



**INTERNATIONAL CONGRESS ON FINANCE, ECONOMY AND SUSTAINABLE POLICIES**

**04-06 SEPTEMBER 2023, SKOPJE**

# BOOK OF FULL TEXT

[www.icofesp.com](http://www.icofesp.com)



**I. International Congress On Finance, Economy  
And Sustainable Policies (ICOFESP)**

**Book of Full Text,**

04-06 September 2023 in Skopje, Macedonia

**Editors**

Rengin Ak  
Berna Ak Bingöl

**Publishing Year**

December 2023

**Language**

English

All responsibilities of full textes published in this book  
belong to their authors.

[www.icofesp.com](http://www.icofesp.com) - [info@icofesp.com](mailto:info@icofesp.com)

ISBN: 978-625-00170-4-3

© All Rights Reserved

**I. Uluslararası Finans, Ekonomi Kongresi  
Ve Sürdürülebilir Politikalar (ICOFESP)**

**Tam Metin Bildiriler Kitabı,**

04-06 Eylül 2023 Üsküp, Makedonya

**Editörler**

Rengin Ak  
Berna Ak Bingöl

**Yayın Yılı**

Aralık 2023

**Dil**

İngilizce

Bu kitapta yayınlanan tam metinlerin tüm sorumlulukları  
yazarlarına aittir.

[www.icofesp.com](http://www.icofesp.com) - [info@icofesp.com](mailto:info@icofesp.com)

ISBN: 978-625-00170-4-3

© Tüm Hakları Saklıdır

Dear Respected Academics and Researchers,

On behalf of the Organizing Committee, we are pleased to announce that I. International Congress On Finance, Economy And Sustainable Policies (ICOFESP) will be held in International Balkan University from 04-06 September 2023 in Skopje, Macedonia

ICOFESP provides an ideal academic platform for researchers and professionals to discuss recent developments in economy. This event aims also to stimulate interaction in the field of finance, economy and policy developments in all these areas, and to showcase the expertise of our invited speakers and participants.

You can find more information about this event on the webpage of ICOFESP:

**[www.icofesp.com](http://www.icofesp.com)**

All the papers are subject to rigorous peer-review by at least two members of scientific committee or additional reviewers. We are looking forward to seeing you in Skopje / Macedonia

With our best regards,  
Organising Committee of ICOFESP

## **TOPICS**

Global Problem and Threatening  
Food security and safety  
Sustainable Development  
Global security challenges  
Security and Data Management  
Sustainability of natural resources  
Globalization and the Poverty cycle  
Energy Security  
Global warming and climate change  
Global and regional migration movements  
Sustainability communication and public relations  
Numerical Approaches to Global Problems

## HONORARY COMMITTEE

- Prof. Dr. Bülent Şengörür (Rector of Kırklareli University, Türkiye)
- Prof. Dr. Aleksandra Ristovska (Vice Rector of International Balkan University, Macedonia)
- Prof. Dr. Fahrettin Göktaş (Rector of Fırat University, Elazığ, Türkiye)
- Prof. Dr. İdris Demir (Rector of Batman University, Türkiye)
- Prof. Dr. Naci Çağlar (Rector of Bursa Technical University, Türkiye)
- Prof. Dr. Hamdullah Şevli (Rector of Van Yüzüncü Yıl University, Türkiye)
- Prof. Dr. Mehmet Durman (Rector of Beykoz University)
- Prof. Dr. Huseyin Yaratan (Rector of International Final University, Cyprus)
- Prof. Dr. Saadat Namig Aliyeva (Rector of Azerbaijan University, Azerbaijan)
- Prof. Dr. Alpaslan Ceylan (Rector of Kyrgyz – Turkish Manas University, Kyrgyzstan)
- Prof. Dr. Ahmet Kızılay (Rector of İnönü University, Türkiye)
- Prof. Dr. Bülent Çakmak (Rector of Erzurum Technical University, Türkiye)
- Prof. Dr. Milen Baltov (Rector of Burgaz Free University, Bulgaria)
- Prof. Dr. Kenan Peker (Rector of Munzur University, Türkiye)
- Prof. Dr. Süleyman Özdemir (Rector of Bandırma Onyedli Eylül University, Türkiye)
- Prof. Dr. Kaya Ardiç (Piri Reis University, Türkiye)

## **ORGANIZING COMMITTEE**

Prof. Dr. Rengin Ak

(Chair, International Balkan University,  
Macedonia & Kırklareli University, Türkiye)

Prof. Dr. Hasan Bulut (Co-Chair, Fırat University, Türkiye)

Prof. Dr. Fevzi Erdoğan (Yüzüncüyıl University, Türkiye)

Assoc. Prof. Dr. Berna Ak Bingöl (Kırklareli University, Türkiye)

Assoc. Prof. Dr. Liza Alili Sulejmani

(International Balkan University, Macedonia)

Assoc Prof. Dr. Abdullah Oğrak (Bursa Teknik University)

## **LOCAL COMMITTEE**

Asst. Prof. Dr. Andrijana B. Danevska

Asst. Prof. Dr. Elena P. Stanoevska

Asst. Diellza Bilalli

İsmail Gökbaraz

Asst. Kristina Velickovska

Asst. Leposava Ognjanoska

Asst. Omer Ulutas

Asst. Sezer Ferhad

## SCIENTIFIC COMMITTEE

- Abdullah Oğrak (Bursa Technical University, Türkiye)  
Abdullah Takım (Atatürk University, Türkiye)  
Abdüselam Sağın (Kırklareli University, Türkiye)  
Adil Akıncı (Bilecik Şeyh Edebali University, Türkiye)  
Ahmet Yatkın (İnönü University, Türkiye)  
Alaattin Esen (İnönü University, Türkiye)  
Ali Coşkun (Boğaziçi University, Türkiye)  
Aliagha Ismailzada (Azerbaijan University, Azerbaijan)  
Avkash Jadhav (University Of Mumbai, India)  
Aybeniz Akdeniz Ar (Bandırma Onyedi Eylül University, Türkiye)  
Ayça Çekiç Akyol (İnönü University, Türkiye)  
Ayfer Gedikli (Düzce University, Türkiye)  
Aynura Turdalieva (Kyrgyz-Turkish Manas University, Kyrgyzstan)  
Bahadır Köksalan (İnönü University, Türkiye)  
Bahar Erdal (Ostim University, Türkiye)  
Başak Doğan (Adnan Menderes University, Türkiye)  
Bejtulla Demiri (International Balkan University, Macedonia)  
Biljana Chavkoska (International Balkan University, Macedonia)  
Burcu Özcan (Fırat University, Türkiye)  
Bünyamin Akdemir (İnönü University, Türkiye)  
Canan Özge Eğri (Kırklareli University, Türkiye)  
Celalettin Yanık (Bandırma Onyedi Eylül University, Türkiye)  
Celil Aydın (Bandırma Onyedi Eylül University, Türkiye)  
Cem Ayden (Fırat University, Türkiye)  
Cem Berk (Kırklareli University, Türkiye)  
Cemal Gündoğdu (İnönü University, Türkiye)  
Cunus Ganiev (Kyrgyz-Turkish Manas University, Kyrgyzstan)  
Cüsüp Primbayev (Kyrgyz-Turkish Manas University, Kyrgyzstan)  
Duhnea Cristina (Faculty Of Economics, Ovidius University)  
Emre Çevik (Kırklareli University, Türkiye)  
Emre Yıldırım (Bandırma Onyedi Eylül University, Türkiye)  
Engin Öner (Erzurum Teknik Üniversitesi, Türkiye)  
Ercan Çelik (Kyrgyz-Turkish Manas University, Kyrgyzstan)  
Ercan Uygur (Final International University, Cyprus)  
Erdal Tanas Karagöl (Education Attaché)  
Ersoy Kutluk (Bandırma Onyedi Eylül University, Türkiye)  
Esin İlhan (Ahi Evran University, Türkiye)  
Esra N. Kılıcı (İstanbul University Cerrahpaşa, Türkiye)  
Eylem Özkaya Lassalle (Kırklareli University, Türkiye)  
Fahri Çakı (Balıkesir University, Türkiye)  
Fatih Karasaç (Kırklareli University, Türkiye)  
Fatih Kayhan (Kırklareli University, Türkiye)  
Ferudun Kaya (Bolu Abant İzzet Baysal University, Türkiye)

Furkan Yıldız (Kırklareli University, Türkiye)  
Gökhan Gökulu (Çanakkale Onsekiz Mart University, Türkiye)  
Gökhan Tuncel (İnönü University, Türkiye)  
Gualter Couto (University Of The Azores Portugal)  
Hacı Mehmet Baskonus (Harran University, Türkiye)  
Hakan Taştan (Kırklareli University, Türkiye)  
Halil Kete (Kırklareli University, Türkiye)  
Haris Muminovic (International Balkan University, Macedonia)  
Hasan İslatince (Anadolu University, Türkiye)  
Hidayet Siddıkoğlu (Hiroshima University, Japan)  
Hüseyin Selimler (İstanbul Aydın University, Türkiye)  
İbrahim Guliyev (Azerbaijan University, Azerbaijan)  
İdlir Lika (İstanbul Gelişim University, Türkiye)  
İsmahan Majid Al-Taher (Aqaba University Of Technology, Jordan)  
İvan Ivanov (International Balkan University, Macedonia)  
İsmail Şiriner (Batman University, Türkiye)  
Kamil Uslu (Doğuş University, Türkiye)  
Keisuka Wakizaka (İstanbul Gelişim University, Türkiye)  
Kemal Cebeci (Marmara University, Türkiye)  
Kire Sharlamanov (International Balkan University, Macedonia)  
Liliana Guran (Western University Of Arad)  
Luljeta Sadiku (International Balkan University, Macedonia)  
M. Barış Yılmaz (İnönü University, Türkiye)  
Mare Ushkovska (International Balkan University, Macedonia)  
Mehmet Emin Erçakar (Bandırma Onyedi Eylül University, Türkiye)  
Mehmet Karahan (Firat University, Türkiye)  
Mehmet Şişman (Marmara University, Türkiye)  
Meriç Subaşı (Anadolu University, Türkiye)  
Metin Berber (Karadeniz Teknik University, Türkiye)  
Mevludin Ibish (International Balkan University, Macedonia)  
Mevlüt Akyol (İnönü University, Türkiye)  
Muhammed Yiğider (Erzurum Technic University, Türkiye)  
Murat Altuğ (Marmara University, Türkiye)  
Murat Birdal (İstanbul University, Türkiye)  
Murat Çetin (İstanbul University, Türkiye)  
Murat Köylü (Çağ University, Türkiye)  
Musa Bayır (Bandırma Onyedi Eylül University, Türkiye)  
Mustafa Önen (İnönü University, Türkiye)  
Mustafa Polat (Hacettepe University, Türkiye)  
Nariman Boyukkishi (Azerbaijan University, Azerbaijan)  
Natalija Shikova (International Balkan University, Macedonia)  
Neziha Musaoğlu (Gelişim University, Türkiye)  
Nikola Dacev (International Balkan University, Macedonia)  
Nuray Altuğ (Marmara University, Türkiye)  
Ömer Faruk Güleç (Kırklareli University, Türkiye)  
Ömer Selçuk Emsen (Atatürk University, Türkiye)



Önder Bakırcıođlu (Leicester University, England)  
Özcan Demir (Firat University, Türkiye)  
Özer Özçelik (Kütahya Dumlupınar University, Türkiye)  
Özgür Kılınç (İnönü University, Faculty Of Communication)  
Peter Cumper (University Of Leicester, England)  
Raif Cergibozan (Kırklareli University, Türkiye)  
Rıza Bayrak (Ostim University, Türkiye)  
Rovshan Guliyev (Azerbaijan University, Azerbaijan)  
Rui Alexandre Castanho (Wsb University, Poland)  
Sabri Azgun (Atatürk University, Türkiye)  
Sadık Çalıřkan (İnönü University, Türkiye)  
Savica Dimitrieska (International Balkan University, Macedonia)  
Selahaddin Bakan (İnönü University, Türkiye)  
Selim Bařar (Anadolu University, Türkiye)  
Selman Yılmaz (İstanbul University, Türkiye)  
Semanur Soyyiđit (Kırklareli University, Türkiye)  
Serdar Serdaroglu (International Balkan University, Macedonia)  
Serhat Burmaođlu (Kyrgyz-Turkish Manas University, Kyrgyzstan)  
Seyfettin Erdođan (Medeniyet University, Türkiye)  
Seyil Najimudinov (Kyrgyz-Turkish Manas University, Kyrgyzstan)  
Sezer B. Kahyaođlu (Kyrgyz-Turkish Manas University, Kyrgyzstan)  
Slavka Dimitrova (Burgaz Free University, Bulgaria)  
Snezana Bilic (International Balkan University, Macedonia)  
Suphi Özçomak (Atatürk Üniversitesi)  
Süleyman Kale (Kırklareli University, Türkiye)  
Taha Eđri (Kırklareli University, Türkiye)  
Tural Gojayevev (Azerbaijan University, Azerbaijan)  
Ünal Çađlar (Kırklareli University, Türkiye)  
Ünsal Sıđrı (Ostim University, Türkiye)  
Üstün Özen (Atatürk Üniversitesi)  
Valentin Toader (Babeř-Bolyai University, Romania)  
Vedat Yılmaz (Turgut Özal University, Türkiye)  
Violeta Madzova (International Balkan University, Macedonia)  
Xhemile Salıu (International Balkan University, Macedonia)  
Yener Altun (Van Yüzüncü Yıl University, Türkiye)  
Yiđit Özbek (Kırklareli University, Türkiye)  
Yonca Altındal (Balıkesir University, Türkiye)  
Yusif Gasimov (Azerbaijan University, Baku, Azerbaijan)  
Yücel Uyanık (Hacı Bayram Veli University, Türkiye)  
Zakia Hammouch (Ens Of Meknes, Moulay Ismail Univ, Morocco)  
Zamira Oskonbaeva (Kyrgyz-Turkish Manas University, Kyrgyzstan)  
Zeki Boyraz (İnönü University, Türkiye)  
Zeyneb Hafsa Orhan (İstanbul Sabahattin Zaim University, Türkiye)  
Ziya Çađlar Yurttançıkılmaz (Atatürk University, Türkiye)

