D. (2017). ASEAN-5 ülkelerinde emek yoğun malların dış ticaret yapısının analizi. *Kırıkkale Üniversitesi Sosyal Bilimler Dergisi*, 7(1), 229-252. <https://dergipark.org.tr/tr/pub/kusbd/issue/27579/290446>
- Şahin, S. (2022). Endüstri-içi ticaret: Makina ve ulaştırma araçları sektörü üzerine bir analiz (1990-2019). *International Anatolia Academic Online Journal Social Sciences Journal*, 8(2), 6-17. <https://dergipark.org.tr/tr/pub/iaaoj/issue/68789/1055779>
- Şaşmaz, A. B. (2024). Türkiye'nin yatay ve dikey endüstri içi ticaretinin teknoloji sınıflandırması çerçevesinde analizi. *Ömer Halisdemir Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 17(2), 272-304. <https://doi.org/10.25287/ohuibf.1403052>
- Thies, C. G., & Peterson, T. M. (2016). *Intra-Industry Trade: Cooperation and Conflict in the Global Political Economy*. Stanford University Press. <https://doi.org/10.2307/j.ctvqsf18w>
- Trade Map (2024). List of exporters for the selected product, product: total all products. Retrieved from https://www.trademap.org/Country_SelProduct_TS.aspx?n_vpm=1%7c%7c%7c%7c%7cTOTAL%7c%7c%7c2%7c1%7c1%7c2%7c2%7c1%7c2%7c1%7c1%7c1%7c1 on [29.11.2024].
- Ulucan, H., Çevis, İ., & Ceylan, R. (2014). Türkiye'de endüstri-içi ticaretin gelişimi. *Social Sciences*, 9(3), 31-53. <https://doi.org/10.12739/NWSA.2014.9.3.3C0120>
- Umamoto, M. (2005). *Development of Intra-industry trade between Korea and Japan: the case of automobile parts industry*. Center for International Trade Studies (CITS) Working Papers. <https://www.econ.ynu.ac.jp/cessa/publication/pdf/CITSWP2005-03.pdf>
- UNCTADstat (2024). Merchandise: Total trade and share, annual. Retrieved from <https://unctadstat.unctad.org/datacentre/dataviewer/US.TradeMerchTotal> on [01.12.2024].
- Van Biesebroeck, J. (2011). Dissecting intra-industry trade. *Economics Letters*, 110(2), 71-75. <https://doi.org/10.1016/j.econlet.2010.10.004>

- Van Marrewijk, C. (2002). *International Trade and the World Economy*. Oxford.
- Wakasugi, R. (1997). Missing factors of intra-industry trade: Some empirical evidence based on Japan. *Japan and the World Economy*, 9(3), 353-362. [https://doi.org/10.1016/S0922-1425\(96\)00242-3](https://doi.org/10.1016/S0922-1425(96)00242-3)
- Wood, J., Li, Y., & Wu, J. (2021). An analysis of the trends and determinants of intra-industry trade between China and Asia-Pacific economic cooperation member countries. *The Singapore Economic Review*, 66(03), 743-766. <https://doi.org/10.1142/S0217590819500486>
- World Bank Group (2024). GDP (current US\$). Retrieved from <https://data.worldbank.org/indicator/NY.GDP.MKTP.CD> on [01.12.2024].
- WTO (2023). *World Trade Statistical Review 2023*. Retrieved from https://www.wto.org/english/res_e/booksp_e/wtstr_2023_e.pdf on [09.09.2023].
- Yoshida, Y. (2008). Intra-Industry Trade Between Japan and Korea: Vertical Intra-Industry Trade, Fragmentation and Export Margins. *Korea Institute for International Economic Policy*, 32, 1-20. <https://www.kyusan-u.ac.jp/keizai-kiyo/dp32.pdf>
- Yuan, C., & Du, Y. L. (2020, April). Analysis of Intra-Industry Trade Between China, Japan, and Korea. In *5th International Conference on Social Sciences and Economic Development (ICSSED 2020)* (pp. 302-307). Atlantis Press. <https://doi.org/10.2991/assehr.k.200331.064>

Appendix

Product Category	Product Code	SITC (Rev. 3) Definition
High-Tech Goods	541	Medicinal and pharmaceutical products, excluding
	721	Agricultural machinery (excluding tractors) & parts
	722	Tractors (excluding those of 71414 & 74415)
	724	Textile & leather machinery, & parts thereof, n.e.s.
	725	Paper mill, pulp mill machinery; paper articles man.
	726	Printing & bookbinding machinery, & parts thereof
	727	Food-processing machines (excluding domestic)
	728	Other machinery for particular industries, n.e.s.
	741	Heating & cooling equipment & parts thereof, n.e.s.
	742	Pumps for liquids
	743	Pumps (excluding liquid), gas compressors & fans; centr.
	744	Mechanical handling equipment, & parts, n.e.s
	745	Other non-electr. machinery, tools & mechan. appar.
	746	Ball or roller bearings
	747	Appliances for pipes, boiler shells, tanks, vats, etc.
	748	Transmis. Shafts
	749	Non-electric parts & accessor. of machinery, n.e.s.
	751	Office machines
	752	Automatic data processing machines, n.e.s.
	759	Parts, accessories for machines of groups 751, 752
	772	Apparatus for electrical circuits; board, panels
	774	Electro-diagnostic appa. for medical sciences, etc.
	776	Cathode valves & tubes
	778	Electrical machinery & apparatus, n.e.s.
792	Aircraft & associated equipment; spacecraft, etc.	
871	Optical instruments & apparatus, n.e.s.	
872	Instruments & appliances, n.e.s., for medical, etc.	
873	Meters & counters, n.e.s.	
874	Measuring, analysing & controlling apparatus, n.e.s.	
881	Photographic apparatus & equipment, n.e.s.	
882	Cinematographic & photographic supplies	
884	Optical goods, n.e.s.	
Intermediate Technology Goods	511	Hydrocarbons, n.e.s., & halogenated, nitr. Derivative
	512	Alcohols, phenols, halogenat., sulfonat., nitrat. der.
	513	Carboxylic acids, anhydrides, halides, per.; derivati.
	514	Nitrogen-function compounds
	515	Organo-inorganic, heterocycl. compounds, nucl. Acids
	516	Other organic chemicals
	522	Inorganic chemical elements, oxides & halogen salts
	523	Metallic salts & peroxysalts, of inorganic acids
	524	Other inorganic chemicals
	531	Synth. organic colouring matter & colouring lakes
	533	Pigments, paints, varnishes and related materials
	553	Perfumery, cosmetics or toilet prepar. (excluding soaps)
	554	Soaps, cleansing and polishing preparations
562	Fertilizers (other than those of group 272)	

573	Polymers of vinyl chloride or halogenated olefins	
575	Other plastics, in primary forms	
579	Waste, parings and scrap, of plastics	
581	Tubes, pipes and hoses of plastics	
582	Plates, sheets, films, foil & strip, of plastics	
583	Monofilaments, of plastics, cross-section > 1mm	
591	Insecticides & similar products, for retail sale	
592	Starche, wheat gluten; albuminoidal substances; glues	
593	Explosives and pyrotechnic products	
597	Prepared addit. for miner. oils; lubricat., de-icing	
598	Miscellaneous chemical products, n.e.s.	
599	-	
611	Leather	
612	Manufactures of leather, n.e.s.; saddlery & harness	
621	Materials of rubber (pastes, plates, sheets, etc.)	
625	Rubber tyres, tyre treads or flaps & inner tubes	
629	Articles of rubber, n.e.s.	
641	Paper and paperboard	
642	Paper & paperboard, cut to shape or size, articles	
711	Vapour generating boilers, auxiliary plant; parts	
712	Steam turbines & other vapour turbin., parts, n.e.s.	
713	Internal combustion piston engines, parts, n.e.s.	
714	Engines & motors, non-electric; parts, n.e.s.	
716	Rotating electric plant & parts thereof, n.e.s.	
718	Other power generating machinery & parts, n.e.s.	
731	Machine-tools working by removing material	
733	Mach.-tools for working metal, excluding removing mate.	
735	Parts, n.e.s., & accessories for machines of 731, 733	
737	Metalworking machinery (excluding machine-tools) & parts	
761	Television receivers, whether or not combined	
762	Radio-broadcast receivers, whether or not combined	
763	Sound recorders or reproducers	
764	Telecommunication equipment, n.e.s.; & parts, n.e.s.	
771	Electric power machinery, and parts thereof	
773	Equipment for distributing electricity, n.e.s.	
775	Household type equipment, electrical or not, n.e.s.	
781	Motor vehicles for the transport of persons	
782	Motor vehic. for transport of goods, special purpo.	
783	Road motor vehicles, n.e.s.	
785	Motorcycles & cycles	
786	Trailers & semi-trailers	
Standard	651	Textile yarn
Technology	652	Cotton fabrics, woven
Goods	654	Other textile fabrics, woven
	656	Tulles, trimmings, lace, ribbons & other small wares
	657	Special yarn, special textile fabrics & related
	658	Made-up articles, of textile materials, n.e.s.
	659	Floor coverings, etc.
	661	Lime, cement, fabrica. constr. mat. (excluding glass, clay)
	663	Mineral manufactures, n.e.s.
	664	Glass
	665	Glassware
	667	Pearls, precious & semi-precious stones
	671	Pig iron & spiegeleisen, sponge iron, powder & granu
	672	Ingots, primary forms, of iron or steel; semi-finis.
	673	Flat-rolled prod., iron, non-alloy steel, not coated
	675	Flat-rolled products of alloy steel
	676	Iron & steel bars, rods, angles, shapes & sections
	677	Rails & railway track construction mat., iron, steel
	678	Wire of iron or steel
	679	Tubes, pipes & hollow profiles, fittings, iron, steel
	681	Silver, platinum, other metals of the platinum group
	682	Copper
	684	Aluminium
	685	Lead
	689	Miscellaneous no-ferrous base metals for metallur.

691	Structures & parts, n.e.s., of iron, steel, aluminium
692	Metal containers for storage or transport
693	Wire products (excluding electrical) and fencing grills
694	Nails, screws, nuts, bolts, rivets & the like, of metal
695	Tools for use in the hand or in machine
696	Cutlery
697	Household equipment of base metal, n.e.s.
699	Manufactures of base metal, n.e.s.
791	Railway vehicles & associated equipment
811	Prefabricated buildings
812	Sanitary, plumbing, heating fixtures, fittings, n.e.s.
813	Lighting fixtures & fittings, n.e.s.
821	Furniture & parts
844	Women's clothing, of textile, knitted or crocheted
846	Clothing accessories, of textile fabrics
848	Articles of apparel, clothing access., excluding textile
851	Footwear
891	Arms & ammunition
892	Printed matter
893	Articles, n.e.s., of plastics
895	Office & stationery supplies, n.e.s.
896	Works of art, collectors' pieces & antiques
897	Jewellery & articles of precious materia., n.e.s.
898	Musical instruments, parts; records, tapes & similar
899	Miscellaneous manufactured articles, n.e.s.