## CONTENTS

Shpresa Alija, Sellma Ademi, Sara Ademi	The impact of borrowing costs on lending in North Macedonia	11
Shpresa Alija, Haxhere Dervishi, Harun Mustafa	“The Impact of the COVID-19 and Energy Crisis on the Top Five Companies Listed on the Macedonian Stock Exchange” during the Period 2018-2022	18
Shpresa Alija, Lulzime Nuredini - Mehmedi, Sadri Alija	The Impact of the COVID-19 Pandemic on Families: Student’s Experiences in North Macedonia	33
Meriç Altaylı, Reha Saydan	Fenomen Pazarlamanın Marka Tutumuna ve Tüketici Satın Alma Niyetine Etkisi	42
Seyfettin Erdoğan, Ayfer Gedikli	Global Food Insecurity: Problems and Policy Recommendations	66
Fatih Kayhan, Berna Ak Bingül, Gökhan Işıl	Crowdfunding as a Modern Fundraising Technique within the framework of Sustainable Development: The Case of Turkey as an Emerging Economy	80
Ayfer Gedikli, Seyfettin Erdoğan	Global Supply Chain Recovery: Challenges and Solutions	85
Ayfer Gedikli, Sevim Sayım Madak, M. Rıza Derindağ	Impacts of Ukraine War on Air Transport and Tourism Industry	104
Hasan Yazar, M. Mustafa Erdoğan	Is it possible to shorten the process of environmental damage in the initial stage of economic development?	124
Ali Suat Piskin	The Effect of Brain Drain on Developing Countries in Terms of Loss of Skilled Labor, the Case of Türkiye	131
Rengin Ak Ceneta Telak Durmushi	Trade, Technological Change, and Economic Development: A Study of Knowledge Transfer and Innovation Diffusion	138
Emdad khaleel Mahmood Abdullah Oğrak	The Effect Of Strategic Human Resource Management On Employees’ Motivation In The Public Sector” (Erbil Of Iraq As A Case Study)	144

---

## “The impact of borrowing costs on lending in North Macedonia”

*Shpresa Alija, /South East European University, North Macedonia*

*Sellma Ademi, / South East European University, North Macedonia*

*Sara Ademi, /South East European University, North Macedonia*

[s.aliya@seeu.edu.mk](mailto:s.aliya@seeu.edu.mk)

**Abstract** - This study examines the relationship between borrowing costs and lending behaviors in North Macedonia. Borrowing costs, often reflected in interest rates and other associated lending fees, play a pivotal role in shaping the decisions of financial institutions and potential borrowers.

In the context of North Macedonia, a small and emerging European economy, understanding these dynamics is crucial for policy formulation and economic forecasting. Utilizing both quantitative and qualitative data spanning over the years 2006-2019, we analyze the correlation between fluctuating borrowing costs and the volume of loans disbursed. Preliminary findings suggest a strong inverse relationship: as borrowing costs rise, lending tends to decrease, and vice versa. Additionally, the study delves into the specific factors contributing to the borrowing costs in the country, such as monetary policy, international financial market dynamics, and domestic economic conditions. The implications of these findings are vital for stakeholders, including policymakers, lenders, investors, and borrowers, as they navigate the complexities of the financial sector in North Macedonia.

**Key words:** borrowing costs, lending, interest rates

### INTRODUCTION

This research paper seeks to investigate the underlying factors and causes that contribute to the increase in lending and the decline in interest rates in the Republic of North Macedonia from year 2006 to year 2019.

It provides a thorough introduction to the subject matter and outlines the purpose and significance of the research. The introduction serves to contextualize the topic, highlighting the importance of understanding the factors that contribute to these trends in the Macedonian financial system.

It also seeks the theoretical background of the banking system in North Macedonia, providing an overview of the financial history of the country and it aims to provide the understanding of the macroeconomic environment within which the Macedonian financial system operates.

This paper will present the empirical study, which is the core of the research. The empirical study consists of two parts, each analyzing the relationship between specific factors and the trends in lending and interest rates. This study aims to provide a quantitative analysis of the factors contributing to the trends in lending and interest rates.

The final section of the paper presents the conclusions that emerge from the research. This section summarizes the key findings of the empirical study and offers insights into the factors that contribute to the trends in lending and interest rates in North Macedonia.

### RESEARCH SUBJECT AND METHOD

Banks and other financial institutions play a significant role in the economy of a country. In the past, loans and banking processes were considered taboo topics for some people, but nowadays they have become more familiar and widely used by individuals and companies.

This has led to an increase in the number of loans and borrowers. In this research, I am going to focus on explaining why interest rates are decreasing despite the increasing demand for loans in the Macedonian market. Through the use of data from financial institutions, the study aims to identify the main factors that determine the cost of borrowing and the level of loans, taking into consideration the role of the National Bank and financial market regulations.

In different research papers, different methods are used on the basis of which movements are analyzed of a phenomenon.

In this paper, we will do our analysis using linear regression, we will try to find the relationship between the rates of interest, loan level and macroeconomic and financial factors.

During the study, the data used will be from the database of the National Bank of the Republic of North Macedonia, from the state statistical agency of the Ministry of Finance of the Republic of North Macedonia, Ministry of Economy, data published by banks and institutions other financial.

securities, but also investments in projects that bring benefits both to the organization and to society, which we will discuss later in the paper.

## FINANCIAL MARKETS AND THE ROLE OF FINANCIAL INSTITUTIONS IN THE ECONOMY OF A COUNTRY

Interest rates greatly impact a country's economy. While ideal economic analyses assume constant external factors, the real-world impact of externalities is significant. To understand interest rates, we need to address borrowing costs. At the heart of any economy are markets, with financial markets, instruments, and intermediaries being pivotal.

In North Macedonia, the banking sector, a prime segment of the financial system, is paramount for system stability. It offers vast financial services to individuals, businesses, and the government. Financial intermediaries, including banks, investment banks, insurance companies, and pension funds, are essential. They bridge savers and borrowers, offer diversified investment options to mitigate risks, and ensure liquidity in the financial system by trading financial instruments.

Why are financial intermediaries crucial? Consider transaction costs, risk sharing, and information costs in financial markets. Transaction costs encompass various expenses arising during borrowing. Banks, handling numerous customers, enjoy economies of scale and have more extensive information on market entities than individuals. This reduces risks associated with asymmetric information, adverse selection, or moral hazard. They also regulate loan usage to minimize risks.

Financial institutions range from depository institutions like banks and credit unions to contractual ones like insurance companies and pension funds, and investment funds dealing in securities. Less developed countries often have bank-dominated financial systems. While banks or borrowers might sometimes bypass the intermediary system for benefits or sell problematic loans, in North Macedonia, the latter primarily pertains to delinquent loans.

## INTEREST RATES AND ITS DETERMINANTS

In the financial market, interest rates play an essential role in determining the cost of borrowing money and investing.

There are various theories regarding the determination and dependence of interest rates, such as the classical theory, the liquidity preferences theory, the foreign funds theory, and the rational expectations theory. According to the classical theory, the market interest rate is at the point where savings and investments are equalized. The liquidity preferences theory, founded by John Maynard Keynes, states that the interest rate is the price paid for the means (money) used by the subjects who have a lack of liquidity. The foreign funds theory determines the interest rate based on the demand and supply for money, while the rational expectations theory is based on the expectations of investors and savers.

Apart from these theories, other factors also affect interest rates, such as inflation, the risk of non-payment within a fixed term, competition, taxes, liquidity, maturity, prices, and other financial instruments, the monetary policy of a country, and more. There is a correlation between the interest rate and inflation, explained through Fisher's theory. It states that the nominal interest rate depends directly on expected inflation, while the real interest rate is the interest rate corrected for the inflation rate. Banks also set interest rates based on the risk of not paying the debt, and competition in the market. Additionally, a country's monetary policy is a key factor in determining interest rates to achieve economic stability.

## THE NATIONAL BANK OF THE REPUBLIC OF NORTH MACEDONIA AND ITS IMPACT IN LENDING AND INTEREST RATES

The National Bank of North Macedonia is tasked with maintaining price stability and overseeing the financial system. Its key roles include setting monetary and exchange rate policies, managing foreign reserves, issuing currency, and supervising banks. To ensure price stability, the Bank controls interest rates and manages liquid assets. It holds auctions to set benchmark interest rates by issuing securities. Banks are required to keep mandatory reserves with the National Bank, the rate of which varies based on obligations. Treasury bond auctions come in two forms: active, with fluctuating interest rates, and passive, with a fixed rate. The outcomes of these auctions influence commercial banks' interest rates.

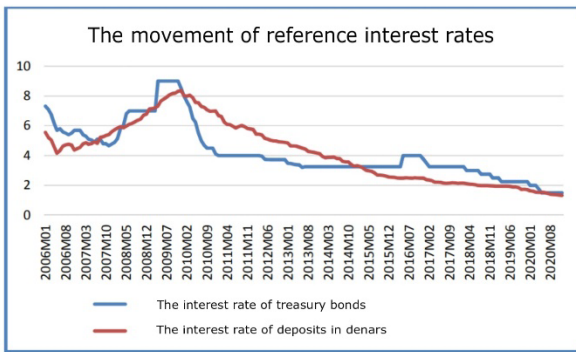


Figure 1. Interest rates on deposits and treasury bonds

From the graph above, in figure 1. we can see how the reference interest rates have moved for the period 2006-2020. It is clearly seen that for this period the highest rates were in the period during the 2008-2009 global financial crisis. After the crisis, the interest rate has a downward trend and at the end of 2020 it reaches the value of 1.33%.

## LOANS AND INTEREST RATES IN THE REPUBLIC OF NORTH MACEDONIA

In 2005, the average interest rates for loans and deposits were as follows: 12.1% for denar loans, 7.7% for foreign currency loans, 5.2% for denar deposits, and 1.2% for foreign currency deposits. The difference between deposit and loan interest rates decreased compared to previous years, indicating increased efficiency and competition among banks. Despite a decrease in treasury bond interest rates, active loan rates remained stable. The decrease in interest margin was due to an increase in deposit interest rates as banks aimed to attract more depositors.

Long-term loans accounted for 54.8% of total loans, while short-term loans accounted for 28%. Non-performing and overdue loans made up 17.2% of the total. The increase in loans borrowed in foreign currency was attributed to their lower interest rates compared to denar loans. Most of these loans (61.4%) were used for payments abroad.

In 2006, banks offered more relaxed loan terms and lower interest rates for individuals. There was also an increase in credit card usage. The reduction in interest rates for individual loans was a response to the decrease in treasury bond interest rates. The average interest rates for loans and deposits in 2006 were: 11.3% for denar loans, 8.1% for foreign currency loans, 4.7% for denar deposits, and 1.5% for foreign currency deposits. Foreign currency loans and denar loans indexed to foreign currency continued to increase.

In 2007, with reduced loan interest rates and increased deposit rates, the interest margin decreased. The interest rates were: 10.2% for denar loans, 8.4% for foreign currency loans,

4.9% for denar deposits, and 1.9% for foreign currency deposits. Short-term loans increased significantly, driven by credit cards and overdrafts for individuals. Short-term loans for businesses increased by 34.7%, and for individuals by 98.5%.

In the following years, banks focused on improving the quality of their loan portfolios. Interest rates decreased for loans and deposits, stimulating lending to individuals. Lending continued to grow, particularly to the corporate sector. In 2019, interest rates reached 5.37% for denar loans, 4.45% for foreign currency loans, 1.71% for denar deposits, and 0.75% for foreign currency deposits.

Overall, interest rates showed a downward trend from 2005 to 2019, except during the financial crisis in 2008/2009. Denar interest rates were generally higher than foreign currency rates. The interest rate for denar loans decreased by 56.76% (from 12.42% to 5.37%), and for foreign currency loans by 52.2% (from 9.31% to 4.45%). The interest rate for denar deposits decreased by 67.43% (from 5.25% to 1.71%) and for foreign currency deposits by 0.75%.

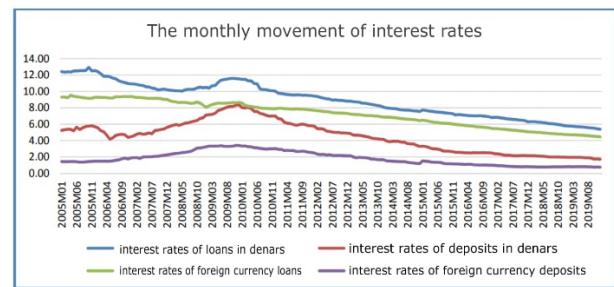


Figure 2. Interest rates of deposits and loans

In the chart below, which was compiled based on data from the National Bank of NM within the framework of loans to corporations, the predominance of large banks is clearly observed, which currently includes 5 banks.

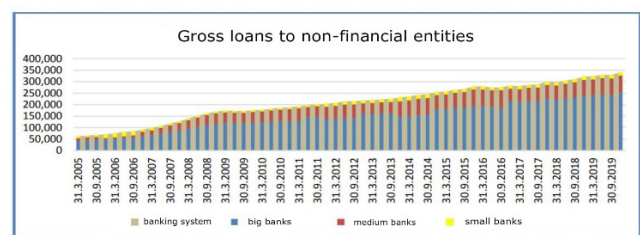


Figure 3. The structure of the level of loans to non-financial subjects according to the division of banks

One of the moments that we must take into account is the concentration of some banks in lending.

The next issue is the increase in the participation of loans borrowed by individuals in the total number of credits. According to data from the Central Bank, during the period

of 15 years (2005 - 2019) the participation of loans of natural persons in the total loans at the end of in the first quarter of 2005 it was 14%, while at the end of 2019 it increased to 33%. Participation of loans to non-financial institutions on the other hand for the same period has decreased from 44% to 38%. In terms of loans to natural persons, the largest increase is observed in loans consuming.

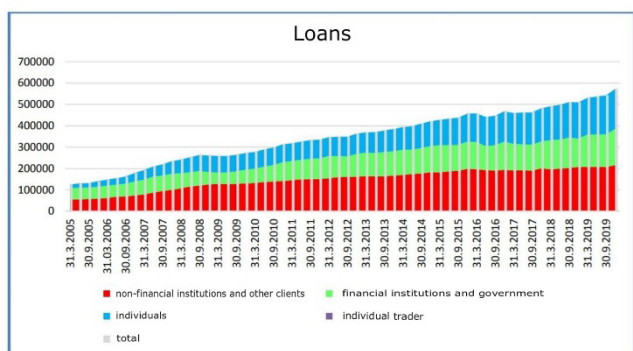


Figure 4. The structure of the level of loans based on the sector, in million denars

The more the interest rate has been reduced, the more loans have been approved, either for natural or legal persons.

## EMPIRICAL ANALYSIS

We will use the method of linear regression, to analyze the relationship between variables. The method has been used for a long time, with its earliest form dating back to ancient Greece. It was further developed by mathematicians such as Legendre and Gauss. The simplicity of implementation makes it widely applied, but it also has certain assumptions that need to be considered, including linearity, homoscedasticity, autocorrelation, normality, and multicollinearity. Linear regression is sensitive to extreme values, which can distort the results and interpretation of the model. The model used in the paper has 56 observations, which is considered relatively low, and it is recommended to have a higher amount, usually between 100-120 intervals.

The general form of the linear regression mathematical equation looks like this:

$$y = b_0 + b_1 x_1 + b_2 x_2 + \dots + b_i x_i + e_i$$

The equation above shows the relationship between the dependent variable (Y) and the independent variables ( $X_1, X_2, \dots, X_i$ ), while  $b_0$  is the intercept coefficient,  $b_1, b_2, \dots, b_i$  are the coefficients of steepness where  $e_i$  is the error term.

## DATA SELECTION

The data used in the analysis were obtained from the database of the National Bank of RM. The analyzed period starts from

the first quarter of from 2006 to the last quarter of 2019. The program of used to perform the regression is STATA.

## Variable specification and the econometric model of the interest rate

Entities influencing interest rates include the National Bank, Commercial Banks, and individuals/businesses.

- The National Bank ensures economic stability by controlling interest rates and liquid assets via securities issuance, mandatory reserves, deposits, and overnight loans.
- Commercial banks set interest rates considering factors like deposit costs, interbank loans, planned profits, various risks (interest rate, exchange rate, liquidity), competition, and administrative expenses.
- Legal entities and individuals influence loan interest rates through their financial credentials, credit history, collateral, and income.

Determinants of interest rate can be categorized into macroeconomic factors (like inflation and the reference interest rate) and banking factors (such as problematic loans, liquidity, and bank profitability measured via ROAE). The simplified econometric model for this is:

$$y = b_0 + b_1 x_1 + b_2 x_2 + \dots + b_i x_i + e_i$$

## STUDY HYPOTHESIS

### 1) The first hypothesis

$H_0$ : The change in the inflation rate has no effect on the interest rate.

$H_a$ : The change in the inflation rate has an effect on the interest rate.

Based on theories so far ranging from the Fisher Effect to today, the connection between inflation and the interest rate is expected to be fair, so with the increase in inflation is expected to increase the interest rate. The graph below, is compiled based on data on inflation and the interest rate of loans for the period 2006-2019. As we can see the rate of inflation for certain moments of time there is a drastic increase or decrease despite interest rate which has smaller oscillations. Despite the non-synchronized oscillations of these two variables, it is expected that the relationship between them will be right.

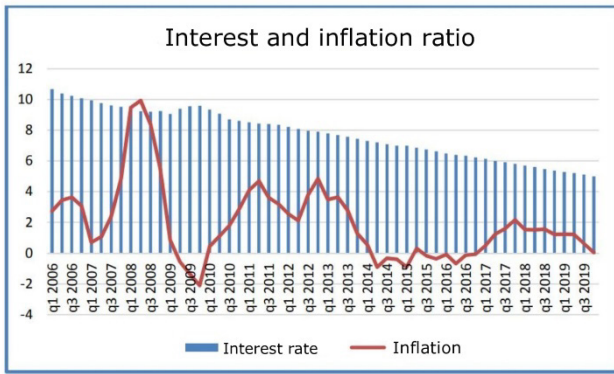


Figure 5. Interest rates on loans and the level of inflation in North Macedonia 2006-2019

## 2) Second hypothesis

$H_0$ : The reference interest rate has no effect on the interest rate.

$H_a$ : The reference interest rate has an effect on the interest rate.

The Central Bank, as we have mentioned briefly, has a decision-making position when it is about maintaining price stability and economic harmony in the country. It indirectly or directly affects the movement of interest rates or broken loans. In order to see how important is the position of the Central Bank in decision-making of commercial banks, the reference interest rate is taken as a variable independent. Theoretically, it is expected that the relationship between the reference rate and the interest rate is fair.

## Testing the Assumptions of Linear Regression

### Linearity testing

The linearity test examines the assumption of a linear relationship between the independent variables and the dependent variable. Its purpose is to determine if there is an incorrect specification of the functional form. It is essential to accurately define the functional form as linear, quadratic, cubic, or otherwise, as an inaccurate specification can lead to incorrect regression coefficients. To avoid this error, it is recommended to employ various methods to detect linear relationships between the independent and dependent variables, one of which includes creating diagrams.

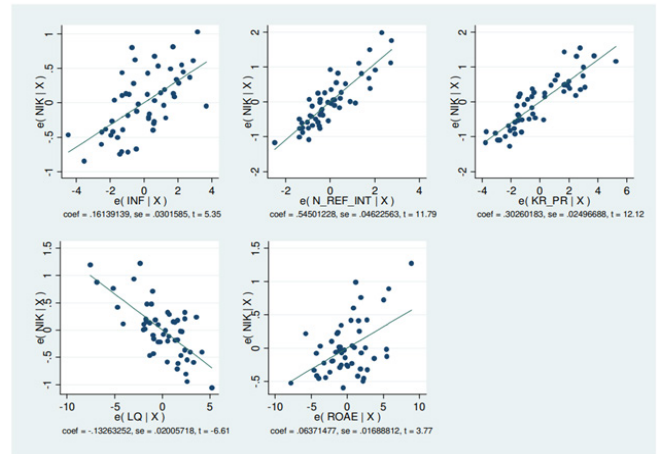


Figure 6. Linear dependence between the interest rate and the independent variables

## Normality testing

Normality testing checks if a data set follows a normal distribution. In linear regression, it's assumed that residuals (differences between observed and predicted values) are normally distributed.

Two common methods for testing normality are Kernel Density and the Shapiro-Wilk test:

- **\*Kernel Density\***: A graphical method that shows the distribution of error terms. A curve resembling a normal distribution indicates the data likely follows a normal pattern.
- **\*Shapiro-Wilk test\***: A statistical method that produces a W-statistic, ranging from 0 (not normal) to 1 (normal). The test also provides a p-value; a value below a set significance level (e.g., 0.05) suggests the data isn't normally distributed.

In short, normality in linear regression is checked visually through Kernel Density and numerically via the Shapiro-Wilk test.

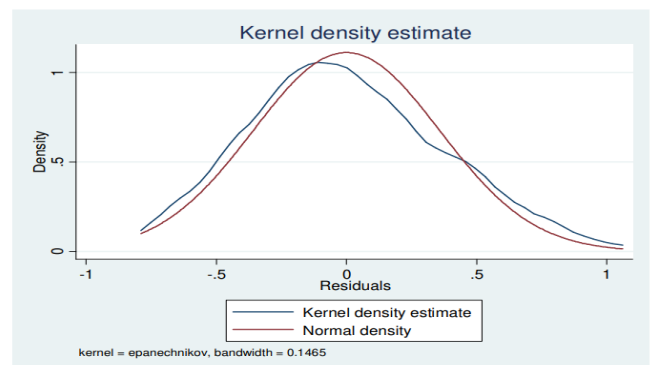


Figure 7. Normal distribution of the error term

The second method, the Shapiro-Wilk W test, also verifies that the error term (expressed as  $e$ ) has a distribution

approximating the normal distribution. The test hypotheses are:

H<sub>0</sub>- the distribution is normal

H<sub>a</sub>- the distribution is not normal

W-test with a value of 0.98 and p-value of 0.536 with a significance level of 5% the null hypothesis is accepted.

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
e	52	0.980	0.958	-0.091	0.536

### First hypothesis

Based on the results of the analysis, the first hypothesis regarding the relationship between the interest rate and inflation is examined. The obtained t-value of 5.35 and a probability value of 0.000 lead us to reject the null hypothesis and accept the alternative hypothesis, indicating a significant dependence between these two variables. The findings suggest that a 1% increase in the inflation rate corresponds to a 0.16% increase in interest rates. This conclusion aligns with the conclusions of a lot of other authors, who also observed a positive relationship between the interest rate and inflation.

### Second hypothesis

Through the second hypothesis, we investigate the relationship between the interest rate and the reference rate. Specifically, we focus on the interest rate for deposits in domestic currency without a currency clause. Based on the regression results, we find that, among other variables, the interest rate is more responsive to changes in the reference rate. Specifically, a 1% increase in the reference rate leads to a 0.55% increase in the interest rate. With a t-statistic of 11.79 and a probability of 0.000, we reject the null hypothesis and accept the alternative hypothesis, confirming the validity of this assumed relationship.

It is important to note that the relationship between the monetary rate and the interest rate is reasonably established. However, the elasticity of loan interest rates varies across different banks analyzed. In our study, the interest rate represents the overall interest rate for loans, however, the obtained reference rate, treated as an independent variable, is utilized specifically in calculating interest on loans in domestic currency.

## CONCLUSION

Based on the analysis conducted on the financial system in North Macedonia, several key findings and conclusions can be drawn.

**Slower economic growth:** North Macedonia, as a country undergoing a transition process, has experienced slower economic growth compared to the period before the 2008/2009 financial crises. This indicates that the country is still dealing with the aftermath of the global financial downturn.

**Fixed exchange rate regime:** North Macedonia operates under a fixed exchange rate regime, which means that all economic decisions must align with this policy. This restricts the flexibility of monetary policy and necessitates careful management to maintain stability.

**Positive economic achievements:** Despite the challenges, our country has witnessed positive economic achievements, including an increasing trend in exports and a decline in unemployment rates. However, it is worth noting that consumption remains the main component of the country's gross domestic product (GDP).

**Inefficient and politicized institutions:** North Macedonia's economy is characterized by inefficient and politicized state institutions. This suggests that there is a need for structural reforms to improve governance and enhance the effectiveness of economic policies.

**Large informal sector:** The country continues to face a significant informal sector, indicating a lack of formalization and regulation. Addressing this issue is crucial for improving transparency and promoting sustainable economic growth.

**Low level of financial intermediation:** North Macedonia has a low level of financial intermediation compared to other countries in South-Eastern and Central Europe. This suggests that the financial system is not effectively channeling funds from savers to borrowers, which can hinder economic development.

**Dominance of foreign-owned banks:** The banking system in Macedonia is dominant and largely comprised of banks with foreign ownership. This highlights the influence of external factors on the country's financial system.

**Role of the Central Bank:** The analysis confirms the significance of the Central Bank of the Republic of Macedonia in maintaining economic stability. The Central Bank employs various instruments at its disposal, such as adjusting deposit interest rates, increasing mandatory reserves, or implementing lending policies, to regulate economic stability and exchange rate stability.