Debt Trap Diplomacy Within the Scope of Economic Security: Overview of China's Economic Policy

Ramazan Aslan^{1,a,*}

¹ Dr., Freelance Researcher, Ankara/Türkiye

*Corresponding author

Research Article

History

Received: 05/12/2024

Accepted: 20/01/2025

JEL Codes: F34, F38, F52, P45

ABSTRACT

The size of the global economy has rapidly increased interdependence in the international economy and therefore in politics. China, whose weight in the global economy has been increasing day by day in the last quarter century thanks to the economic policies it has implemented, manages to turn its increasing global weight into political gain with political economy approaches. However, we see that the economic relations that China has developed by using its large foreign exchange reserves have begun to harm the economic security of some underdeveloped and developing countries with which it has developed relations in the process.

Based on the examples of Sri Lanka and Malaysia, it is seen that efforts are being made to create a public opinion against the One Belt One Road (OBOR) initiative with the debt trap diplomacy attributed to China. Although it is known that the agreements made by China when granting loans/credits have special conditions, it is understood that the debt trap is not a particularly desired goal, and that it is caused by the policies implemented by China to ensure its economic security and the wrong economic policies and country-specific practices in the borrowing countries.

On the other hand, within the scope of developing economic relations with China and the fact that it has significant investments in Turkey, it is necessary to act carefully, but it is evaluated that Turkey does not pose a debt trap risk due to its economic infrastructure and size.

Keywords: Economic Security, Debt Trap, OBOR, China's Economy

Ekonomik Güvenlik Kapsamında Borç Tuzağı Diplomasisi: Çin'in Ekonomi Politikasına Bakış

Süreç

Geliş: 05/12/2024

Kabul: 20/01/2025

Jel Kodları: F34, F38, F52, P45

Öz

Küresel ekonominin ulaştığı boyut uluslararası ekonomide ve dolayısıyla siyasette karşılıklı bağımlılığı hızla artırmıştır. Uyguladığı ekonomi politikaları sayesinde son çeyrek yüzyılda küresel ekonomideki ağırlığı her geçen gün artan Çin ise artan küresel ağırlığını, ekonomi politik yaklaşımlarla siyasi kazanca çevirmeyi başarmaktadır. Ancak Çin'in, büyük döviz rezervlerini kullanmak suretiyle geliştirdiği ekonomik ilişkilerinin, süreç içinde ilişki geliştirdiği az gelişmiş ve gelişmekte olan bazı ülkelerin ekonomik güvenliğine zarar vermeye başladığı görülmektedir.

Sri Lanka ve Malezya örneklerinden hareketle Çin'e atfedilen borç tuzağı diplomasisi ile Bir Kuşak Bir Yol (BKBY) girişimi karşıtı bir kamuoyu oluşturulmaya gayret edildiği görülmektedir. Çin'in borç/kredi verirken yaptığı anlaşmaların özel şartlara haiz olduğu bilinmekle birlikte, borç tuzağının özellikle ulaşılmak istenen bir amaç olmadığı, Çin'in ekonomik güvenliğini sağlamak amacıyla uyguladığı politikaların ve borç alan ülkelerdeki yanlış ekonomi politikaları ile ülkeye has uygulamalardan kaynaklandığı anlaşılmaktadır.

Öte yandan Çin ile gelişen ekonomik ilişkiler kapsamında, Türkiye'de önemli yatırımları bulunması çerçevesinde dikkatli hareket edilmesi gerekmektedir. Ancak ekonomik altyapısı ve büyüklüğü nedeniyle, Türkiye için borç tuzağı riski oluşmadığı değerlendirilmektedir.

Anahtar Kelimeler: Ekonomik Güvenlik, Borç Tuzağı, BKBY, Çin Ekonomisi

Copyright

This work is licensed under
Creative Commons Attribution-
NonCommercial 4.0 International
License International License



rmzaslann@gmail.com



[0000-0001-5182-7735](https://orcid.org/0000-0001-5182-7735)

How to Cite: Aslan R (2025) Debt Trap Diplomacy Within The Scope of Economic Security: Overview of China's Economic Policy, Journal of Economics and Administrative Sciences, 26(1):211-222, DOI: 10.37880/cumuiibf.1597061

Giriş

İçinde bulunduğumuz dönem ülkeler ve ekonomiler arasında karşılıklı bağımlılığın en üst düzeye çıktığı bir süreç olup, küresel sistem bu bağımlılık üzerinden şekillenmektedir. Ülkeler arasında oluşan pazar, bağımlılık çerçevesinde hammadde ve mamul maddelerin alınıp satılmasıyla büyümekte, büyüyen ekonomi hem siyaset hem de dış ticaret hacmi açısından bağımlılığı artırmaktadır.

Çin, milyarlık nüfusu, ekonomik gücü, sanayi ve teknolojiye elde ettiği gelişmeler, küresel üretim ve tedarik zinciri açısından vazgeçilmez durumu, küresel siyasette her geçen gün artan ağırlığı, BM’de veto yetkisi ile dikkat çekmektedir. Bu nedenle dünya ülkelerinin, özellikle de az gelişmiş ve gelişmekte olan ülkelerin ekonomik ilişki tesis etmek istediği bir güç haline almıştır.

Çin, üretime dayalı ve dışa açık ekonomik modeli sayesinde yakaladığı ekonomik büyüme neticesinde sahip olduğu geniş döviz rezervlerini kullanmak amacıyla, BKBY girişimi kapsamında doğrudan yatırımlara başvurarak, küresel olarak ekonomik ve siyasi gücünü artırmaya çalışmaktadır. BKBY kapsamında toplam 8 trilyon dolar yatırım hedefi bulunan Çin, bu kapsamda enerjiden ulaştırmaya, finanstan gayrimenkule kadar geniş bir yatırım ağı oluşturarak, 60’dan fazla ülkede yatırım yapmıştır. Bu yatırımlarıyla ülkelerin kalkınmasına ve küresel refah artışına katkı verdiği de göz ardı edilmemelidir.

Çin’in mevcut büyümesini sürdürmesi, küresel etkinliğini artırması veya en azından koruması için yeni pazarlar ve dolayısıyla yeni enerji ve hammadde tedarik kaynakları bulma zorunluluğu, Çin’i agresif ekonomik hamleler ve finansal ilişkiler kurmaya itmiştir. Bu kapsamda, sık sık barışçıl dış politika izlediğini vurgulasa da, özellikle 2010’dan sonra az gelişmiş ve gelişmekte olan ülkelere yönelik ekonomik faaliyetlerini artırması, Çin’in borç tuzağı diplomasisi ile yeni bir sömürü düzeni kurduğu, stratejik noktalara hâkim olurken, çevresindeki toprak ve deniz sınır anlaşmazlıklarını kullanarak, ana ticaret yolları üzerinde hâkimiyetini pekiştirmeye çalışıyor olabileceği iddialarını gündeme taşımıştır. Bu iddialar ABD başta olmak üzere uluslararası toplumda endişe yaratmış ve Çin’in BKBY ekonomik programı ile hedeflediği amaçlarını engelleme yönünde adımlar atmalarına neden olmuştur.

Bu çalışmada, halen küresel olarak en büyük ekonomik proje sayılan BKBY girişimi ve ekonomik güvenlik çerçevesinden, Çin’in uyguladığı ileri sürülen borç tuzağı diplomasisi ele alınarak, Çin’in gerçek amacının veya hedefinin ne olabileceği tartışılmıştır. Bu amaçla Sri Lanka ve Malezya örnekleri üzerinden, Çin’in kendi ekonomik güvenliğini sağlamaya çalışırken, ekonomik ilişki içinde olduğu ülkelerin ekonomik güvenliğini tehlikeye atıp atmadığı ve borç tuzağının uygulanan politikaların doğal bir sonucu olarak ortaya çıkmış olma ihtimali değerlendirilmiştir.

Çalışmanın ilk bölümünde ekonomik güvenlik, borç tuzağı ve BKBY girişimi izah edilmiştir. İkinci bölümde Çin’in ekonomik yapısı, üçüncü bölümde ise borç tuzağı örnekleri üzerinden konu aydınlatılmaya çalışılmıştır. Türkiye’nin durumu ve borç tuzağı riskinin değerlendirildiği dördüncü bölümü, nihai değerlendirmenin yer aldığı sonuç bölümü takip etmiştir.

Tanımlar

Konuya başlamadan evvel ekonomik güvenlik, borç tuzağı ve BKBY ifadelerine açıklık getirmekte yarar bulunmaktadır. Zira ekonomik güvenliğin konumuzla ilgisi, borç tuzağı ifadesinden ne anlamamız gerektiği ve konunun BKBY ile ne ilgisi olduğunu anlamak işimizi kolaylaştıracaktır.

Ekonomik Güvenlik

Soğuk Savaş sonrası genişleyen ve derinleşen güvenlik algısı sonrası, geleneksel güvenlik anlayışını ifade eden milli/askeri güvenlik kavramına başkaca güvenlik alanları eklenmiştir. Diğer bir deyişle güvenlikleştirilen yeni alanlar olmuştur. Bu yeni alanlardan biri de ekonomik güvenliktir. Özellikle küreselleşmenin hızla arttığı günümüzde, ülkelerin birbirlerine ekonomik ve ticari alanda daha fazla bağımlı olduğu bir ortamda ekonomik güvenlik, askeri güvenlik kadar önemli bir hale gelmiştir. Hatta bazı açılardan askeri güvenliğin önüne geçmiştir ki, ekonomik güvenlik sağlanamadan ya da ekonomik olarak bağımsız olmadan siyasi ve askeri bağımsızlık söz konusu olamamaktadır.

Güvenliğin mutlak tanımı yapılamadığı gibi ekonomik güvenliğin de kesin bir tanımını yapmak ve sınırlarını çizmek zordur. Bir ülkenin kendi ekonomik güvenliği adına yaptığı faaliyet, diğer taraflarca sömürgeci bir tutum olarak algılanabilir. Kaldı ki bir ülkenin ekonomik gücü ve yapısı, uluslararası siyasetteki gücünü destekler mahiyette olmalıdır. Bu nedenle ekonomik güvenlik siyasi, askeri ve toplumsal güvenliği yansıtır.

Ekonomik güvenlik, devletin gücünü ve öngörülen refah düzeyini sürdürebilmek amacıyla gerekli hammadde, kaynak, finans ve pazarlara erişim konularını içermektedir (Buzan, 1991:445). Yani ekonomik güvenlik toplumsal refah ve ekonomik düzene karşı oluşabilecek tehditlerle ilintilidir (Mesjasz, 2008:141). Bu çerçevede ekonomik refahın sağlanması devletleri kaynaklarını güven altında kontrolde tutması ve devamlılığını sağlama gayretini içeren bazı faaliyetlere iter. Bu durum mevcut pozisyonun devamı veya iyileştirilmesi ile ekonomik güvenliği milli menfaatlerin sağlanmasında en temel unsur olarak öne çıkarmaktadır (Argın ve Karakuş, 2022:569).

Bu çerçevede ekonomik güvenlik kavramı, bir topluluğun yaşam standartlarını sürdürebilmesini sağlayacak her türlü imkânın korunması ve refah düzeyini artıracak potansiyel imkânların da kullanılmasının önündeki engellerin ortadan kaldırılması şeklinde tanımlanabilir (Yılmaz, 2020:308).

Ekonomik güvenliğin iki tarafı olacağı için, bu karşılıklı ilişkiyi sıfır toplamlı bir ilişki olarak görmeliyiz. Zira bir ülkenin ekonomik güvenlik için uygulayacağı politikalar, diğer ülkenin ekonomik güvenliğini olumsuz etkileyecektir. Ekonomik güvenlik tesisi kapsamında ticaret, finansman, yardım ve yaptırım enstrümanları kullanılmaktadır (Shiffman, 2017:213).

Bu kapsamda az gelişmiş ülkelerin dış borçlanması ekonomik kalkınma ve büyümesini, dolayısıyla güvenliğini etkilemektedir. Öncelikle dış borçlanmanın fazla olması ekonomik kırılganlığı artıracak, borcun artması

sürdürülebilirliği zedeleyecektir. Dış borcun fazla olması, borçlu ülkeyi siyasal ve ekonomik bağımlılığa sürükleyecektir (Erdal, 2012:148). Borçlu ülkenin rekabet gücü azalacak, egemenlik hakları zayıflayacak, yeraltı ve yerüstü kaynaklarının kullanımında ve ulusal çıkarların korunmasında sorunlar baş gösterecektir. Borç veren ülke ise borçlu ülke karşısında rekabet ve pazarlık gücünü artıracak, kaynak temini konusunda sömürü başlayacak, ekonomik gücünü siyasi bağımlılığa çevirecektir (Şahin, 2021).

Borç Tuzağı

Borç Tuzağı iktisat literatürüne yeni girmiş bir kavram olup, borç alan ülkenin, borcunu ödemeye çalışmasına rağmen, borcun ve faizinin sürekli artması ve temerrüde düşülmesini, bunun sonucunda da borç veren ülkeye bazı imtiyazlar tanınmasını anlatan teoridir (Akpaninyie, 2019; Tandoğan, 2018). İlk defa 2017'de Hintli akademisyen Brahma Chellaney tarafından, Sri Lanka deneyiminden kaynaklı olarak Çin'in emperyal tutumuna atfen ortaya atılmış (Chellaney, 2017) ve iktisat literatürünün ötesinde farklı bir anlam yüklenmiştir. Böylece teorinin, Çin'in yerel bir ortak bulması, uzun vadede ülkelere zarar verecek yatırım planlarını yerel ortağa kabul ettirmesi, ardından projeyi devralması ya da ilgili ülkede siyasi avantaj yakalaması (Stacey, 2017) şeklinde cereyan ettiği ileri sürülmektedir. Ancak Borç tuzağı diplomasisi tanımı, taşıdığı olumsuzluk ve Çin'in sömürge uygulaması yaptığını anlattığı için Çin tarafından hiçbir zaman kabul edilmemiştir.

Borç tuzağının temeli basit ve işleyişi oldukça kolaydır. Batı'nın kredi/borç vermek için siyasi ve ekonomik şartlar ileri sürmesi nedeniyle gerekli şartları yerine getiremeyen az gelişmiş ve gelişmekte olan ülkeler, istedikleri keredi/borç için, Tayvan'ı tanımama dışında hiçbir şart ileri sürmeyen (Maggiorelli, 2017:33) Çin'e yönelmektedir. Çin ise bu noktada siyaset ve ticareti ayrı tutup, içişlerine karışmama prensibi çerçevesinde hareket ederek, ekonomisinin gereği olarak reel davranmakta ve kendisi için stratejik gördüğü yatırımlara kaynak/kredi/ borç sağlamakta sorun görmemektedir. Çin'den kredi alınmasının ardından ilgili ülke yatırımını döndürmeyi başaramaz ise faiz yükü de bineceği için krediyi ödeyemeyecek duruma düşmektedir. Bundan sonra ise Çin ilgili ülke üzerindeki ekonomi kartını siyasi manevra aracı olarak kullanmaya başlamakta ve ilgili yatırım veya başka alanlardaki stratejik yapıların yönetim hakkını devralmaktadır (Şahin, 2021).

Çin açısından borç tuzağı uygulaması için en uygun ortam BKBY projesi olmaktadır. Zira proje kapsamındaki çoğu ülke az gelişmiş veya gelişmekte olan ülke olup, bunların bir kısmı da siyasi veya ekonomik gerekçelerle Batı'nın keredi/borç vermek isteksiz davrandığı ülkelere dönüşmektedir. Çin ise proje kapsamındaki ülke ve yatırımlara destek olarak hem ilgili ülkeler nezdindeki stratejik hedeflerine ulaşmakta hem de BKBY projesinin yürütülmesine imkân sağlamaktadır (Şahin, 2021).

Çin'in sağladığı ucuz kredi/borçların olumlu ve olumsuz bazı yönleri vardır. Çin merkezli borç/kredilerin ve/veya doğrudan yaptığı yatırımların ilk olumlu yansıması borçlu ülkenin istihdamı üzerine olmakta ve yatırımlar istihdamı artırmaktadır (Park, 2016). Bu noktada Çin'in kalifiye

işgücü gereksiniminde Çinli işçilerden yararlandığını belirtmek gerekir. Yatırımlar sayesinde borçlu ülkenin alt ve üst yapısı güçlenmesi (Hanuer ve Morris, 2014: 34-35) diğer bir olumlu etki olarak ortaya çıkmaktadır. Ancak bu durum da yine Çin'e dolaylı fayda sağlamakta ve BKBY güzergahının kapasitesini artırmaktadır. İlgili ülkelerin refah seviyesi ve ekonomik büyümelerine katkı sağlaması da olumlu etki olarak görülmektedir. Ayrıca Batılıların destek vermediği alan/coğrafya ve sektörlere yatırım yapılmasıyla, Çin, ABD ve Batı'nın ötedeki alanlarda etkinliğini artırmaktadır.

Bu avantajları yanında Çin kredilerinin olumsuz yönleri/dezavantajlarını da belirtmek gerekir. Öncelikle Çin'in demokratik kurallar ve insan hakları ihlalleri dahil diktatör rejimlerle ilişki kurmaktan sakınmaması ilk olumsuz etki olarak ön plana çıkmaktadır. Çin'in borç verdiği ülkelerin doğal kaynak ve stratejik yapılarının kullanımını/işletmesini ele geçirdiği ve olumlu yönlerinde sayılan refah artışına ters yönde bir etki ortaya koyduğunu vurgulamak gerekir. Diğer bir olumsuzluk ise Çin'in yatırımlarda vasıflı işgücü olarak Çinli işçilerden istifade etmesi, vasıfsız işgücü olarak da yerel işgücü kullanma eğiliminde olmasıdır (Şahin, 2021).

Özetle, Çin verdiği borç/kredilerle ilgili ülkelere destek verdiği için olumlu karşılansa da yolsuzluk, israf, işsizliğe katkısı nedeniyle eleştirilere maruz kalmaktadır (Hanuer ve Morris, 2014: 45-60).

Bir Kuşak Bir Yol Girişimi

Çin Devlet Başkanı tarafından 2013'de duyurulan BKBY Girişimi, Çin'in batısından Avrupa'ya uzanan, Çin'in dış politikasının ana eksenini oluşturan ve tüm dünyayı etkisi altına alabilecek jeopolitik bir strateji olarak algılanmaktadır. Çin'in uluslararasılaşmasını artıran BKBY Girişimini sadece jeopolitik etki arayışı olarak değil, aynı zamanda ekonomi politik hedeflere ulaşmak için kullanılan akıllı güç unsuru olarak görmek gerekir. Böylece girişim, Çin'in Asya ve Afrika'da jeopolitik hakimiyetini kurmak, ABD hegemonyasına meydan okumak ve Çin hegemonyasını oluşturmak amacıyla uygulanan küresel çapta büyük bir ekonomik hamle olduğu görülmektedir (Bhattacharya, 2016:2).

Öte yandan BKBY projesine Çin tarafından bakıldığında ise projenin dış ekonomik ve siyasi hedefleri yanında iç ekonomik süreçlerle ilgili olduğu da görülmektedir. Yapısal değişimi/dönüşü devam eden Çin ekonomisinin kapasitesini en verimli biçimde kullanabilmek için dış projelerle iç yapısını desteklemesi gerektiği anlaşılmaktadır. Ayrıca Çin BKBY ile projenin kapsadığı ülkelere sermaye, teknoloji, alt yapı yatırımları götürmektedir. Bu proje ile Çin kalkınma sağlarken, irtibatlı ülkelere de kalkınmaya destek sağlamaktadır (Atlı, 2021).

Çin'in, 65'i doğrudan toplam 151 ülkeyi, 5,1 milyar insanı etkileyen ve 41 trilyon doları bulan GSYİH'ya hükmeden BKBY projesi için, güzergahta bulunan ülkelere, 2013-2023 döneminde 964 milyar dolar yatırım yapılmıştır. İlerleyen süreçte yatırım miktarının yaklaşık 8 trilyon dolara ulaşması öngörülmektedir (ChinaPower, 2023). Çin'in bu hamlesi hem

bölge ülkeleri hem de BKBY dâhilindeki az gelişmiş ve gelişmekte olan ülkelerin ihtiyaç duyduğu ulaştırma, enerji ve diğer altyapı yatırımları için finansal desteği/ekonomik imkânları yaratmaktadır. Ancak bu kapsamdaki ülkelerin Çin'e özellikle finansal bağları artacağı için uzun vadede siyasi sonuçları ortaya çıkabilecektir.

Çin, BKBY'nin hegemon gücünü artıracığının farkında olmasına rağmen, bunu açıkça dillendirmemekte ve bu konunun konuşulmasını da istememektedir. Zira konunun bu şekilde ele alınmasının ilişkili ülkeleri korkutacağını ve ABD, AB ve Hindistan ile rekabetinde sorun yaratacağını düşünmektedir (Şahin, 2021).

Öte yandan BKBY projesinin ABD ile Çin arasındaki stratejik rekabeti artırmasının, projeye dahil olan ülkeler açısından stratejik riski, dünya açısından da kutuplaşmanın artması riski bulunmaktadır. Gerek BKBY girişimi gerekse Made in China 2025 inisiyatifi, Çin'in Batı ülkeleri nezdinde tehdit olarak görülme eğilimini artırmaktadır (Atlı, 2020).

Doğu'da çevrelenen Çin'in Batı'dan dünyada açılma hamlesi olarak algılanabilecek ve gelecekte küresel ekonominin çehresini değiştirmeye aday bir proje olan BKBY projesi ve bu projenin geliştirilmesi için Çin'in yaptıklarının bir sonucu olarak ortaya çıkan borç tuzağı diplomasisi, Çin'in küresel çapta etkinliğini artıran birbiri ile ayrılmaz, iki ayrı stratejik uygulaması olarak görülmektedir. Ekonomik gücünü siyasi güce çevirmede bu yolla başarılı olan Çin, böylece ekonomik büyümesini devam ettirirken diğer yandan da az gelişmiş ve gelişmekte olan ülkelerle arasında asimetrik ekonomik bağımlılık yoluyla ilişki kurmaktadır (Şahin, 2021). Bu ilişki sonunda 1950'den bu yana karşılıklı saygı, egemenlik haklarını tanıma ve içişlerine karışmama düsturu ile hareket ettiğini belirten Çin'in, gelinen aşamada ülkelerin ekonomik güvenliğini tehdit ettiği ve hatta zaman zaman egemenlik haklarını çiğnediği görülebilmektedir.