In conclusion, the relationship between the increase in lending and the decrease in interest rates in North Macedonia therefore it is crucial to have efforts to address inefficient institutions, the informal sector, and promote financial intermediation for fostering a more robust and balanced financial system.



## REFERENCES

1. Darlington, Richard B., Hayes, Andrew F., 2017, Regression analysis and linear models, concepts, applications and implementation, New York, The Guilford Press.
2. Mishkin, Frederic S. (2007), The Economics of money, banking and financial markets, Don Mills, Ont.
3. Georgievska, Ljupka, Rilind Kabashi, Nora Manova Trajkovska, Ana Mitreska, Mihajlo Vaskov (2010), Determinants of lending rates and interest rate spreads in Macedonia, National Bank of the Republic of Macedonia.
4. Report on the risks in the banking system of the Republic of North Macedonia, NBRM.

## **"The Impact of the COVID-19 and Energy Crisis on the Top Five Companies Listed on the Macedonian Stock Exchange" during the Period 2018-2022**

*Shpresa Alija, / South East European University, North Macedonia,*

*Haxhere Dervishi, / South East European University, North Macedonia,*

*Harun Mustafa, / South East European University, North Macedonia,*

[s.alija@seeu.edu.mk](mailto:s.alija@seeu.edu.mk)

**Abstract** - This research paper highlights the pivotal role of investments and effective financial management in establishing and sustaining prosperous companies. The paper extensively examines the Macedonian securities market and the current state of the regional stock exchange. Through meticulous research, we make a notable observation: companies committed to substantial investments tend to attain favorable financial outcomes, particularly profits. Notably, these proactive companies attain prominent positions on the Macedonian Stock Exchange, excelling in traded share volume and earnings per share.

The research underscores the indispensable significance of strategic investments and adept financial strategies in propelling business success, particularly within the Macedonian securities market. Furthermore, this study delves into the intricate impact of the Covid-19 pandemic and energy crisis on the financial performance of companies comprising the MBI10 index in North Macedonia. By closely examining the effects of the pandemic on profitability dynamics, the study uncovers a nuanced situation, indicating a partially negative impact on profitability.

This research advances a deeper comprehension of the intricate interplay between global crises, exemplified by the Covid-19 pandemic, and the financial well-being of the top five businesses within the North Macedonian context. The insights illuminate the multifaceted challenges faced by these companies in sustaining profitability amidst unprecedented external shocks. By addressing the dual dimensions of financial strategies and crisis resilience, this research offers valuable insights for businesses navigating both prosperous and challenging times within the context of the Macedonian market.

*Key words: securities, investments, projects, financial results, profitability, MSE*

### **INTRODUCTION**

*"The key to making money in stocks is not to get scared out of them." – Peter Lynch*

To survive and compete successfully in the environment, companies must constantly find ways of financing, to realize their obligations and to fulfill their goals. The same can take possession of financial assets in the money market - short-term, while in order to be financed in the long term, they must access the capital market - the market of securities and financial products. The securities

market consists of the primary market – initial issuance of shares, bonds and other securities and the secondary market – trading with these instruments. Issuers of securities collect funds to finance work in the primary market, while in the secondary market the already issued securities are traded.

As a consequence of the Covid-19 pandemic, the index and the degree of market capitalization suffered significant fluctuations and as a result became the subject of many research projects and works. Thus, in accordance with what was said, the

paper will approach the development of the MBI10 Index and market capitalism in the Republic of North Macedonia.

The key indicator for the company's success is the financial results in the financial reports, mostly issued at the end of the year (may be requested more often). Financial results show the amount of profit or loss that the company has realized in a certain period of time. The company's performances must be analyzed and implemented, because they are intended to give the shareholders a general review, namely a measure of the complete "financial health" of the company. Financial results are key when comparing the success of a similar company in the industry or demonstrating the growth of a sector. Although not all companies must publish their financial results publicly, listed companies are required to publish their earnings regularly.

## THE RESEARCH HYPOTHESIS

Question 1: Can the stock market maintain resilience in the face of financial crises?

H\_1: The companies with the highest stock quotations in the NMK securities market are those that consistently make successful investments.

H\_2: The top-performing companies in the NMK securities market consistently achieve positive financial results even during periods of financial crises.

H\_3: The profitability performance of companies comprising the MB10 index in North Macedonia has been partially affected by the Covid-19 pandemic.

## SUBJECT AND METHODOLOGY

The research subject centers on the examination of the success and stock market performance of select Macedonian companies, with a specific focus on their investments and financial results during the years 2018 to 2022. The study prioritizes the trading status of common shares of the five most quoted companies listed on the Macedonian Stock Exchange, with an in-depth analysis of their investments and financial reports.

To fulfill these objectives, the research methodology relies on quantitative methods and

analyzes secondary data for five companies spanning the aforementioned time period, including the pandemic year of 2020. These companies represent a cross-section of sectors within the Macedonian market. The research sources its data primarily from the official website of the North Macedonian Stock Exchange, annual reports, and daily data regarding index changes. The chosen methodology employs systematic and critical analysis throughout the study's three main segments: the analysis of the Macedonian securities market, the assessment of investments by the five most quoted companies, and the evaluation of their financial positions. Ultimately, the study synthesizes its findings and cites relevant literature to provide comprehensive insights into the subject matter.

## SECURITIES MARKET IN NMK

The Macedonian Stock Exchange JSC Skopje is a financial intermediary institution that deals with the organization, implementation and regulation of securities trade. It is the first and only institution of this type in the history of Macedonia, founded in 1995 and based on the Securities Law.

Its mission is to ensure efficient, transparent and safe functioning of the organized secondary market of securities in the Republic of Macedonia, through continuous efforts to create a basis for entry and exit to the market of all financial instruments for all investors. at a fair market price, in order to facilitate building confidence in the NMK securities market.

The stock exchange represents a place or institution within which the organized trading of securities takes place. Trading on the stock exchange is done through the mediation of authorized participants in this market, brokers, who trade on behalf of their clients. The definition "investments" means all long-term investments, regardless of whether they are made with fixed or financial means, which are motivated to create returns in the long term.

Investments can be directed towards:

- buying or selling shares or bonds,

- purchase of equipment or real estate,
- improvement of the organization, education of staff, purchase of foreign money, etc.

In addition to all the above-mentioned types of investment, the most important are investments in securities, but also investments in projects that bring benefits both to the organization and to society, which we will discuss later in the paper.

### **A BRIEF HISTORICAL OVERVIEW OF THE MBI10 MOVEMENT**

The capital market is represented by the Macedonian Stock Exchange. The modern history of the Macedonian capital market is associated with structural changes in the 1990s, passing the country's transition to a free market economy. The Macedonian Stock Exchange Index (MBI10) is an aggregate indicator of the price movement of shares listed on the Macedonian Stock Exchange JSC Skopje and is a weighted stock index consisting of the ten most traded shares of companies listed on the official market. The index was introduced in early 2005 with an initial value of 1000 index points.

Figure 1 shows the movement of the MBI10 index value from its formation and initial position of 1000 index points on 04.01.2005 to 20.9.2022. It also shows that on August 31, 2007, the MBI10 stock market index increased its value by 10 times and in just one year and 8 months reached the peak of 10057.77 index points. Then follows a period of decline and stagnation, with no significant growth, decline, and greater volatility until 2017, when the MBI10 gradually moved upward, resulting in a new high of 6,364 index points on 9/02/ 2022. The increase of the stock market index that started after 2017, after the change of government and after the increase of expectations with the entry of the country into the NATO alliance, increased the confidence of investors and expectations for the purchase of shares in the Macedonian stock market. At the same time, unexpected events that shocked the whole world caused new turbulences, which were the Covid-19 pandemic and the Ukrainian war.

Figure 1. Movement of the MBI10 index, period 2005-2022



### **THE IMPACT OF THE ENERGY CRISIS AND COVID-19 ON THE ECONOMY OF THE NMK**

During the start of the Covid-19 pandemic, countries around the world took a series of radical steps in an attempt to prevent, or at least slow, the spread of the virus – health protocols, movement and work bans, curfews and quarantines. Such government measures caused massive disruptions to economic flows. Almost half of the world's population was told to stay at home. Factories were closed, while various businesses suddenly stopped working. In particular, the hotel industry and tourism, the aviation industry, culture and sport, trade and retail were hit, while in some countries the corona crisis also defeated the health systems. Globally, hundreds of millions of people lost their jobs, while at least 100 million people fell into extreme poverty.

In 2020, the world economy slowed compared to the previous year and recorded negative growth of 3.5%, representing the first decline in global gross domestic product since the financial crisis in 2008. The pandemic caused by the coronavirus in half of first of the year in almost all developed and developing countries completely stopped the operation of many economic branches. The easing of measures and the emergence of a vaccine against the COVID-19 virus managed to slow down the decline of the world economy in the last quarter of 2020. The global pandemic caused by the COVID-19 virus pushed to the background the

uncertainties related to the exit of Great Britain from the European Union and the consequences of the informal trade war between China and the United States. As in other countries of the region, the corona virus crisis strongly affected the economy of Macedonia. According to the People's Bank, the GDP of the Republic of North Macedonia for 2020 marks a decrease of about 5%, while the recovery of the economy is expected to last until 2022.

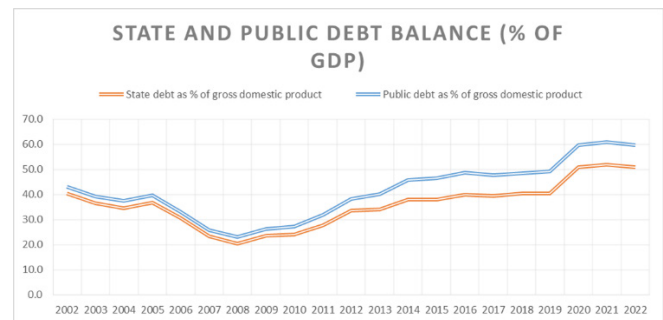
The most affected industries are hospitality, tourism, transport, construction and auto parts manufacturing industries. Remittances from abroad decreased by 40 percent, while foreign direct investments also suffered a significant decrease. In order to alleviate the consequences of the crisis caused by Kovid-19, the Government of NMK in the period from 19.03.2020 to 20.04.2021 has approved six packages of economic measures, with which business entities from the public sector and private and citizens, divided into three groups:

- measures that cause the reduction of budget revenues;
- measures that have an economic impact, while they have no fiscal implications for the NMK Budget and
- the measures that cause expenses, i.e. have a direct fiscal implication in the NMK Budget, in a total value of 35,409,940 thousand denars, i.e. about 576 million euros, from which until 29.10.2021 funds in a total value of 24,948 .428 thousand denars, i.e. about 427 million euros.

The Fiscal Strategy of the NMK 2023-2027 compared to the Revised Fiscal Strategy of the NMK 2022-2026 shows certain deviations in terms of macroeconomic forecasts, which reflect the impact of the Russian-Ukrainian conflict, the energy crisis and inflationary pressures in the global economy and internal. The state debt of the Republic of North Macedonia on 31.03.2021 is worth 6,207.8 million euros, i.e. 54.1% of GDP. In the framework of the state debt, the dominant share is the debt of the central government with a value

of 6,191.1 million euros, while the debt of the municipalities is worth 16.6 million euros. The total public debt includes the state debt and the debt of public enterprises and commercial companies in dominant or full ownership of the state (guaranteed and non-guaranteed debt) on 31.03.2020 is worth 7,173.6 million euros, which represents 62.5 % of GDP.

Figure 2. State and public debt as % of GDP



Source: Ministry of Finance - state functions

Globally also here in 2020 as a result of the COVID-19 pandemic, the economy was in recession and a negative growth rate of 4.5% of GDP was achieved. To support the economy during a pandemic, budget expenditures have increased and as a result, the budget deficit for 2020 is 8.11% of GDP and the public debt in 2020 compared to 2019 has increased by 10.8% of GDP.

Analyzing the trend of the movement of public debt in relation to GDP in the period 2007-2022, as shown below, we found that the public debt was continuously increasing in the period 2008-2016. In 2016, the level of public debt was stabilized until 2019, before the beginning of the health-economic crisis, the Russian evasion in Ukraine, the energy crisis and high inflation rates accompanied by many other effects on the economy of the Republic of North Macedonia.

### *The effects of financial crises on the financial market of NMK*

In 2020, the Macedonian Stock Exchange (MSE) was influenced by several key international and domestic factors, which shaped the business environment and had significant impacts on securities trading and the operations of the exchange:

- 1. The COVID-19 Pandemic:** The global pandemic caused by the COVID-19 virus had a profound impact on economies and financial markets worldwide. Initially, there was a significant shock in March, with stock markets globally experiencing heavy losses. This was largely due to fears related to the pandemic and the lockdown measures implemented by many countries to contain the virus. However, as the year progressed, governments and central banks intervened with massive fiscal and monetary measures to stabilize economies. Despite the initial turmoil, stock markets rebounded, and 2020 ended with many major stock indices, especially in the United States, reaching high levels. This was driven by the expectation that humanity would adapt to living with the virus, and the long bull market continued. High-tech, pharmaceutical, biotechnology, and renewable energy companies performed particularly well. Additionally, 2020 saw a resurgence in initial public offerings (IPOs) globally.
- 2. Monetary Policy by the National Bank:** In response to the economic challenges posed by the pandemic, the National Bank of Macedonia adopted a loose monetary policy in 2020. This policy included reducing the interest rate on treasury bonds to stimulate economic activity. By the end of the year, the interest rate on treasury bonds had dropped to 1.5%, down from

2.25% in December 2019, representing a 0.75% decrease. The weighted annual interest rate for loans also decreased, reaching 4.63% by the end of 2020, with newly approved loans having a weighted annual interest rate of 3.78%. Additionally, the interest rate on total deposits stood at 0.95%, while new savings received an interest rate of 0.68%. These lower interest rates aimed to encourage borrowing and investment, which had a positive impact on the stock market as investors sought higher returns in equities.

- 3. Declining Yields on Government Bonds:** Throughout 2020, there was a continuous decline in the yields of the most reliable financial instruments, such as one-year government bonds. The interest rate on these bonds dropped from 0.6% in December 2019 to 0.40% in the last auction of December 2020. This trend of declining interest rates incentivized investors to seek alternative investment opportunities, including the stock market. As bond yields decreased, investors turned to equities in search of potentially higher returns, contributing to the positive movements in the stock market.

In summary, the Macedonian Stock Exchange in 2020 operated in an environment shaped by the global COVID-19 pandemic, loose monetary policy by the National Bank, and declining yields on government bonds. These factors collectively influenced investor behavior, stock market performance, and investment strategies, with the stock market benefiting from lower interest rates and increased investor interest in equities as a result of these developments.

### *The main features of trading in 2020*

- The total turnover (according to all bases) in 2020 was 8,195,475,839 denars (about 132.88 million euros) and marked an increase of 6.43% compared to 2019;
- The turnover realized by classic trade in 2020 was 5,987,273,498 denars (about 97.08 million euros), which is 42.17% more compared to 2019;
- The turnover achieved with shares in 2020 was 5,681,114,611 denars (about 92.12 million euros), which is 48.75% higher compared to 2019;
- In 2020, there was a circulation of 284,241,135 denars (about 4.60 million euros) in bonds, which is a decrease of 20.79% compared to 2019;
- In 2020, public offers of securities were carried out in the Stock Exchange with a total value of 166,283,545 denars (about 2.69 million euros), which is 83.24% less compared to 2019;
- At the end of 2020, the shares of 100 companies were listed on the Official Market, of which 27 companies in the Super Listing and Stock Exchange Listing sub-segment and 73 companies in the Compulsory Listing sub-segment;
- The market capitalization of the listed shares on 30.12.2020 reached 179 billion denars (about 2.91 billion euros, which is 26.89% of GDP) and marked a decrease of 1.25% compared to 2019, while the capitalization of the bond market reaches 13.36 billion denars (217.3 million euros) and shows an increase of 252.82% compared to 2019;

In summary, 2020 can be considered a successful year with over 132 million euros in total turnover, an increase in the MBI10 index by 1.20%, as well as a 42.17% increase in turnover with classic trading. In these frames, the turnover of shares in the BEST system reaches 92 million euros, which represents the best such turnover in the last decade.

### THE FIVE MOST QUOTED COMPANIES ON THE STOCK EXCHANGE OF THE NMK

According to the data of the Macedonian Stock Exchange, the five most quoted companies that circulate in the securities market during the trading of ordinary shares are:

1. Komercijalna Bank SHA Skopje - market segment: Super quotation - ordinary shares and 2,279,067 issued shares;
2. Alkaloid JSC Skopje - market segment: Quotation on the stock exchange - ordinary shares and 1,431,353 issued shares;
3. Makpetrol SHA Skopje - market segment: Quotation on the stock exchange - ordinary shares and 112,382 issued shares;
4. NLB Bank SHA Skopje - market segment: Compulsory quotation - ordinary shares and 854,061 issued shares and
5. Granit JSC Skopje - market segment: Quotation on the stock exchange - ordinary shares and 3,071,377 issued shares.

To compare the quotation of these companies, first, we will present some basic data, we will calculate some indicators and then we will analyze the situation of the same in the year 2020/21. For the analysis of the stock market quotation of these companies, we will use the following indicators:

- Profit/Operating Revenue from Sales (ROS) – the so-called return on sales, which is a metric for the company's ability to generate profit from sales;
- Return on total assets (ROA) – represents the rate of return on assets;
- Return on equity (ROE) – capital return rate;
- Net profit per share (EPS) – calculated when the company's profit will be divided by the total number of ordinary shares, while the resulting number serves as an indicator of the company's profitability;
- Dividend per share – calculated when the sale price is divided by the accounting value of the share and
- Dividend yield (%) – is obtained when the dividend per share is divided by the price per share.

## DATABASE ON THE BEST QUOTED COMPANIES ON THE NORTH MACEDONIA STOCK EXCHANGE

Two years before the whole world was seized by a so-called Covid-19 pandemic, the world market and the national market had a very stable financial stability, we say this based on the data that I have generated from the research done in relation to the financial market at NMK, where the top 5 best listed companies on the Macedonian stock exchange consistently showed excellent financial results.

### ✓ BASIC DATA FOR THE BEST FIVE COMPANIES QUOTED ON THE MACEDONIAN STOCK EXCHANGE (2018)

Table 0-1: Basic data – 2018 (in 000 MKD);

CATEGORY	ALK	MPT	GRNT	NLB	KM
Total Revenue from operation Activities	10,087,049	21,866,512	4,985,626	5,058,839	4,228,7
Operating profit	982,749	850,908	34,701	2,365,947	2,022,1
Net profit	862,411	773,191	75,234	2,129,223	1,780,2
Equity	8,969,966	4,358,335	5,124,057	12,304,568	12,473,8
Total liabilities	2,626,985	3,772,322	2,758,372	70,863,102	101,988,2
Total assets	11,596,951	8,130,657	3,663,487	83,172,670	114,393,7

*Source: The data are taken from the financial reports of the respective companies and the Macedonian Stock Exchange JSC Skopje and are processed by the author.*

### ✓ BASIC DATA FOR THE BEST FIVE COMPANIES QUOTED ON THE MACEDONIAN STOCK EXCHANGE (2019)

Table 0-2: Basic data – 2019 (in 000 MKD);

CATEGORY	ALK	MPT	GRANIT	NLB	KMB
Total Revenue from operation Activities	11,347,834	22,619,866	5,563,022	5,362,880	4,302,357
Operating profit	1,215,948	968,184	286,819	2,221,279	2,010,813
Net profit	1,010,779	875,778	304,035	2,023,627	1,806,755
Equity	10,282,081	5,000,278	5,527,140	12,876,942	13,323,006
Total liabilities	3,772,076	3,489,802	1,978,301	76,933,948	109,775,411
Total assets	14,054,157	8,490,080	3,774,573	89,810,980	123,031,531

**Error! Reference source not found.** *Source: The data are taken from the financial reports of the respective companies and the Macedonian Stock Exchange JSC Skopje and are processed by the author.*

### ✓ BASIC DATA FOR THE BEST FIVE COMPANIES QUOTED ON THE MACEDONIAN STOCK EXCHANGE (2020)

Table 0-3: Basic data – 2020 (in 000 MKD);

CATEGORY	ALK	MPT	GRNT	NLB	KMB
Total Revenue from operation Activities	12,132,328	16,720,163	4,093,391	5,066,681	4,219,676
Operating profit	1,346,255	341,620	-3,819	1,281,787	2,099,322
Net profit	1,167,524	348,709	56,927	1,704,271	1,939,134
Equity	10,908,136	5,033,775	5,546,389	13,412,845	13,997,127
Total liabilities	4,106,398	3,173,984	1,615,818	83,132,368	118,603,450
Total assets	15,014,534	8,207,759	7,162,207	96,545,213	132,600,577
Market capitalization	18,903,850	8,274,273	3,436,717	15,723,263	16,636,391

*Source: The data are taken from the financial reports of the respective companies and the Macedonian Stock Exchange JSC Skopje and are processed by the author.*

### ✓ BASIC DATA FOR THE BEST FIVE COMPANIES QUOTED ON THE MACEDONIAN STOCK EXCHANGE (2021)

Table 0-4: Basic data – 2021 (in 000 MKD);

CATEGORY	ALK	MPT	GRNT	NLB	KMB
Total Revenue from operation Activities	12,794,180	21,496,720	4,713,802	5,396,088	4,452,967
Operating profit	1,479,180	1,453,274	68,607	2,653,166	2,533,774
Net profit	1,304,988	1,409,843	135,807	2,219,107	2,328,320
Equity	11,662,585	6,438,962	6,096,740	14,069,726	14,943,735
Total liabilities	4,216,036	1,696,006	1,928,473	93,639,753	133,611,063
Total assets	15,878,621	8,134,968	8,025,213	107,709,479	148,554,798
Market capitalization	26,394,393	8,797,263	4,277,752	24,934,208	26,724,180

*Source: The data are taken from the financial reports of the respective companies and the Macedonian Stock Exchange JSC Skopje and are processed by the author.*

### ✓ BASIC DATA FOR THE BEST FIVE COMPANIES QUOTED ON THE MACEDONIAN STOCK EXCHANGE (2022)

Table 0-5: Basic data – 2022 (in 000 MKD);

CATEGORY	ALK	MPT	GRNT	NLB	KMB
Total Revenue from operation Activities	14,289,051	37,363,149	4,667,190	5,809,885	5,326,364
Operating profit	1,669,971	1,317,489	-32,506	2,680,320	2,338,572
Net profit	1,463,426	1,333,215	45,986	2,433,910	2,171,708
Equity	12,507,915	7,369,707	6,053,694	15,571,017	15,672,561
Total liabilities	5,081,341	1,894,593	1,875,856	97,127,006	135,377,187
Total assets	17,589,256	9,264,300	7,929,550	112,698,023	151,049,748
Market capitalization	24,558,124	7,573,879	3,916,251	20,241,246	26,615,537

*Source: The data are taken from the financial reports of the respective companies and the Macedonian Stock Exchange JSC Skopje and are processed by the author.*



From the basic data for Alkaloid we conclude that:

- *Operating revenues from 2018 to 2022 have increased by 41.6%.*
- *Total liabilities have increased by 93.4% over five years.*
- *51.7% is the increase of the total assets.*
- *Share capital increased by 39.4% from 2018 to 2022.*

From the basic data for Makpetrol, we conclude that:

- *Operating revenues have increased from 2018 to 70.8% in 2022.*
- *The assets as a whole have increased by 13.9%.*
- *69.1% increased share capital in the period 2018-2022.*
- *Liabilities have decreased by 49.8% from 2018 to 2022.*

From the basic data for Granit we conclude that:

- *Operating revenues from 2018 to 2022 have decreased by 6.4%.*
- *Total liabilities have decreased by 31.9% over five years.*
- *116.4% is the increase in total assets.*
- *Share capital increased by 18.2% from 2018 to 2022.*

From the basic data for NLB-Bank, we conclude that:

- *Operating revenues have increased from 2018 to 14.8% in 2022.*

- *The assets as a whole have increased by 35.5%.*
- *The share capital increased by 26.5% in the period 2018-2022.*
- *Liabilities have increased by 37.1% from 2018 to 2022.*

From the basic data for Komercialna-Bank, we conclude that:

- *Operating revenues have increased by 26.1% from 2018 to 2022.*
- *32.04% increased assets in total.*
- *Total liabilities increased by 32.7%.*
- *The share capital increased by 25.6% during the five-year period*

**REALIZED FINANCIAL RESULTS OF THE FIVE MOST QUOTED COMPANIES ON THE MACEDONIAN STOCK EXCHANGE**

Table 1-0-1: Financial results for the years 2018, 2019, 2020, 2021 and 2022 (in thousands of denars)

SUBJECT	2018		2019	
	FINANCIAL RESULT	AMOUNT	FINANCIAL RESULT	AMOUNT
<b>KMB</b>	PROFIT	1,806,215	PROFIT	1,926,825
<b>NLB</b>	PROFIT	2,129,223	PROFIT	2,023,627
<b>ALK</b>	PROFIT	862,411	PROFIT	1,853,423
<b>MPT</b>	PROFIT	858,901	PROFIT	981,075
<b>GRNT</b>	PROFIT	75,234	PROFIT	304,035

2020		2021		2022	
FINANCIAL RESULT	AMOUNT	FINANCIAL RESULT	AMOUNT	FINANCIAL RESULT	AMOUNT
<b>PROFIT</b>	1,909,899	PROFIT	2,328,320	PROFIT	2,171,708
<b>PROFIT</b>	1,267,558	PROFIT	2,350,975	PROFIT	2,219,907
<b>PROFIT</b>	1,137,626	PROFIT	1,321,007	PROFIT	1,467,250
<b>PROFIT</b>	391,665	PROFIT	1,692,724	PROFIT	1,297,560
<b>PROFIT</b>	135,423	PROFIT	624,471	PROFIT	562,200

Based on the table above presented for the financial results of joint stock companies before the period of crises such as the pandemic, the energy crisis and the Russian-Ukrainian war, all companies have realized a positive financial result (profit), where the banking sector leads with huge profits of over 2 billion denars.