Çin'in Ekonomik Durumu

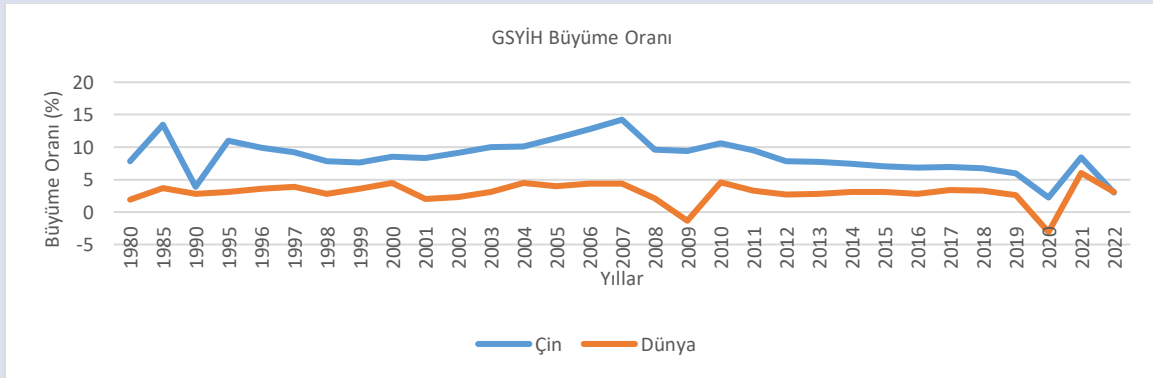
Çin tarihsel süreç içinde önemli bir ekonomi ve üretim merkezi olmuştur. Ürettiği malları İpek Yolu vasıtasıyla Batı'ya taşıyan Çin, 18. ve 19. yy.da toplam küresel üretimin %25-30'unu sağlamıştır. Uzun yıllar boyunca Batı karşısında etkili ve önemli bir aktör olan Çin, sanayi devrimini yakalayamamış, mevcut üstünlüğünü kaybetmiş ve küresel ekonomideki

ağırlığı sona ermiştir (Deniz, 2014:66). 20.yy. başlarında küresel üretimin %13'ünü karşılarken, yaşanan iç savaş sonrası 1949'da komünist anlayışla kurulan kapalı ekonomik sistemin başarısız olmasıyla ekonomik olarak daha geriye gitmiş ve küresel üretime katkısı %5 seviyesine kadar düşmüştür (Kızıltan, 2004:47; Şahin, 2021).

Siyasi açıdan ise 1952'den bu yana dış politikasını, egemenliğe saygı, karşılıklı saldırmazlık, içişlerine karışmama, karşılıklı fayda ve eşitlik temelinde barış içinde bir arada yaşama temelinde sürdürmüş (Çelik, 2021), Soğuk Savaş döneminde ise işbirliği içinde olduğu ülkelere ABD ve SSCB'nin aksine rejimini dayatma yerine, ekonomik işbirliklerini kullanmayı tercih etmiştir. Bu politikaları yürütürken de demokrasi, insan hakları vb. dayatmalara yönelmemiştir. 1964'den sonra başta Afrika olmak üzere dünyanın çeşitli ülkeleriyle ekonomik ve siyasi ilişkilerini geliştirmiş, mali yardımlarının siyasi karşılığını almıştır. 1978'den sonra ekonomik yardım konusunda daha pragmatist davranan Çin, siyasi getirisi nedeniyle 2000'lerden sonra ise mali yardımlarına hiç ara vermeden devam etmiştir (Argın ve Karakuş, 2022:584-585). Diğer bir ifadeyle Çin, siyasi desteğe ihtiyaç duyduğunda ekonomik gücünü kullanmaktan geri durmamıştır.

Yürütülen ekonomi politikalarının yanlışlığının anlaşılması sonrasında, 1970'lerin sonlarından itibaren dışa açık piyasa ekonomisine uygun bir ekonomi modeline geçilmiştir. 1990'lardan sonra neo-liberal ekonomiye geçişle etkinliği ve ekonomik büyümesi artmış, 2000'lere gelindiğinde ise küresel üretim merkezi olmayı başarmış ve yüksek yatırım oranı ve düşük işgücü kaynağıyla yüksek büyüme oranları yakalamıştır. Ayrıca bu dönemde, güvenliğe atfettiği önemi azaltarak, gücün asıl kaynağının ekonomi olduğu görüşünü ön plana almış ve askeri/savunma harcamalarında %80 tasarruf sağlarken, uluslararası piyasalar ve IMF, Dünya Bankası vb. kuruluşlara üye olmaya başlamıştır (Vural ve Aydın, 2019:182).

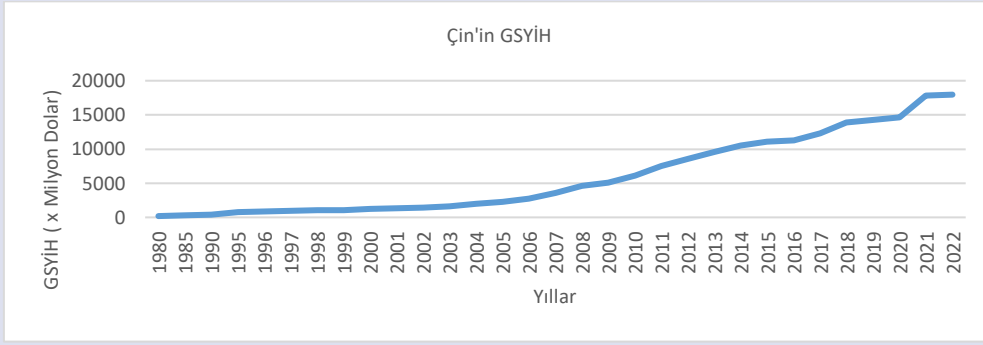
Yeni model ile hızlı bir ekonomik büyüme yaşayan Çin'in özellikle 2000 sonrası büyüme ve kalkınma hamleleri dikkat çekici seviyeye ulaşmıştır. Şekil-1'de 1980-2022 arası Çin'in GSYİH büyüme oranları verilmiştir. Kriz dönemlerinde düşüş yaşamasına rağmen sürekli pozitif büyüme sağlarken, dönem ortalaması % 8,5 olarak gerçekleşmiştir. Bu oranın, %2,9 olan küresel büyüme ortalamasının yaklaşık üç katı olduğu görülmektedir.



Şekil-1: Çin'in GSYİH Büyüme Oranları (%)

Figure 1: China's GDP Growth Rates (%)

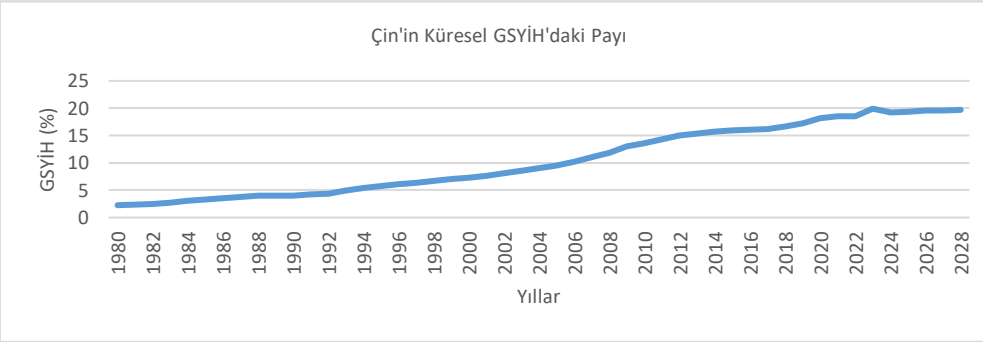
Kaynak: World Bank Database verilerinden türetilmiştir.



Şekil-2: Çin'in GSYİH Miktarı (Dolar)

Figure 2: China's GDP (Dollar)

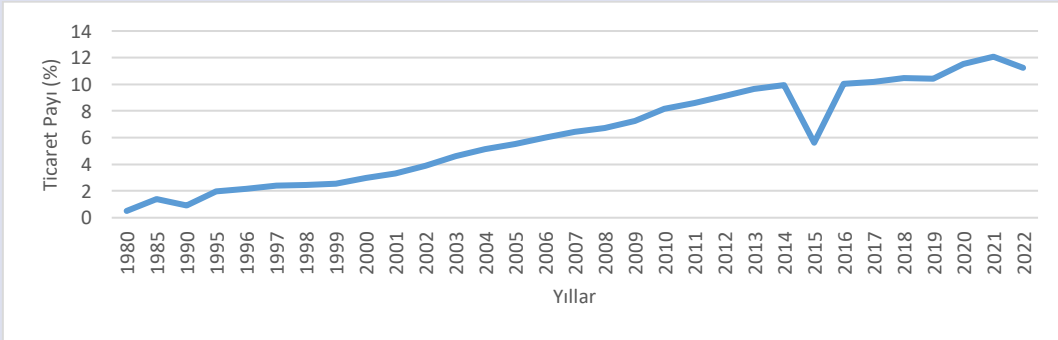
Kaynak: World Bank Database verilerinden türetilmiştir.



Şekil 3: Çin'in Küresel GSYİH'daki Payı

Figure 3: China's Share in Global GDP

Kaynak: World Bank Database verilerinden türetilmiştir.



Şekil 4: Çin'in Küresel Ticaretteki Payı

Figure 4: China's Share in Global Trade

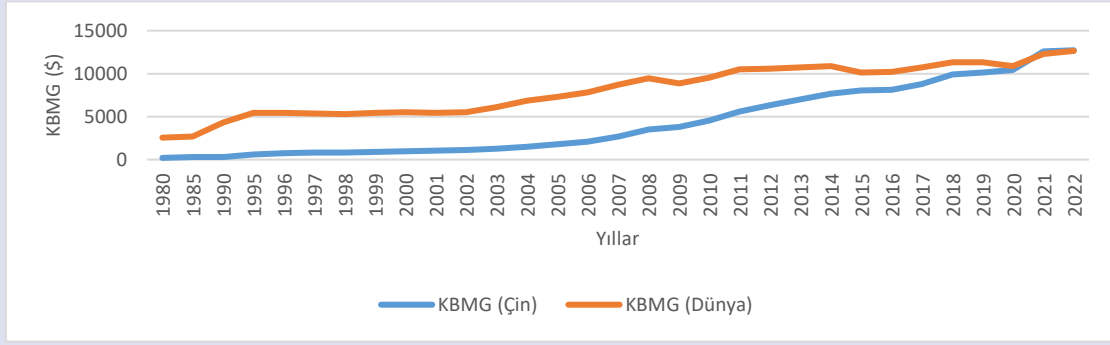
Kaynak: World Bank Database verilerinden türetilmiştir.

Şekil-2'de, 1980-2022 arası döneme ilişkin Çin'in GSYİH miktarları verilmektedir. GSYİH'sı 1970'de 92,6 milyar dolar, 1980'de 191 milyar dolar, 2000'de 1,211 milyar dolar, 2010'da 6,087 milyar dolar ve 2022'de 17,963 milyar dolar seviyesine ulaşmıştır.