Komercijalna Bank in 2020 realized a net profit of 1,909,899,000 denars, which is 2% lower compared to the previous year 2019. Thus, Komercijalna Bank JSC Skopje in 2021 realized a net profit of 2,328,320,000 denars, for 20.1% more large in relation to the realized net profit in 2020. The increase in general assets derives from the increase in cash assets, loans granted to clients and investments in securities.

NLB Bank JSC Skopje, ranked second, has a net profit of 1,267,558,000 denars realized for the year 2020, a 37% lower profit compared to 2019. Including 31.12.2021, the net profit is

2,350,975,000 denars, an increase of 85.5 % in relation to the same period of 2020. It marks an increase in investments in bond securities, as well as deposits increased by 9.8%

The third listed in the quotation, Alkaloid JSC Skopje for the period January-December 2020 realized a net profit of 1,137,626,000 denars, while for the year 2021 it realized a net profit in the amount of 1,321,007,000 denars, which is 16.1% more compared to the same period of last year 2020.

Makpetrol JSC Skopje, in contrast to the three predecessor entities, has realized a financial result - profit in the amount of MKD 1,692,724,000 in 2021, this is about 300% higher profit compared to that of the same period of 2020. Makpetrol has marked success in other spheres - the dividend per share in 2020 was 2,000 denars, and in 2021 for 1,000 denars more, furthermore, the company donated to education and made investments in infrastructure and its capacities, which is of particular importance.

Granit JSC Skopje also recorded an increase in profit. In the January-December period of 2020, it made a profit of 135,423,000 denars, in contrast to the same period in 2021 when it increased to 624,471,000 denars. Granit is also a success – in

2020, it was announced as the winner of the plaque as an important corporate donor.

As can be seen from the table, the five most quoted Macedonian companies consistently achieve good financial results - profit, which is also an indicator of their greater investment and competition in the securities market.

## ANALYSIS OF THE FIVE MOST TRADED SHARES ON THE STOCK EXCHANGE FOR THE YEARS 2018-2022 ACCORDING TO DATA FROM THE ANNUAL BULLETIN

NUMBER OF TRANSACTIONS	2018	TURNOVER
5,174	KMB	1,415,724,679
2,151	ALK	572,696,677
1,436	MPT	292,520,939
1,014	NLB	336,581,873
1,736	GRNT	240,921,091

NUMBER OF TRANSACTIONS	2019	TURNOVER
3,621	KMB	972,269,537
2,713	ALK	628,476,646
2,458	MPT	600,658,524
1,042	NLB	331,387,183
1,768	GRNT	281,870,265

NUMBER OF TRANSACTIONS	2020	TURNOVER
7,476	KMB	2,183,942,606
	ALK	

3,883		1,054,482,870
2,417	MPT	643,927,219
1,563	NLB	533,617,378
2,102	GRNT	438,689,254

NUMBER OF TRANSACTIONS	2021	TURNOVER
6,540	KMB	2,007,089,856
3,079	ALK	807,593,833
1,580	MPT	524,987,960
1,525	NLB	454,009,432
1,465	GRNT	406,249,232

NUMBER OF TRANSACTIONS	2022	TURNOVER
6,663	KMB	1,952,438,490
3,152	ALK	858,568,586
1,024	NLB	299,556,623
919	MPT	231,283,654
818	GRNT	224,122,734

From the data of the annual bulletin for the years 2018 and 2019, we note that at the top of share trading are KMB Bank, Alkaloid, NLB bank, Granit and Makpetrol. These joint stock companies have realized a greater number of transactions and a higher annual turnover in the NMK stock exchange. In terms of turnover, Komercijalna Bank dominates both in 2018 and 2019, with an annual turnover of over 1 billion denars and transactions in the range of 3000-6000 transactions within the year.

According to the Annual Bulletin for 2020, at the top of share trading is the same "five" as in 2019, normally, with accompanying changes in the number of shares traded, mainly due to the Covid-19 pandemic. During 2020, the turnover on the stock exchange has increased, while the turnover of

shares in classic trading is the largest in the last five years.

Only the share prices of Komercijalna Bank, Alkaloid, Makpetrol and NLB Bank have increased, while the others have decreased. During 2020, the commercial bank has traded 333,907 shares through 7,476 transactions, with an average price of 6,590 denars, and realized a turnover of 2,183,942,600 denars. Here it can be noted that there is a double increase in the number of transactions compared to 2019 (MSE, 2019)). Alkaloid also recorded an increase in the number of transactions - 3,884 transactions with a turnover of 1,054,482,880 denars. Makpetrol is third with 2,417 transactions, followed by NLB Bank (1,563 transactions).

The analysis of the movements of the shares separated from the current composition of the MBI10 index (an index that measures the general level of prices) during 2020 shows that only three shares have seen an increase, while in the others there is a downward price correction. The market capitalization on 30.12.2020 of 100 quoted companies marks a decrease of 1.22% compared to 30.12.2019. The market capitalization of quoted companies on 30.12.2020 is 183,150,945,751 denars.

This stock market statistical indicator reflects the stock market value of all quoted companies on a given day, ie it is obtained as a product of the number of issued shares of each company with the last market price. According to the analyzes made so far, we can note that these companies score good financial results (which we will examine in more detail later), but also that through these same results and the participation in the securities market manage to increase the volume of own capital and goodwill of companies.

Next, we will (still) look at the official data according to the Annual Bulletin for 2021 (MSE, 2021) and 2022 (MSE, 2022)

Even in the last 2 years, the above-mentioned 5 companies are at the top of securities trading, but compared to the previous years, we have a decrease in both turnover and the number of transactions as a result of successive crises. The market capitalization has suffered a decrease of 4.29% from 2021 to 2022, where at the end of 2022 it had the value of 214,275,753,577 denars, but not only because the turnover also had a rather pronounced decrease of 42%, the number There were 17,274 transactions, 16.34% lower than last

year, and the value of the MBI10 index was 5,652.33 denars according to data from the 2022 annual bulletin.

## CALCULATED INDICATORS FOR PROFITABILITY MEASUREMENT

Financial crises are situations in which financial assets momentarily lose a large part of their value. Crises are not something new, rare or uncharacteristic for financial systems, and even less for modern market society. On the contrary, they are inherent in all types of economic organizations and financial systems. It is considered that in market-oriented systems, financial crises occur on average once every 10 years, while major financial crises accompanied by recession and depression occur once every 100 years.

Crises can be caused by a wide range of factors – from banking and market panics, to currency and debt crises. What is specific about the crisis of 2020 is that it is the first crisis caused not directly by economic factors, but by the panic created by the appearance of the pandemic of viral diseases. This situation immediately spread to the financial world, reflecting negatively on the capital markets, while the aggressive measures of the states, implemented in order to prevent the spread of the virus, transformed into a global economic crisis and world recession.

➤ Table 1-0-1: CALCULATED INDICATORS FOR 2018

CATEGORY	ALKALOID	MPT	GRANIT	NLB	KMB
Return on sales	9.74%	3.89%	0.70%	46.77%	47.82%
Return on assets	7.44%	9.51%	2.05%	2.56%	1.56%
Return on equity	9.86%	17.74%	1.47%	17.30%	14.27%

Source: Indicators calculated by the author himself according to the basic data (in denars) and harmonized with the data published in the Macedonian Stock Exchange JSC Skopje

➤ Table 1-0-2: CALCULATED INDICATORS FOR 2019

CATEGORY	ALKALOID	MAKPETROL	GRANIT	NLB	KMB
Return on sales	10.72%	4.28%	5.16%	41.42%	46.74%
Return on assets	7.78%	10.32%	8.05%	2.25%	1.47%
Return on equity	10.50%	17.51%	5.50%	15.72%	13.56%

Source: Indicators calculated by the author himself according to the basic data (in denars) and harmonized with the data published in the Macedonian Stock Exchange JSC Skopje

Table 1-0-3: CALCULATED INDICATORS FOR 2020

CATEGORY	ALK	MPT	GRANIT	NLB	KMB
Return on sales(ROS)	11.10%	2.04%	-0.09%	25.30%	49.75%
Net earnings per share (EPS)	815.68	3102.89	19	1,995.49	850.85
Return on assets(ROA)	7.19%	4.25%	0.79%	1.77%	1.46%
Return on equity(ROE)	10.70%	6.93%	1.03%	12.71%	13.85%
Price to earnings	16.19	23.73	60.37	9.23	8.58
Book value per share	7,620.86	44791.65	1,805.83	15,704.79	6,141.60
Price to Book Value	1.73	1.64	0.62	1.17	1.19
Dividend Per Share	400	2000.00	16.67	1,787.00	600
Dividend yield	3.03%	2.72%	1.49%	9.71%	8.22%

Source: Indicators calculated by the author himself according to the basic data (in denars) and harmonized with the data published in the Macedonian Stock Exchange JSC Skopje

➤ Table 1-0-4: CALCULATED INDICATORS FOR 2021

CATEGORY	ALK	MPT	GRANIT	NLB	KMB
Return on sales(ROS)	11.56%	6.76%	1.46%	49.17%	56.90%
Net earnings per share (EPS)	911.72	12545.10	44	2,598.30	1,021.61
Return on assets(ROA)	8.22%	17.33%	1.69%	2.06%	1.57%
Return on equity(ROE)	11.19%	21.90%	2.23%	15.77%	15.58%
Price to earnings	20.23	6.24	32	11.24	11.48
Book value per share	8,147.94	57295.31	1,985	16,473.91	6,556.95
Price to Book Value	2.26	1.37	0.7	1.77	1.79
Dividend Per Share	440	3000.00	36	738	620
Dividend yield	2.39%	3.83%	2.58%	2.53%	0.05

Source: Indicators calculated by the author himself according to the basic data (in denars) and harmonized with the data published in the Macedonian Stock Exchange JSC Skopje

➤ Table 1-0-5: CALCULATED INDICATORS FOR 2022

CATEGORY	ALK	MPT	GRNT	NLB	KMB
Return on sales(ROS)	11.69%	3.53%	-0.70%	46.13%	43.91%
Net earnings per share (EPS)	1022.41	11863.24	14.97	2,849.81	952.89
Return on assets(ROA)	8.32%	14.39%	0.58%	2.16%	1.44%
Return on equity(ROE)	11.70%	18.09%	0.76%	15.63%	13.86%
Price to earnings	16.78	5.68	85.16	8.32	12.26
Book value per share	8,738.53	65577.29	1,971	18,231.74	6,876.74
Price to Book Value	1.96	1.03	0.65	1.3	1.70
Dividend Per Share	490				500
Dividend yield	2.86%	0.00%	0.00%	0.00%	4.28%

Source: Indicators calculated by the author himself according to the basic data (in denars) and harmonized with the data published in the Macedonian Stock Exchange JSC Skopje

## ANALYSIS OF THE FIVE MOST TRADED SHARES ON THE STOCK EXCHANGE ACCORDING TO THE CALCULATED INDICATORS

Based on the calculated indicators, it is evident that Komercijalna Bank and NLB Bank have consistently maintained the highest sales revenue

(ROS) over the past five years. However, it's important to note that they do not hold the highest rates of return on total assets (ROA). In this regard, Makpetrol emerges as the standout performer, consistently achieving higher returns on total assets, except for the challenging year of the pandemic, where Alkaloid takes the lead in ROA. Turning our attention to net earnings per share (EPS), all five companies have demonstrated stability in their figures.

Interestingly, while the commercial banks likely lead in terms of dividend yields, Makpetrol takes the lead in dividend per share, with 3,000.00 denars compared to Komercijalna Bank's 620.00 denars in 2021 and 2,000.00 denars compared to 600.00 denars in 2020. A closer look at the Annual Bulletin reveals that Komercijalna Bank saw the highest number of share transactions at 6,540, followed by Alkaloid (3,079), NLB Bank (1,580), Makpetrol (1,525), and Granit (1,465).

Market capitalization in 2020 reached 183,150,945,751 denars, with a slight decrease of 1.22% compared to the previous year. However, the turnover showed a healthy annual increase of 6.43%, totaling 8,195,475,839 denars, driven by 22,689 transactions (MSE, 2020). Moving to 2021, market capitalization surged to 223,887,377,263 denars, marking a remarkable increase of 22.24% from the previous year. During this year, 20,647 transactions were carried out, further confirming Komercijalna Bank's leadership in the securities market. The turnover also witnessed an impressive annual increase of 56.84%, totaling 12,853,500,604 denars (MSE, 2021). These data collectively illustrate the robust performance of key companies and the overall dynamism of the Macedonian securities market.

### ✓ Examination of the first hypothesis

The data from the tables showcasing the fundamental metrics of the top five companies listed on the NMK stock exchange affirm the validity of our initial hypothesis. Notably, JSC Alkaloid emerges as a standout example, having invested a substantial 104.1 million euros over the past five years. This investment prowess garnered

significant recognition, with the Investment Forum of the Chambers of the Western Balkans designating "Alkaloid" as the primary investor in the region. Alkaloid's enduring success, cultivated over ninety years, has been underpinned by ongoing investments. (ALKALOID JSC, n.d.)