Şekil-3'de 1980-2028 dönemi için Çin'in küresel GSYİH'daki payı ve gelecek beş yıla ilişkin öngörü verilmiştir. 1980'de küresel GSYİH'nın % 2,26'sı iken, 2022'de %18,48'i seviyesine çıkmıştır. Çin'in mevcut büyüme beklentileri çerçevesinde oranın 2028'de %19,72 olması beklenmektedir.

Şekil-4'de Çin'in küresel dış ticaretteki ağırlığı verilmiştir. 1980'de 23,75 milyar dolar dış ticaret hacmi ile küresel dış ticaretin % 0,5'ini oluştururken, 2000'de 477 milyar dolar ile % 3,7'sini, 2010'da 3.086 milyar dolar ile %8,2'sini ve 2022'de 6.851 milyar dolar ise %11,21'ini oluşturmuştur.

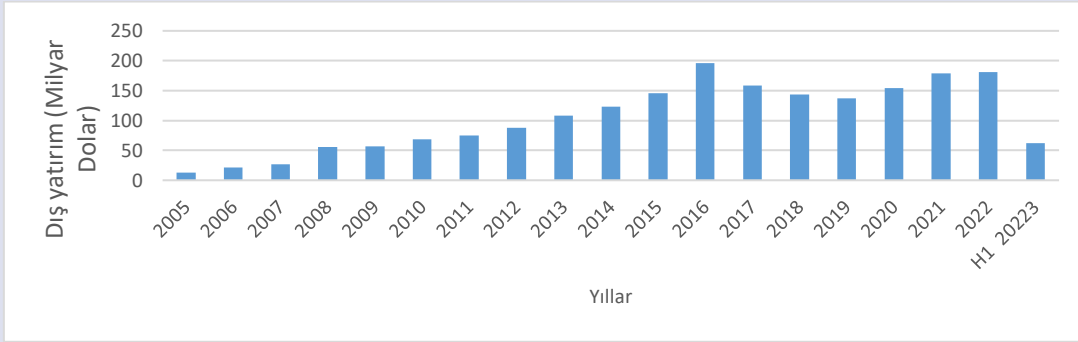
Dış ticaret rakamlarıyla yaklaşık 600 milyar dolar dış ticaret fazlası veren Çin'in küresel ekonomide ulaştığı başarı ve konumu, gelişmiş ülkelere tehdit, az gelişmiş ülkeler tarafından ise fırsat olarak görülmektedir.



Şekil 5: KBMG Gelişim Durumu

Figure 5: Per Capita National Income Development Status

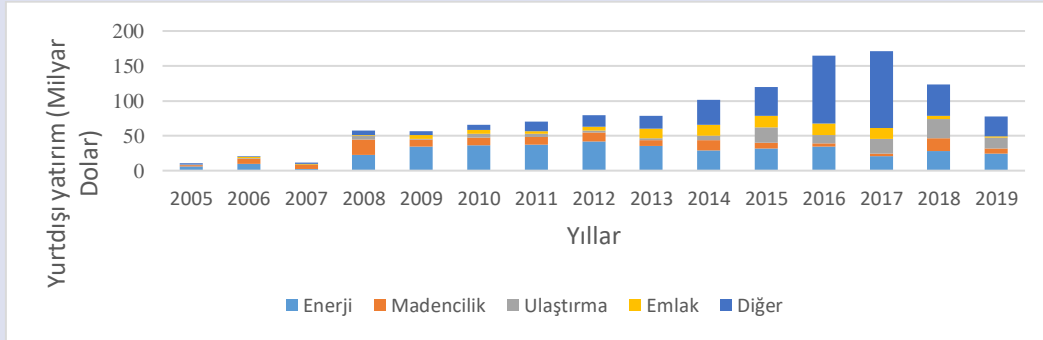
Kaynak: World Bank Database verilerinden türetilmiştir.



Şekil 6: Çin'in Dış Yatırım Miktarları

Figure 6: China's Foreign Investment Amounts

Kaynak: China's Global Investment Surges



Şekil 7: Çin'in Yurtdışında Yatırım Yaptığı Alanlar

Figure 7: Areas where China Invests Abroad

Kaynak: ChinaPower

Şekil-5'de KBMG'in Çin ve dünya ortalaması verilmektedir. 1980'de 195 dolar olan Çin'in KBMG miktarı, 2.552 dolar olan küresel KBMG'nin %7,6'sına tekabül ederken, 2000'de 959 dolar ile 5.508 dolar olan küresel KBMG'nin %17,4'üne, 2010'da 4.550 dolar ile 9.558 dolar olan küresel KBMG 'in %47,6'sına gelmektedir. 2022'de 12.720 dolar ile 12.647 dolar olan küresel KBMG'ini aşmıştır.

Şekil-6'da ise 2005-2022 arası Çin'in doğrudan yabancı sermaye yatırımı (DYY) miktarı verilmiştir. Söz konusu dönemde küresel olarak toplamda 2,23 trilyon dolar

seviyesine ulaşan Çin'in yatırımları finans, enerji, ulaşım, lojistik, teknoloji, emlak ve tarım sektörlerinde yoğunlaşmıştır. Küresel bir bakışla belirlenen Çin yatırımları, ulaştığı değer ve etki alanı itibariyle, ülkelerin karar alma mekanizmalarına müdahale edebilir bir güç olmayı başarmıştır (İstiklal, 2023).

Çin bu aşamada bir nevi ekonomik gücü siyasi ranta tercih etmiş gözükerek, uluslararası sistem içinde nüfuzunu artırmak için az gelişmiş ve gelişmekte olan ülkelerle ilişkilerini geliştirmiş ve onların ekonomik ihtiyaçlarına cevap vermeye gayret etmiştir (Şahin, 2021).

Bu ekonomik ilişkiler ağının yoğunluğuyla paralel artan karşılıklı bağımlılık, karar alma mekanizmalarını da etkilemiş ve uluslararası camiada Çin'in tezlerine verilen destek artmıştır (İstiklal, 2023). Bu durum Çin'in emperyal amaçla hareket ettiği iddialarını gündeme getirmiştir. Çin'in bu şekilde hızlı ve agresif büyümesi, iş birliği yaptığı partnerlerinin de büyümesine katkı sunmakla birlikte, küresel ve bölgesel rakipleri nezdinde çeşitli endişelere neden olmuştur. Ancak Çin'in bu stratejiyi istikrar ve hayatta kalma güdüsüyle yaptığını ve ekonomik gücünü siyasi/jeopolitik güce çevirme noktasında iç ve dış pazar büyüklüğünden yararlandığını söylemek daha gerçekçi olacaktır.

Çin'in az gelişmiş ve gelişmekte olan ülkelerle geliştirdiği ekonomik iş birliğinin (kredi/borç) görünürde, artan üretimi için pazar yapısını güçlendirmek ve siyasi alanda güç elde etmek üzere iki temel amacı olmuştur (İnsel, 2021).

Şekil-7'de görüldüğü üzere en fazla kredi stratejik öneme sahip enerji, ulaştırma, madencilik alanlarında verilirken, emlak ve diğer (sanayi, tarım) gibi gelir getirici yatırımların olmasının, Çin'in stratejik düşünceyle hareket ettiğini göstermektedir. Bu verilere göre, kredilerin Çin'in ihtiyacı olan enerji ve hammadde ile bunların transferinde kullanılması ve sadece Çin tarafının çıkarlarına odaklandığına işaret etmektedir (İstiklal, 2023:26). Yani Çin kendi ekonomik güvenliğini düşünürken, ilişkili ülkenin ekonomik güvenliğini ihmal etmektedir.

Borç Tuzağı Diplomasisine Örnekler

Borç tuzağına ilişkin örneklere geçmeden evvel Çin'in borç/kredi verme şartlarını incelemekte yarar vardır. Öncelikle özellikle 2014 sonrası Çin'in yaptığı borç anlaşmaları son derece kapsamlı gizlilik şartları içermektedir. Anlaşmanın birçok maddesi veya tamamının gizli kalmasını isteyerek, borçlu ülkenin gerçek borçlanma durumu ve koşullarını değerlendirmesini engellemiştir. Böylece hem şeffaflık hem de sözleşmede hakkaniyete aykırı maddeler görünmez kılınmıştır. Ayrıca bu şartlar kredinin kullanımında yolsuzluk/usulsüzlük yapılmasına imkan vermiştir (Euronews, 2021; Ajnoti, 2022).

Bu kapsamda Çin yaptığı sözleşmelere (İnsel, 2021:3);

- Borçlu ülkenin eylemlerinin Çin'in çıkarlarıyla çelişmesi durumunda, vadesi gelmeden borcun ifasını isteme hakkı,
- Borçlu ülkede gerçekleşecek önemli bir yasa veya siyaset değişikliği durumunda borcun vadesinden evvel talep hakkı,
- Borçlu ülkenin diğer alacaklılarından önde bir konum sunması,
- Anlaşmazlık durumunda Çin mahkemeleri ve Çin tahkim kurumuna gidilmesi,
- Alacağına karşılık, borçlu ülkenin ihracat gelirlerinin bir kısmının, Çin ya da üçüncü bir ülkedeki bir bankada tutulması,
- Alacağına garanti olarak, borçlu ülkedeki limanlar vb. bazı stratejik yapıların mülkiyeti veya işletmesini talep etmesi,

- Borçların mali koşulları, faiz oranı, vade ve ödeme koşulları açısından zaman zaman uluslararası kredi koşullarından daha ağır olması, şeklinde şartlar koymaktadır.

Aslına bakılırsa sözleşmeye Çin tarafından konulan şartlar Çin'in ekonomik gücünü siyasi güce dönüştürme isteğini yansıtmakta ve bazı özel amaçları olabileceğini düşündürmektedir. Bu nedenle borç tuzağı diplomasisinin en fazla konuşulan iki kurbanı Sri Lanka ve Malezya örnekleri üzerinden Çin'in gerçek niyetini anlamak mümkün olabilecektir.

Sri Lanka Deneyimi

Sri Lanka hükümeti 2007'de liman yapımı için kredi arayışına çıkmıştır. Talepleri IMF başta olmak üzere tüm Batılı kreditorler tarafından, ülkede yaşanan iç savaş ve insan hakları ihlalleri olduğu gerekçesiyle reddedilmiştir. Liman yatırımı konusunda ısrarlı davranan Sri Lanka hükümeti de, Çin'den 1,9 milyar dolar kredi almıştır (Ajnoti, 2022). 2017'de Sri Lanka borçlarını ödeme konusunda temerrüde düşmüş ve borcunun 1,1 milyar dolarlık kısmına karşın limanın işletmesini Çinli bir KİT olan CMPort'a devretmiştir. CMPort'un bu yaklaşımı belirli bir limanı ele geçirme stratejisinden çok, BKBY kapsamında gelişme fırsatlarını değerlendirmek ve deniz aşırı genişlemeye yönelik bir stratejinin parçası olduğu iddia edilmektedir (CMPort, 2019).

Bu noktada Sri Lanka'nın borçlarının sadece %9'unun Çin'e olduğunu, bunun yanında devredilen limanın yıllık gelirinin, yıllık işletme masrafından fazla olduğunu altını çizmek gerekir (Tandoğan, 2019).

Bu arada limanın Çin için jeopolitik önemi bulunmadığını, ne ekonomik ne de deniz kullanımı açısından coğrafi olarak uygun olmadığını (Wong, 2021) ve limanın uluslararası liman güvenliği planı kapsamında ABD Sahil Güvenliği denetimine tabi (Wignaraja vd., 2020:25-6) olduğunu belirtmek gerekir.

Sri Lanka Hükümeti'nin kötü yönetim sorunu, otoriter yapısı ve yolsuzluk seviyesi ekonomide sorunlara yol açmış, ekonominin yapısal sorunlarını çözememesi ise ülkeyi borç krizine sürüklemiştir (Kelegama, 2017: 437). Diğer bir ifadeyle Sri Lanka'da borç tuzağı iç politik kararların bir sonucu olarak ortaya çıkmıştır.

Çin, Sri Lanka'da yaptığı yatırımlara 2017'den sonra da devam etmiş olup, 2018-2023 arasında enerji, lojistik, emlak ve ulaştırma alanlarında beş ayrı projede 2,1 milyar dolar ilave yatırım yapmıştır (Scissors, 2024).

Malezya Deneyimi

Malezya ekonomisi uzun süredir yabancı kaynak ve yatırıma bağımlı hızlı ekonomik büyümeye bağlı hale gelmiştir. Bu nedenle Çin'in finansman ve kredi imkanlarından yararlanma isteğiyle, 2015'de BKBY girişiminde yerini almıştır. Malezya'nın BKBY girişimine katılması Çin'in, Malakka Boğazı'nda etkinliğini artırması (Hutchinson, 2019) ve BKBY kapsamında Çin'in finanse ettiği ve İnci Dizisi olarak adlandırılan liman yatırımlarıyla bağlantılı olduğu (Beech, 2018) şeklinde yorumlanmıştır. Çin kredileri siyasi açıdan önemli görülen inşaat sektörü için fırsat olarak

görülmüş ve sağlanan imkanlar hükümete etnik olarak yakın gruplara verilmiştir (Lim, 2015:5-8). Siyasi amaçlarla talep edilen şişirilmiş projelerden elde edilen kredilerin bir kısmı siyasi amaçla kullanılmıştır. Çin tarafı ise çıkarlarını korumak için devlet garantisi istemiştir.

Ancak 2018’de yaşanan iktidar değişikliği sonrasında, yeni Malezya Hükümeti, Çin ile ilişkilerini gözden geçirerek, araya mesafe koymuş ve bazı BKBY projelerini askıya almıştır. Bu arada IMF tarafından 2017’de yapılan değerlendirmede, Malezya’nın 2022’ye kadar borçlarını ödeme konusunda sorun yaşamayacağı değerlendirilmiştir (IMF, 2018: 41).

Malezya’nın borç tuzağına düşmesi de hükümetlerin ekonomi politik uygulamaları kapsamında siyasi-iş dünyasının çıkarlarının peşinde gidilmesi nedeniyle olmuştur. Diğer yandan stratejik varlıklara yönelik borç tuzağı kurulduğu iddialarının aksine, Malezya’daki Çin destekli projelerin emlak/İNŞAAT, eğlence ve endüstri sektörlerinde çoğunlukla stratejik olmayan yatırımlar olduğunu hatırlatmak gerekir (Jones ve Hameiri, 2020).

Çin, Malezya’da yaptığı yatırımlara 2018’den sonra da devam etmiş olup, 2018-2024 arasında başta enerji ve finans olmak üzere hemen her alanda 24 ayrı proje ile 8,61 milyar dolar ilave yatırım yapmıştır (Scissors, 2024).

Aslında hem Sri Lanka hem de Malezya’da hükümetler, iç politikaya yönelik kalkınma gündemlerini işletebilmek amacıyla Çin’in yatırım ve kalkınma finansmanından istifade etmek istemişlerdir. Bu doğrultuda borç yerel hükümetler tarafından talep edilmiş, iç politik hedefler doğrultusunda kullanılmıştır. Ancak yönetim zafiyeti, yolsuzluk, kötü idare, öngörüsüzlük vs. nedenlerle projeler batmıştır. Bu noktada borç tuzağı oluşmuş ise bu tuzağı Çin’in kurduğu fikri tamamen siyasi gerekçelerle yapılmış bir yorumdan öteye geçmemektedir. Ülkeler borç tuzağına kendileri düşmüşlerdir. Bu noktada Çin’in eksikliği veya hatası olarak değerlendirilecek husus ise projelerin risk değerlendirmesini yapmaması, rantbil olmayan projelere kredi vermeleri ve sadece ilgili ülkedeki çıkarlarıyla ilgilenmeleri olmuştur (Jones ve Hameiri, 2020).

Bu çerçevede görünen borç tuzağından ziyade Çin ve karşı ülkedeki çıkar ilişkileri ve yönetim eksikliğinden kaynaklanmaktadır. Çin’in elindeki fazla sermayeyi kullanma ihtiyacı, ilgili ülkedeki zayıf planlamayla bir araya gelince, kötü yönetilmiş projeler ortaya çıkmıştır.

Öte yandan Çin’e atfedilen borç tuzağı kurma iddiaları kapsamında, Çinli finans sağlayıcı KİT’lerin ekonomik bulmadığı bazı projelere girmediklerinin de altını çizmek gerekir. Örneğin BKBY kapsamında Romanya’da nükleer enerji santralleri işi (Jones and Hameiri, 2020) ve Çin-Pakistan Ekonomik Koridoru kapsamındaki bazı termik santraller (Rafiq, 2017:17-19) karlılığı düşük olması gerekçesiyle yapılmamıştır. Bu iki örnek jeopolitik hedeflerden önce ekonomik gerekçelere bakıldığına işaret etmektedir.

Türkiye’nin Çin ile Ekonomik İlişkisi

Türkiye-Çin ilişkileri, Çin’in 1971’de BM’ye üyeliğiyle başlamıştır. 1990’larda Uygur meselesi nedeniyle bir miktar gerilse de ilişkiler genel itibarıyla olumlu seyretmiş, 2010’dan itibaren stratejik ortaklık seviyesine çıkmıştır. Çin, Türkiye’nin en büyük ikinci ticaret ortağı konumundadır. 2020’de iki ülke ticaret hacmi 24 milyar dolara ulaşmıştır. Çin’in Türkiye’de enerji, altyapı, bankacılık, telekomünikasyon, lojistik alanlarında olmak üzere 4 milyar doların üzerinde yatırımı mevcuttur (Dışişleri Bakanlığı, 2023). İlave olarak 2021’de de 3,6 milyar dolarlık swap anlaşması yapılmıştır (Ünver, 2022).

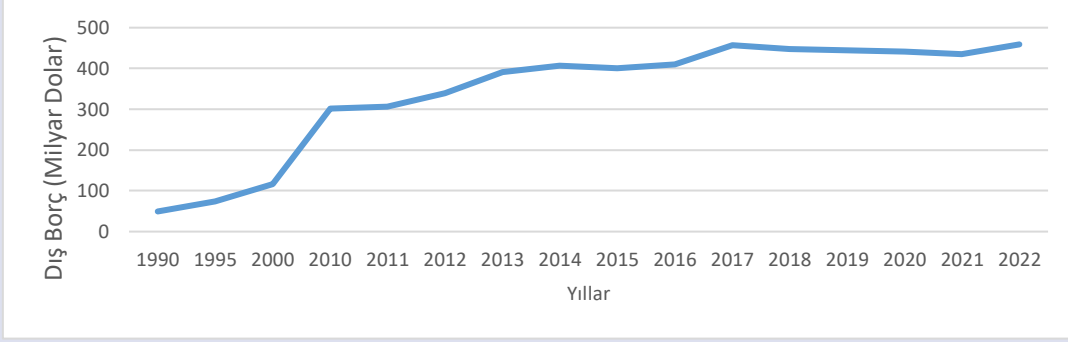
Türkiye 2015’de yaptığı anlaşma ile BKBY projesine resmen katılım sağlamıştır. BKBY projesi Türkiye’nin ulaştırma, lojistik, alt yapı imkanlarına katkı sağlarken, bölgeler arası ulaşım bağlantı noktası olarak vazgeçilmez bir imkan sağlamaktadır. Türkiye stratejik coğrafi konumu ve enerji kaynaklarına yakınlığı nedeniyle BKBY’de önemli bir pozisyon elde etmeye çalışırken; Çin ise Türkiye’yi AB, Ortadoğu ve Kuzey Afrika’ya açılım noktası olarak değerlendirmektedir (Ablet, 2022). Çin’in Türkiye’de enerji, ulaştırma, bankacılık başta olmak üzere yatırımları vardır. Bu noktada 2010’dan sonra Avrasya Tüneli, Yavuz Sultan Selim Köprüsü, İstanbul Havalimanı, Çanakkale 1915 Köprüsü gibi önemli ulaşım projeleri ile Türkiye’nin 6K-Z gözlem uydusu ve Tuz Gölü doğalgaz depolama tesisi projelerinde ortaklık yapılmıştır. Ankara-İstanbul hızlı tren hattı, Edirne-Kars hızlı tren ve Bakü-Tiflis-Kars hatları da Çinli firma tarafından yapılan önemli yatırımlardır. Ayrıca Çinli firmalar 2015’den beri Deniz İpek Yolu için Boğazlara yatırım yapmaktadırlar. Bu aşamada Türkiye’deki toplam doğrudan yabancı yatırımın % 0,6’sı Çin sermayelidir (Kafadar, 2022). Bunun dışında Çinli bankalar Türkiye’deki birçok şirkete ciddi krediler vermişlerdir (Ablet, 2022).

Tablo 1: Çin’in Türkiye’de Yatırım Yaptığı Sektörler ve Payları (2005-2024)

Table 1: Sectors in which China Invested in Turkey and Their Shares (2005-2024)

Sektör/Sanayi	Yatırım Miktarı (Milyon \$)	Çin’in Yatırımlarında Sektör Payları (%)
Enerji	10.250	54,84
Ulaşım	1.390	7,43
Lojistik	920	4,92
Konut	1.150	6,15
Kimya	1.320	7,06
Metal/Çelik	1.690	9,04
Finans/Bankacılık	430	2,3
Teknoloji/Telekomünikasyon	100	0,53
Diğer	1.440	7,70
Toplam	18.690	100

Kaynak: China Global Investment Tracker



Şekil 8: Toplam Dış Borç Stoku

Figure 8: Total External Debt Stock

Kaynak: World Bank Database verilerinden türetilmiştir.

Çin, geniş bir coğrafyada ekonomik ve siyasi harekât kabiliyeti sağlaması bakımından Türkiye ile ilişkisine önem vermektedir. Türkiye açısından ise gerek BKBY projesi gerekse Çin tarafından yapılan yatırımlar kapsamında, ilişkilerin geliştirilmesi yeni imkânlar sağlamaktadır.