Similarly, JSC Granit's financial commitment to investment in 2020 amounted to an impressive 176.2 million denars, reflecting a substantial increase compared to the preceding year. While 2021 witnessed the continuation of corporate social responsibility through donations, it was a year marked by the consolidation of ongoing projects rather than the initiation of new, sizable ventures. Nevertheless, notable projects such as the construction of the A2 highway, the A4 GP Bllaca-Skopje highway, an antenna system for radio frequency control and monitoring, and the Kicevo-Ohrid highway underscore the company's steadfast role in infrastructure development (GRANIT JSC, n.d.)

In examining the banking sector, we observe that Macedonian banks, particularly JSC Komercijalna Bank and NLB Bank, have demonstrated resilience in the face of shocks stemming from the pandemic and economic turmoil. Despite a decline in their primary income source—interest earnings—these institutions have successfully adapted by augmenting their revenue streams through increased commissions and fees. This adaptability showcases their ability to navigate challenging economic environments while maintaining their stability (KMB JSC, n.d.) (NLB JSC, n.d.)

Collectively, these insights reinforce the notion that prudent investments and strategic financial management are pivotal factors underpinning the success and resilience of top companies and banks in the Macedonian market, contributing to the overall economic robustness of the nation.

### ✓ Examination of the second hypothesis

Based on the meticulous examination of financial reports spanning the years 2018 through 2022 for both real sector companies and banks, supplemented by a comprehensive analysis of their operational performance, a compelling conclusion emerges. The second hypothesis initially posited at the inception of this research endeavor finds affirmation: these entities have consistently

demonstrated a commendable track record of yielding positive financial outcomes, notably profitability, even in the face of formidable challenges and obstacles. This steadfast financial resilience not only underscores their enduring strength but also serves as a testament to the broader development witnessed within the financial market, the securities market, and the overarching national economy, collectively emblematic of sustained progress and economic fortitude.

### ✓ Examination of the third hypothesis

The analysis of the indicators calculated for each individual company, coupled with the dynamic analysis performed, leads us to a compelling conclusion that validates the third and final hypothesis of this study. It becomes evident that the combined impact of the pandemic and other financial crises has indeed exerted a discernible influence on the profitability and economic activity of joint-stock companies.

Furthermore, the influence of these crises extends beyond profitability and permeates the broader economic activity of joint-stock companies. The disruptions caused by external shocks have engendered fluctuations in operational performance, capital allocation, and strategic decision-making. While companies have demonstrated resilience, it is evident that these crises have not left them unscathed.

In summation, the empirical evidence drawn from this study substantiates the hypothesis that the pandemic and other financial crises have exerted a discernible, albeit partial, impact on the profitability and economic activity of joint-stock companies. This finding underscores the significance of adaptability and strategic planning as companies navigate the evolving landscape of global economic challenges.

Table 1-1: ALKALOID Profitability Measurement

		ALK				
ROA		2018	2019	2020	2021	2022
		7.44%	7.19%	7.78%	8.22%	8.32%
			-3.36%	8.21%	5.66%	1.22%
ROE		9.86%	10.50%	10.70%	11.19%	11.70%
			6.49%	1.90%	4.58%	4.56%

Source: Indicators calculated by the author himself according to the basic data (in denars) and harmonized with the data published by KMB JSC Skopje

Table 1-2: MAKPETROL Profitability Measurement

MPT		2018	2019	2020	2021	2022
ROA		9.51%	10.32%	4.25%	17.33%	14.39%
			8.47%	-58.80%	307.76%	-16.96%
ROE		17.74%	17.51%	6.93%	21.90%	18.09%
			-1.30%	-60.42%	216.02%	-17.40%

Source: Indicators calculated by the author himself according to the basic data (in denars) and harmonized with the data published by KMB JSC Skopje

Table 1-3: GRANIT Profitability Measurement

GRNT		2018	2019	2020	2021	2022
ROA		2.05%	8.05%	0.79%	1.69%	0.58%
			293%	-90%	114%	-66%
ROE		1.47%	5.50%	1.03%	2.23%	0.76%
			274%	-81%	117%	-66%

Source: Indicators calculated by the author himself according to the basic data (in denars) and harmonized with the data published by KMB JSC Skopje

Table 1-4: NLB BANK Profitability Measurement

NLB		2018	2019	2020	2021	2022
ROA		2.56%	2.25%	1.77%	2.06%	2.16%
			-12%	-21%	16%	5%
ROE		17.30%	15.72%	12.71%	15.77%	15.63%
			-9%	-19%	24%	-1%

Source: Indicators calculated by the author himself according to the basic data (in denars) and harmonized with the data published by KMB JSC Skopje

Table 1-5: KMB BANK Profitability Measurement

KMB		2018	2019	2020	2021	2022
ROA		1.56%	1.47%	1.46%	1.57%	1.44%
			-6%	-1%	8%	-8%
ROE		14.27%	13.56%	13.85%	15.58%	13.86%
			-4.98%	2.14%	12.49%	-11.04%

Source: Indicators calculated by the author himself according to the basic data (in denars) and harmonized with the data published by KMB JSC Skopje

Firstly, we have observed that the Macedonian securities market, with some minor adjustments, has the potential to compete effectively with European stock exchanges and markets. The presence of a diverse array of companies within this market is a testament to its development and vitality.

Secondly, our analysis has highlighted the exceptional performance of the top five companies with the most actively traded ordinary shares: Komercijalna Bank JSC Skopje, Alkaloid JSC Skopje, Makpetrol JSC Skopje, NLB Bank JSC Skopje, and Granit JSC Skopje. These companies not only participate actively in the securities market but also invest strategically in their own growth and societal development, resulting in commendable financial results and strong positions within the stock exchange.

Lastly, our research validates the impact of external factors, including the COVID-19 pandemic and financial crises, on the profitability and economic activity of joint-stock companies. While these challenges have exerted partial pressures on profitability, companies have demonstrated resilience and adaptability in navigating these turbulent waters.

In summation, the Macedonian securities market plays a pivotal role in the nation's economic landscape, and the success of these key companies contributes significantly to both the dynamism of the securities market and the overall development of the Macedonian economy. Looking forward, strategic adjustments and continued resilience will be essential in ensuring the market's competitiveness and enduring prosperity.

## CONCLUSION

In conclusion, our comprehensive analysis of the Macedonian securities market and the performance of key companies within it during the period of 2018-2022 has revealed several notable findings. The dynamic securities market is a reflection of a developed national economy and successful businesses, and our research underscores its significant role in fostering economic growth.

## Bibliography

- ALKALOID JSC. (n.d.). *ALKALOID*. Retrieved from ALKALOID: <https://alkaloid.com.mk/>
- GRANIT JSC. (n.d.). *GRANIT*. Retrieved from <https://www.granit.com.mk/mk/>
- KMB JSC. (n.d.). *KMB*. Retrieved from KMB: <http://www.kb.com.mk>

Makpetrol JSC. (n.d.). *MAKPETROL*. Retrieved from  
MAKPETROL:  
<https://www.makpetrol.com.mk/en/home-en/>

NLB JSC. (n.d.). *NLB*. Retrieved from NLB :  
<https://nlb.mk/>

MSE. (2018). *Annual Statistical Bulletin*. SKOPJE: MSE.

MSE. (2019). *Annual Statistical Bulletin*. SKOPJE: MSE.

MSE. (2020). *Annual Statistical Bulletin*. SKOPJE: MSE.

MSE. (2021). *Annual Statistical Bulletin*. SKOPJE: MSE.

MSE. (2022). *Annual Statistical Bulletin*. SKOPJE: MSE.



## The Impact of the COVID-19 Pandemic on Families: Student's Experiences in North Macedonia

Shpresa Alija<sup>\*</sup>, Lulzime Nuredini-Mehmedi<sup>2</sup> and Sadri Alija<sup>3</sup>

<sup>1</sup> Faculty of Business and Economics, South East European University, Republic of North Macedonia

<sup>2</sup> Head of Institutional Research Office, South East European University, Republic of North Macedonia

<sup>3</sup> Faculty of Business and Economics, South East European University, Republic of North Macedonia

*\*(s.alija@seeu.edu.mk)*

**Abstract** – This study reflects the difficulties and concerns of the families of South East European University (SEEU) students during the period of health crisis, respectively COVID-19.

For conducting the analyses we used the quantitative approach, respectively the collection of data through an online questionnaire, where we received a total of 291 responses from the families of students of the South East European University. The questionnaire in question, focused on data collection according to five features, such as: 1) cases faced with infection by COVID-19; 2) personal difficulties of the head of the family (financial, supply of various products, limited mobility, health disorders, conflicts and other family worries); 3) the difficulties of the head of the family in the parent-child situation; 4) the concerns of the head of the household who had an elderly parent; and 5) gratitude for some aspects of life versus experience during the COVID - 19 health crisis.

The results showed that families who had lost family members to COVID-19 had experienced greater difficulties and worries during this time - difficulties that made them feel grateful for some aspects of life, versus those that the health crisis did not touch directly.

*Keywords – COVID-19 Pandemic, Family Relationships, Parenting, Social Contacts*

### I. INTRODUCTION

The global health crisis COVID-19, in addition to dramatic loss in people was accompanied by economic downturn (Gupta et al., 2020; Asahi, Undurraga, Valdés, & Wagner, 2021; Pratibha & Krishna, 2022), pressure on unemployment (Samarah, 2021), rising poverty (Bukari et al., 2021), serious social and psychological problems (increased domestic violence, anxiety and depression) (Osofsky, Osofsky, & Mamon, 2020; Akat & Karataş, 2020; Sneed et al., 2020; Lei &

Klopach, 2020; Krendl & Perry, 2021), resulted in delays in the realization of professional and economic objectives. The health crisis in question also affected North Macedonia, where the economy fell into recession in 2020, with a gradual recovery in 2021 (GDP growth in 2021 was expected to reach 3.5%, compared to the decline of GDP, of 2020, by -4.5%). Exports of goods and services fell by 10.9% in nominal terms, while imports by 10.5%, and household final consumption decreased by about 5.6% in 2020. Unemployment rate throughout 2020, decreased to

15.9% in the second quarter of 2021, fiscal deficit increased to 8.2% of GDP in 2020, while the level of public debt increased significantly to 60.2% of GDP. Also, capital costs were cut in a budget review to make room for transfer payments related to the COVID-19 health crisis (UNDP, 2020).

In addition to the economic shock, the Republic of North Macedonia (RNM), according to the IPH (Institute of Public Health of the Republic of North Macedonia) was ranked as the third country in the world in terms of mortality per capita. At the beginning of November 2021, the total number of diagnosed since the beginning of the epidemic was 203,298, approximately 10% of the population, the number of cured patients was 189,264, the number of deaths 7,159 and the number of active cases was 6,875. Based on this, RNM took several measures to mitigate and manage the health crisis (including family concerns and panic).

One of the most obvious concerns was the concern of parents who had children, where isolation at home was mandatory, as a result of the closure of kindergartens and schools, although the COVID-19 health crisis was less present and relatively easier to deal with versus the adults. Therefore, even the mortality rate is considered zero (Dong et al. 2020; Zimmermann & Curtis, 2020; Kutsar, 2021).

Furthermore, the health crisis engaged in the creation of passivity in adults. In children, this passivity, which gradually increased as a result of reduced physical activity, was accompanied by the intensification of other diseases and increase of mortality (Dallolio et al., 2022). The negative side effects of pandemic restriction were reflected in obese adolescents as a result of increased food intake, sleep time, and standing in front of the television screen whilst sporting activities were declining (Pietrobelli et al., 2020). Online interaction did not recompense for the forfeiture of real-life contacts within friends, which became a major concern for the youth in most countries.

In addition to the concern of families with children, this health crisis caused panic among the elderly due to health conditions related to their age, diseases and the immune system, studies in this regard showed that the most at-risk age for mortality was 70-79 years, respectively with 8%, and those over the age of 80 years, with a share of

14.8% (Wu & McGoogan, 2020). Although the protocol at that time required social isolation and distancing for everyone and from everyone, the elderly were still the ones who needed more home and health care, as well as side consultations in order to reduce stress and depression (Iecovich, 2008). However, the latest study conducted by Elizabeth & Rajean (2020) found that, for the elderly and their caregivers, the social distance and fear experienced at that time may continue even further (after the end of the pandemic).

Adding to the depression, stress and anxiety, researchers such as Postmus et al., (2020) in their study found that people also faced the phenomenon of domestic violence during the health crisis, which was mainly due to social isolation and distancing. Also, the study conducted by Ruiz-Zaldibar et al., (2022) with students of Spanish Universities proved that the crisis in question had also affected the lifestyle (unhealthy life), noting that the female gender was more dissatisfied with lifestyle, rather than male gender. The latter engaged in various sporting activities and other traditional games by educational institutions only to restore the enthusiasm and the previous level of lifestyle (Bhinder et al., 2021).

Consequently, the constant difficulties and stress during the time of the health crisis have been inevitable both in terms of health, economic and social, although the latter, brought global changes in the design of new policies for health, trade, employment, etc. we conducted this study, based on this, to bring to bear the experiences of citizens (their concerns) during the COVID-19 health crisis, addressing the following research questions:

- R1. Did citizens have stress during the COVID-19 health crisis, on some health, economic and social aspects?
- R2. Did parents with children have stress during the COVID-19 health crisis?
- R3. Did families with elderly parents have stress during the COVID-19 health crisis?
- R4. Were the citizens grateful for some aspects of life as a result of the experience of the COVID-19 health crisis?