Şekil-8'de Türkiye'nin yıllar itibariyle toplam dış borç stoku verilmiştir. Dış borç stokunun 1990'da 49,42 milyar dolar ile GSYİH'nin %33'ü iken, son 10 yılda giderek arttığı görülmektedir. 2010'da 300,86 milyar dolar ile GSYİH'nin %39'u ve 2022'de 459 milyar dolar ile GSYİH'nin %50,7'sine ulaşmıştır.

Türkiye'nin toplam dış borç miktarı ile karşılaştırıldığında, Çin'e olan borç miktarı dikkate değer görülmediği için, kısa ve orta vadede Türkiye'nin, bu aşamada en azından Çin'e karşı, borç tuzağına düşme ihtimali olmadığı değerlendirilmektedir. Ancak, BKBY kapsamında ulaşım koridoru açısından önemli bir konumda bulunan bazı projelerin Çinli firmalar tarafından satın alınması da benzer etkiyi yapacağından hassas davranılması gerektiği değerlendirilmektedir.

Ayrıca Çin'e yönelik borç tuzağı olmasa bile, muhtemel bir borç krizi yaşanması olasılığı uzak ihtimal görülmemektedir.

Sonuç

Küresel düzeyde büyük güçler, siyasi, ekonomik ve askeri güçlerini konsolide etmek amacıyla çeşitli düzeyde ve bazen karmaşık ekonomi politik uygulamalara gitmektedirler. 18. ve 19. yüzyılda ABD'nin Dolar Diplomasisi uygulaması, Soğuk Savaş döneminde SSCB'nin bağlilarını ideolojik olarak kullanması hep bu kapsamda değerlendirilmesi gereken hususlar olmuştur. Günümüzde ise Çin, ekonomik gücünü siyasi güce dönüştürme çabası içinde hareket etmesi ve ekonomik güvenliğini sağlamak amacıyla uyguladığı ekonomi politikalarının, başka ülkelerin güvenliğine zarar verdiği görülmektedir.

Ancak yaşanan gelişmelerden hareketle, "Çin'in küresel ekonomi için tehdit olduğu ve önlenmesi gerektiği" şeklinde bir görüşe katılmak da mümkün değildir. Zira mevcut küresel ekonomik veriler ışığında, Çin ekonomisinin küresel ekonominin bizatihi kendisi olduğunu kabul etmek gerekir ki bu durum ABD ve AB ekonomileri için de geçerlidir. Bu

kapsamda günümüz ekonomik ve siyasi ilişkilerine soğuk savaş perspektifinden bakmak yerine, işbirlikleri ve mücadeleler çerçevesinden bakmak yararlı olacaktır.

Kaldı ki Afrika'da ilişki kurduğu ülkeler başta olmak üzere, çoğu az gelişmiş ülke Çin'in ekonomik yardımlarından memnun ve kalkınmalarına destek olduğunu değerlendirmektedir. İlave olarak bu ülkelerin Çin'e yönelik herhangi bir suçlamaları bulunmadığı gibi mevcut ilişkiden memnuniyetlerini dile getirmektedirler.

Bu çerçevede Sri Lanka özelinde gündeme gelen ve Çin'e atfedilen borç tuzağının, BKBY girişimi kapsamında Çin'in uyguladığı saldırgan ekonomi politikalarının bir sonucu olduğu görülmektedir. Ayrıca pazarını genişletip, nüfuzunu artırmak amacıyla Çin'in kredi ve borç verme konusunda hassas davranmamasının da süreci kolaylaştırdığı anlaşılmaktadır. Öte yandan borcun ödenememesi durumunda alacaklının yani Çin'in uygun şekillerde alacağını peşine düşmesi de yadırganacak bir durum olmasa gerekir.

Kaldı ki BKBY kapsamındaki projelerin az gelişmiş ve gelişmekte olan ülkeler üzerindeki etkileri kapsamında, BKBY girişimi ile Çin'in borç tuzağının ötesinde hedefleri olduğunu, zira milyarlarca dolarlık yatırım ve kredileri sırf ülkeleri borç tuzağına çekmek için verdiğini ileri sürmek konuyu basite indirgemek olacaktır. Ancak Çin'in ekonomi politik uygulamaları ile yapılanların sonucunun borç tuzağına yol açmasının başka açılardan da değerlendirmeye muhtaç olduğu düşünülmektedir.

Bu kapsamda ortaya çıkan durumu, Çin'in uyguladığı ekonomi politikalarını ekonomi diplomasisi şeklinde yorumlayarak, Çin'in ekonomik ve siyasi çıkarlarını koruma güdüsüyle hareket ettiği söylenebilecektir.

Konuya ülkemiz açısından bakıldığında ise, Çin'den sağlanan finansmanın ekonomik büyüklük ile kıyaslandığında büyük ve sürdürülemez olmadığı görülmektedir. Bu nedenle kısa ve orta vadede Türkiye açısından borç tuzağı riski bulunmadığı değerlendirilmektedir. Bunun yanında, dış ticaret dengesinin Çin lehine olmasından dolayı, dış ticareti dengeleyici, cari açığı düşürmeye ve Çin'e yönelik tek taraflı bağımlılık yaratacak ya da bağımlılığı artıracak politikalara karşı dikkatli olunması gerektiği söylenebilecektir.

Extended Abstract

The period we are in is a period in which interdependence between countries and economies has reached its highest level, and the global system is shaped through this dependence. The market formed between countries grows by buying and selling raw materials and finished goods within the framework of dependency, and the growing economy increases dependency in terms of both politics and foreign trade volume.

The size of the global economy has rapidly increased interdependence in the international economy and therefore in politics. China, whose weight in the global economy has been increasing day by day in the last quarter century thanks to the economic policies it has implemented, manages to turn its increasing global weight into political gain with political economy approaches. However, it is seen that the economic relations that China has developed by using its large foreign exchange reserves have begun to harm the economic security of some underdeveloped and developing countries with which it has developed relations in the process.

China attracts attention with its billion population, economic power, developments in industry and technology, indispensable position in terms of global production and supply chain, increasing weight in global politics, and veto power in the UN. For this reason, it has become a power with which world countries, especially underdeveloped and developing countries, want to establish economic relations.

China is trying to increase its economic and political power globally by resorting to direct investments within the scope of the OBOR initiative, in order to use the large foreign exchange reserves it has as a result of the economic growth it has achieved thanks to its production-based and open-minded economic model. China, which has a total investment target of 8 trillion dollars within the scope of OBOR, has invested in more than 60 countries by creating a wide investment network from energy to transportation, from finance to real estate. It should not be ignored that these investments contribute to the development of countries and the increase in global welfare.

The necessity of finding new markets and therefore new energy and raw material supply sources in order for China to maintain its current growth and increase or at least maintain its global influence has pushed China to establish aggressive economic moves and financial relations. In this context, although it often emphasizes that it pursues a peaceful foreign policy, it has increased its economic activities towards underdeveloped and developing countries, especially after 2010, and China has established a new exploitation order with debt trap diplomacy, while dominating strategic points, the land and sea around it. It has brought to the agenda the allegations that it may be trying to consolidate its dominance over the main trade routes by using border disputes. These allegations have created concern in the international community, especially the USA, and caused China to take steps to prevent the OBOR economic program and its goals.

We see that China acts in an effort to transform its economic power into political power and the economic policies it implements to ensure its economic security harm

the security of other countries. However, it is not possible to agree with the view that *"China is a threat to the global economy and should be prevented"* Because, in the light of current global economic data, it is necessary to accept that the Chinese economy is the global economy itself, and this is also valid for the US and EU economies. In this context, it would be useful to look at today's economic and political relations from the perspective of cooperation and struggles, rather than from the perspective of the Cold War.

In the study, the OBOR initiative, which is still considered the largest economic project globally, and the debt trap diplomacy allegedly implemented by China within the framework of economic security, were discussed, and China's real purpose or target was discussed. For this purpose, through the examples of Sri Lanka and Malaysia, it was evaluated whether China, while trying to ensure its own economic security, endangered the economic security of the countries with which it has economic relations, and the possibility that the debt trap emerged as a natural consequence of the implemented policies.

Based on the examples of Sri Lanka and Malaysia, it can be seen that efforts are being made to create a public opinion against the OBOR initiative through the debt trap diplomacy attributed to China. Although it is known that the agreements made by China when granting loans/loans have special conditions, it is understood that the debt trap is not a particularly desired goal, and that it is caused by the policies implemented by China to ensure its economic security and the wrong economic policies and country-specific practices in the borrowing countries. In addition, it is understood that China's lack of sensitivity regarding loans and lending in order to expand its market and increase its influence facilitates the process. Within the scope of the effects of the projects within the scope of OBOR on underdeveloped countries and developing countries, it would be an oversimplification to claim that China has goals beyond the debt trap with the OBOR initiative, as it provides billions of dollars of investments and loans just to pull countries into the debt trap. However, it is thought that the result of China's economic and political practices leading to a debt trap needs to be evaluated from other perspectives.

Most underdeveloped countries, especially the countries with which it has established relations in Africa, are satisfied with China's economic aid and regard it as supporting their development. In addition, these countries do not have any accusations against China and are satisfied with the current relationship.

When looking at the issue from Türkiye's perspective, it is necessary to act carefully within the scope of developing economic relations with China and its significant investments in Turkey. However, due to its economic infrastructure and size, it is evaluated that the financing provided from China will not pose a debt trap risk for Türkiye.

For this purpose, economic security, debt trap and OBOR initiative are explained in the first part of the study. In the second part, China's economic structure was examined with descriptive analysis, and in the third part, the subject was tried to be clarified through debt trap examples. The fourth part, where Turkey's situation and debt trap risk are evaluated, is followed by the conclusion part, which includes the final evaluation.

Katkı Oranları ve Çıkar Çatışması / Contribution Rates and Conflicts of Interest

Etik Beyan	Bu çalışmanın hazırlanma sürecinde bilimsel ve etik ilkelere uyulduğu ve yararlanılan tüm çalışmaların kaynakçada belirtildiği beyan olunur.	Ethical Statement	It is declared that scientific and ethical principles have been followed while carrying out and writing this study and that all the sources used have been properly cited
Yazar Katkıları	Çalışmanın Tasarlanması: RA (%100) Veri Toplanması: RA (%100) Veri Analizi: RA (%100) Makalenin Yazımı: RA (%100) Makale Gönderimi ve Revizyonu: RA (%100)	Author Contributions	Research Design: RA (%100) Data Collection: RA (%100) Data Analysis: RA (%100) Writing the Article: RA (%100) Article Submission and Revision: RA (%100)
Etik Bildirim	iibfdergi@cumhuriyet.edu.tr	Complaints	iibfdergi@cumhuriyet.edu.tr
Çıkar Çatışması	Çıkar çatışması beyan edilmemiştir.	Conflicts of Interest	The author(s) has no conflict of interest to declare.
Finansman	Bu araştırmayı desteklemek için dış fon kullanılmamıştır.	Grant Support	The author(s) acknowledge that they received no external funding in support of this research.
Telif Hakkı & Lisans	Yazarlar dergide yayınlanan çalışmalarının telif hakkına sahiptirler ve çalışmalarını CC BY-NC 4.0 lisansı altında yayımlanmaktadır.	Copyright & License	Authors publishing with the journal retain the copyright to their work licensed under the CC BY-NC 4.0
Etik Kurul	Etik kurul iznine ihtiyaç bulunmamaktadır	Ethics Committee	Ethics committee approval is not required.

Kaynakça

- Abled, A. (2022). Çin'in Türkiye'deki Yatırımlarına Çok Dikkat Edilmeli. Erişim adresi: <https://www.gzt.com/gercek-hayat/cinin-turkiyedeki-yatirimlarina-cok-dikkat-edilmeli-3615971>
- Ajnoti, Rahul. (2022). The Complete Story of Debt-Trap Diplomacy Erişim adresi: [https://www.egiad.org.tr/wp-content/uploads/arastirma-raporlari/egiad-cin-raporu.pdf](https://thegeopolitics.com/the-complete-story-of-debt-trap-diplomacy/Akpaninyie, M. (2019). China's 'Debt Diplomacy' Is a Misnomer. Call It 'Crony Diplomacy'. The Diplomat, https://thediplomat.com/2019/03/chinas-debt-diplomacy-is-a-misnomercall-it-crony-diplomacy/, Erişim Tarihi: 29/07/2019.</p>
<p>Argın, M.F. ve Karakuş, A. (2022). Borç ve Ekonomi Güvenliği İlişkisi: Çin Afrika İlişkileri Örneği. Adıyaman Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, (40), 560-595.</p>
<p>Atlı, A. (2020). Kuşak, Yol ve Saat Kulesi Çin ile Ekonomik İlişkilere İzmir ve Ege Bölgesi'nden Bakış. EGİAD Çin Raporu. Aralık 2020. Erişim adresi: <a href=)
- Atlı, A. (2021). Bir Ekonomistin Gözünden Türk-Çin İlişkileri. Bölge Uzmanı ile Söyleşi. DAAD Güz/Fall 2021. Erişim adresi: <https://dergipark.org.tr/en/download/article-file/1830511>
- Beech, H. (2018). We Cannot Afford This: Malaysia Pushes Back Against China's Vision. *New York Times*, 20 August 018, <https://www.nytimes.com/2018/08/20/world/asia/china-malaysia.html> (accessed 2 Feb. 2020).
- Bhattacharya, A. (2016), 'Conceptualizing the Silk Road Initiative in China's Periphery Policy', *East Asia*, 33(4), pp. 309–28.
- Brautigam, D. ve Rithmire, M. (2021). Çin'in Borç Tuzağı Bir Efsanedir. <https://www.theatlantic.com/international/archive/2021/02/china-debt-trap-diplomacy/617953/>
- Buzan, B. (1991). "New Patterns of Global Security In The Twenty-First Century". *International Affairs*, 67(3), 431-451
- Chellaney, B. (2017). China's debt-trap diplomacy. *The Strategist*, 24 January 2017 Erişim adresi: <https://www.aspistrategist.org.au/chinas-debt-trap-diplomacy>
- ChinaPower (2023). How Is the Belt and Road Initiative Advancing China's Interests? Erişim adresi: <https://chinapower.csis.org/china-belt-and-road-initiative/>
- ChinaPower (2023). Does China Dominate Global Investment? Erişim adresi: <https://chinapower.csis.org/china-foreign-direct-investment/>
- CMPort (2019b), *CMPort 2018 net profit rose 20.2% to HK\$7,245 million. Achieved full coverage of the six continents with overseas projects as the major growth engine*, 1 April 2019, Hong Kong: China Merchants Port Holdings Company Ltd, <http://www.cmport.com.hk/En/news/Detail.aspx?id=10007927>
- Çelik, T. (2021). Çin'in Borç Diplomasisi. Erişim adresi: <https://www.akademikparadigma.com/cinin-borc-diplomasisi/>
- Deniz, Y. (2014). Çin'in Ekonomik Dönüşümü ve Üçüncü Dünya. Barış Araştırmaları ve Çatışma Çözümleri Dergisi, Cilt 2, Sayı 2, ss. 68-85.
- Dışişleri Bakanlığı (2023). Türkiye-Çin Halk Cumhuriyeti Ekonomik İlişkileri. Erişim adresi: https://www.mfa.gov.tr/turkiye-cin-halk-cumhuriyeti-ekonomik-iliskileri.tr.mfa#:~:text=%C3%87in'in%20%C3%BClkemize%20yapm%C4%B1%20oldu%49Fu,4%20milyar%20Dolar'%C4%B1n%20%C3%BCzerin%20dedir_
- Erdal, H. (2012). Uluslararası İlişkiler Kavram ve Olaylar Sözlüğü, İstanbul: Barış Kitapevi
- Euronews (2021). Dünyanın En Büyük Alacaklısı Çin'in Ülkelere Hangi Koşullarda Kredi Verdiği ortaya Çıktı. Erişim adresi: <https://tr.euronews.com/2021/03/31/dunyan-n-en-buyuk-alacakl-s-cin-in-ulkelere-hangi-kosullarda-kredi-verdigi-ortaya-c-kt>
- Hanauer, L. ve Morris, L. J. (2014). Chinese Engagement in Africa: Drivers, Reactions and Implications for U.S.

- Policy, Rand Corporation, Washington D.C.
- Hutchinson, F. E. (2019), *The Melaka Gateway Project: High Expectations but Lost Momentum?*, Singapore: ISEAS – Yusof Ishak Institute, https://www.iseas.edu.sg/wp-content/uploads/pdfs/ISEAS_Perspective_2019_78.pdf
- IMF (2018), *Malaysia: 2018 Article IV Consultation – Press Release; Staff Report; and Statement by the Executive Director for Malaysia*, Washington, DC: IMF, <https://www.imf.org/en/Publications/CR/Issues/2018/03/07/Malaysia-2018-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-the-45677>
- İnsel, Ahmet. (2021). Çinle İktisadi İlişkilerin Perde Arkası. Erişim adresi: <https://birikimdergisi.com/haftalik/10597/cin-le-iktisadi-iliskilerin-perde-arkasi>
- İstiklal, Deniz. (2023). Asya Yüzyılında Çin'in Afrika Yatırımları. Erişim adresi: <https://www.setav.org/asya-yuzyilinda-cin-in-afrika-yatirimlari>
- Jones, L. ve Hameiri, S. (2020). Debunking the Myth of Debt Trap Diplomacy. Research Paper, 19 August 2020. Erişim adresi: <https://www.chathamhouse.org/2020/08/debunking-myth-debt-trap-diplomacy/references>
- Kafadar, M. (2022). Çin'in Türkiye'deki Ayak İzi Ne Kadar Büyük? Erişim adresi: <https://www.dw.com/tr/C3%A7inin-T%C3%bcrkiyedeki-ayak-izi-ne-kadar-b%C3%bcy%C3%bck/a-63589752>
- Kelegama, S. (2017), 'The Political Economy of the Rajapaksa Decade in Sri Lanka, 2005–14: Policy Contradictions and Mal-governance', in Hill, H. and Menon, J. (eds) , *Managing Globalization in the Asian Century: Essays in Honour of Prema-Chandra Athukorala*, Singapore: ISEAS – Yusof Ishak Institute, pp. 428–56.
- Kızıltan, A. (2004). Tek Kutuplu Bir Dünyada Çin Halk Cumhuriyeti'nin Süper Güç Olabilirliği. Cumhuriyet Üniversitesi İktisadi ve İdari Bilimler Dergisi, Cilt 5, Sayı 1, ss. 45-66.
- Lim, G. (2015). China's Investments in Malaysia: Choosing the "Right" Partners', *International Journal of China Studies*, 6(1), pp. 1–30.
- Maggiorelli, L. (2017). Chinese Aid to Latin America and the Caribbean: Evolution and Prospects. *Revista Internacional de Cooperación y Desarrollo*, Cilt 4, Sayı 2, s. 33.
- Mesjasz, C. (2008). Ekonomik Güvenlik. Uluslararası İlişkiler, Cilt 5, Sayı 18 (Yaz 2008), s.125-150.
- Park, Y. J. (2016). One Million Chinese in Africa", SAIS Perspectives. <http://www.saisperspectives.com/2016issue/2016/5/12/n947s9csa0ik6kmkm0bzb0hy584sfo>,
- Rafiq, A. (2017), *The China-Pakistan Economic Corridor: Barriers and Impact*, Washington, DC: United States Institute of Peace, <https://www.usip.org/sites/default/files/2017-10/pw135-the-china-pakistan-economic-corridor.pdf>
- Ünver, Deniz (2022). Çin Türkiye İlişkilerinin Daha Detaylı Bir İncelemesi. Erişim adresi: avim.org.tr/Blog
- Scissors, D. (2023). China's Global Investment Surges, Finally. American Enterprise Institute. Erişim adresi: <https://www.aei.org/research-products/report/chinas-global-investment-surges-finally/>
- Shiffman, G.M., "Ekonomik Güvenlik". Çağdaş Güvenlik Çalışmaları, (Der.) Alan Collins, Uluslararası İlişkiler Kütüphanesi, 208-221
- Stacey, K. (2017), 'China signs 99-year lease on Sri Lanka's Hambantota port', *Financial Times*, 11 December 2017, <https://www.ft.com/content/e150ef0c-de37-11e7-a8a4-0a1e63a52f9c>
- Şahin, Y. (2021). Çin Tarafından Uygulanan Borç Tuzağı Diplomasisi. Erişim adresi: <https://www.derintahkik.com/cin-tarafından-uygulanan-borc-tuzagi-diplomasisi/>
- Tandoğan, M. (2018). Çin'in Borç Diplomasisi ve Afrika. AA Analiz, <https://www.aa.com.tr/tr/analiz-haber/cin-in-borc-diplomasisi-ve-afrika/1260770>,
- Wignaraja, G., Panditaratne, D., Kannagara, P. and Hundlani, D. (2020). *Chinese Investment and the BRI in Sri Lanka*, Research Paper, London: Royal Institute of International Affairs, <https://www.chathamhouse.org/sites/default/files/CHHJ8010-Sri-Lanka-RP-WEB-200324.pdf> (accessed 29 Jun. 2020).
- Wong, A. (2021). Çin, Neden Müttefik Kazanmakta ve Jeopolitiği Etkilemekte Başarısız Oldu? Erişim adresi: <https://www.indyurk.com/node/387746/d%C3%BCnya/%C3%A7in-neden-m%C3%BCttefik-kazanmakta-ve-jeopoliti%C4%9Fi-etkilemekte-ba%C5%9Far%C4%B1s%C4%B1z-oldu>
- Vural, Ç. ve Aydın, H. (2019). Dolar Diplomasisi ve Borç Tuzağı Diplomasisi: ABD ve Çin Örneklerinin Karşılaştırılması. *Uluslararası Politik Araştırmalar Dergisi*. Aralık 2019, Cilt:5, Sayı 3, pp.174-194.
- Yılmaz, M. L. (2020). Uluslararası Güvenlikte Bir Sorun Olarak Ekonomi Güvenliği İkilemi. *Uluslararası Güvenlik Gelenekselden Gündeme Bir Gündem Analizi*, (Der.) E. Çitak ve S. Kiraz, Ankara: Orion Yayınları. 303-320.