## II. METHODOLOGY

To answer our research questions, we designed a questionnaire by organizing an online survey with the families of SEEU students in RNM. The survey was administered during the Covid-19 pandemic at the end of 2021. The survey was built to collect data on (1) incidence of COVID-19 in the families of SEEU students; (2) Personal Stress; (3) Parenting Stress; (4) Aging parents stress and (5) Gratitude. The questions related to each factor are described and listed in Table 1. The answer to each question in the survey was on a Likert scale with 4 points: (1) Never; (2) Sometimes; (3) Usually; (4) Always.

Table 1. Effects of COVID-19

Attribute type	Questionnaire
<b>COVID-19 personal stress</b>	Have you or your family had financial difficulties due to declining income, or losing your job as a result of the COVID-19 pandemic?
	Have you had difficulties in getting supplies when you need them, including face masks, hand sanitizers, medicines, food, drinks or other essentials?
	Have you found it impossible to meet family and friends?
	Have you found it impossible to go to places of religious worship
	Have you had any concern in any of your own, or your family's daily routine (such as sleeping patterns; meal times; work, school and recreation schedules)?
	Have you had family conflict arising from the COVID19 crisis, due to arguing, or fighting with other family members more than usual because you are spending more time together at home?
	Have you received incorrect and contradictory information online and in the media about COVID-19?
	Worrying that you may become infected with COVID-19 and then infect other people?
	Worrying about the effects COVID-19 on you or your family, now or in the future?
<b>COVID-19 parenting stress</b>	Have you had difficulties with children due to the closure of schools?
	Advising your child to keep a safe distance from their friends, or preventing them from mixing with their friends
	Advising your child to keep a safe distance from members of your extended family, or preventing them from visiting with the extended family (for example grandparents)

	Helping your child avoid crowded places, and activities that they like, such as going to sports or musical events, scouts or guides, clubs, the playground?
	Did you advise / help the children to follow the rules of COVID-19, during greetings, or during physical contact with other people?
	Did you advise / help the children to follow the WHO advice for protection from COVID-19, such as: wearing a mask, washing hands, keeping a distance, etc.
	Have you ever had concerns that children could be infected with COVID-19 because they have health problems (eg asthma or otherwise, which makes them vulnerable to serious illness if they become infected)?
<b>COVID-19 aging parents stres</b>	Worrying that your aging parents will become lonely during the COVID -19 crisis
	Worrying that you aging parents will not get supplies during the COVID -19 crisis
	Worrying that your aging parents will become infected with COVID -19
	Worrying that your aging parents will not receive adequate medical care if they become infected with COVID -19
<b>COVID-19 gratitude</b>	Your health, and the health of your family
	Your relationships with your extended family and friends
	Your job
	Attending social, sports, and cultural events
	Your community
	Your child's regular attendance at school
	Your child's relationships with their friends
	Your child's involvement in activities such as sports, music, scouts, guides, clubs, etc.
Health and safety of your aging parents	

### III. RESEARCH SAMPLE

The online survey data was cleaned by removing incomplete data, resulting in a sample of 291 participants who responded subjectively to the consequences of Covid-19. Table 2 provides information on respondents, where 49.5% stated that they or their family members have been infected with COVID-19, of which 20.6% have been hospitalized. This shows that the conditions and trust of citizens in health institutions is low. On the other hand, it is worrying that 45.4% have stated that they have had death consequences in family members. In terms of witnessing others

sufer as a result of the COVID-19 pandemic, 63.9% of the respondents answered in the affirmative.

Table 2. Participants' information in Effects of COVID-19

Variables	Yes	No
You, or members of your family becoming ill with COVID-19	49.5	50.5
You, or members of your family being hospitalized for COVID-19 illness	20.6	79.4
Death of a family member or very close friend as a result of COVID-19	45.4	54.6
Witnessing others in your community suffering because of COVID-19	63.9	36.1

#### IV. METHODS

The cleaned data obtained from the survey was initially analyzed, removing incomplete surveys from the sample. The results were then analyzed and exposed through descriptive statistics, using frequencies, means and standard deviations, cross-tabulations showing the results of the tone study.

In this paper, a mathematical model was constructed using a logistic regression, to observe the relationship of the four (4) factors. Thus, Personal, Parenting, Aging Parents, and Gratitude as well as those persons who themselves or other family members have been infected with COVID-19.

To see the relationship of the four (4) factors, we constructed four (4) mathematical models separately, where each of the four factors ("Personal", "Parenting", "Aging Parents" and "Gratitude") is a dependent variable to be regressed separately with the question on incidence of COVID-19 (you or other family becoming ill with COVID-19) as independent variable. The independent variable was coded as 1 (0) and 2 (1) for No and Yes respectively whereas the dependent variables were coded with 0 if the sum of the answers to all nine (9) questions relating to each factor was less than the average and 1 otherwise. Table 3 provides an illustration of the binary dependent variables.

In all four (4) models, we focus more on the odds ratios (OR) and 95% confidence intervals (CI), (Sampson et al., 2021) to examine the effects of

Covid-19 on the four (4) factors above. MedCalc and IBM SPSS software packages are used for data processing, which help to perform more advanced statistical analysis.

Table 3. Example of the proposed binary variable

Dependent variable	Questions									Sum (min/max)	Code
	Q 1	Q 2	Q 3	Q 4	Q 5	Q 6	Q 7	Q 8	Q 9		
Personal	1	1	1	1	1	1	1	1	1	9	0 if sum < 22.5
	4	4	4	4	4	4	4	4	4	#	1 if sum ≥ 22.5
Parenting	1	1	1	1	1	1	1			7	0 if sum < 17.5
	4	4	4	4	4	4	4			#	1 if sum ≥ 17.5
Aging Parents	1	1	1	1						4	0 if sum < 10
	4	4	4	4						#	1 if sum ≥ 10
Gratitude	1	1	1	1	1	1	1	1	1	9	0 if sum < 22.5
	4	4	4	4	4	4	4	4	4	#	1 if sum ≥ 22.5

In all four (4) models, we focus more on the odds ratios (OR) and 95% confidence intervals (CI), (Sampson et al., 2021) to examine the effects of Covid-19 on the four (4) factors above. MedCalc and IBM SPSS software packages are used for data processing, which help to perform more advanced statistical analysis.

#### V. RESULTS AND DISCUSSION

Table 4 shows the responses obtained from the questionnaire for questions relating to the personal difficulties. It is observed from the results that 34.0% and 50.05% of the respondents respectively indicated that they (self and family) had "never" or "sometimes" experienced financial difficulties as a result of either losing a job or the COVID-19 pandemic. We can also see that the high rate of respondents who stated that they have never or sometimes had difficulty in supplying various products such as food, beverages, medicines, masks, disinfectants and other necessary things was 55.7% and 35.1%, respectively. A high score of 61.9% stated that they "never" had family

quarrels and debates as a result of staying home together for a long time. On the other hand we can see that the highest rate in the “usually” response with over 32.0% was the inability to meet family and friends; going to the mosque; disturbances with bedtime, meals, work schedule; obtaining misinformation and exacerbating the effects of COVID-19.

Table 4. COVID-19 personal stress

Variables	never	sometimes	usually	always	Mean	Std. Deviation
Have you had difficulties with children due to the closure of schools?	26.8	36.1	18.6	18.6	2.29	1.06
Advising your child to keep a safe distance from their friends, or preventing them from mixing with their friends	21.6	26.8	33.0	18.6	2.48	1.03
Advising your child to keep a safe distance from members of your extended family, or preventing them from visiting with the extended family (for example grandparents)	28.9	43.3	11.3	16.5	2.15	1.02
Helping your child avoid crowded places, and activities that they like, such as going to sports or musical events, scouts or guides, clubs, the playground?	21.6	22.7	33.0	22.7	2.57	1.07
Did you advise / help the children to follow the rules of COVID-19, during greetings, or during physical contact with other people?	19.6	13.4	37.1	29.9	2.77	1.08
Did you advise / help the children to follow the WHO advice for protection from COVID-19, such as: wearing a mask, washing hands, keeping a distance, etc.	18.6	14.4	28.9	38.1	2.86	1.12
Have you ever had concerns that children could be infected with COVID-19 because they have health problems (eg asthma or	28.9	25.8	16.5	28.9	2.45	1.19

otherwise, which makes them vulnerable to serious illness if they become infected)?						
---	--	--	--	--	--	--

Table 5 gives the results of the respondents on the questions related to the difficulties faced by the parents who had children in schools and kindergartens. Areas of parenting stress that recorded cumulatively higher percentages for “never” and “sometimes” over 50.0% include: having difficulties with children due to the closure of schools; advice/help keep distance from family members and parents’ concern that children may become infected. And the results that are declared a cumulative percentage over 50.0% for “usually” and “always” are: tips/help for children to keep distance from friends; to avoid places frequented by many people and to respect the World Health Organization (WHO) rules for protection from COVID-19.

Table 5. COVID-19 parenting stress

Variables	never	sometimes	usually	always	Mean	Std. Deviation
Have you had difficulties with children due to the closure of schools?	26.8	36.1	18.6	18.6	2.28	1.06
Advising your child to keep a safe distance from their friends, or preventing them from mixing with their friends	21.6	26.8	33.0	18.6	2.48	1.032
Advising your child to keep a safe distance from members of your extended family, or preventing them from visiting with the extended family (for example grandparents)	28.9	43.3	11.3	16.5	2.15	1.024
Helping your child avoid crowded places, and activities that they like, such as going to sports or musical events, scouts or guides, clubs, the playground?	21.6	22.7	33.0	22.7	2.56	1.07
Did you advise / help the children to follow the rules of COVID-19, during greetings, or during physical contact with other people?	19.6	13.4	37.1	29.9	2.77	1.08

Did you advise / help the children to follow the WHO advice for protection from COVID-19, such as: wearing a mask, washing hands, keeping a distance, etc.	18.6	14.4	28.9	38.1	2.86	1.12
Have you ever had concerns that children could be infected with COVID-19 because they have health problems (eg asthma or otherwise, which makes them vulnerable to serious illness if they become infected)?	28.9	25.8	16.5	28.9	2.45	1.19

Table 6 presents the percentages of participants responding to the questions under the aging parent stress factor. On average, families of SEEU students usually worry that their aging parents will become infected with COVID-19 and probably will not receive adequate medical care if it so happens that their parents were infected with COVID-19. These findings are evident from the over 50.0% of the respondents who cumulatively responded either “usually” or “always”. The case was not different with family of SEEU students getting worried about their aging parents being lonely and/or not getting supplies during the COVID-19 crisis. The standard deviation shows that their responses to were clustered around “usually” for all the questions under this factor.

Table 6. COVID-19 aging parents stress

Variables	never	sometimes	usually	always	Mean	Std. Deviation
Worrying that your aging parents will become lonely during the COVID -19 crisis	9.3	25.8	41.2	23.7	2.79	0.91
Worrying that you aging parents will not get supplies during the COVID -19 crisis	13.4	32.0	35.1	19.6	2.61	0.95
Worrying that your aging parents will become infected with COVID -19	7.2	15.5	38.1	39.2	3.09	0.91
Worrying that your aging parents will not receive adequate medical care if they become infected with COVID -19	5.2	22.7	35.1	37.1	3.04	0.90

In Table 7, the results of questions related to gratitude for some aspects of life after the COVID-19 crisis is presented. It is evident from their results that the participants are “usually” concerned about their health, the health of their family members, and everything that surrounds them such as extended relations, their job, social, sports, and cultural events and the community as a whole. However, the responses to being concerned about their health, the health of family as well as their job varied as compared to the other questions under the gratitude factor.

Table 7. COVID-19 gratitude

Variables	never	sometimes	usually	always	Mean	Std. Deviation
Your health, and the health of your family	11.3	15.5	25.8	47.4	3.093	1.042
Your relationships with your extended family and friends	9.3	15.5	33.0	42.3	3.082	0.975
Your job	14.4	20.6	34.0	30.9	2.814	1.034
Attending social, sports, and cultural events	8.2	24.7	34.0	33.0	2.918	0.954
Your community	11.3	26.8	39.2	22.7	2.732	0.941
Your child’s regular attendance at school	7.2	19.6	30.9	42.3	3.082	0.954
Your child’s relationships with their friends	6.2	23.7	39.2	30.9	2.948	0.894
Your child’s involvement in activities such as sports, music, scouts, guides, clubs, etc.	5.2	23.7	35.1	36.1	3.021	0.901
Health and safety of your aging parents	6.2	14.4	25.8	53.6	3.268	0.930

Table 8 shows the data of Odds Ratios, 95% Confidence Intervals and Percent of cases correctly classified between the independent variable ‘in families that have been affected by health with Covid-19’ and the dependent variables, separately ‘Personal’, ‘Parenting’, ‘Aging Parents’ and ‘Gratitude’. In all four mathematical models it is seen that there was a statistical correlation between the variable, for example in the model between the variables ‘family health’ and ‘Personal Stress’, where  $OR = 1.35 > 1$  (95% CI: 1.31, 1.40) and with

Percent of cases correctly classified 72.64%. This means that families who have had people suffering from covid, chances are 1.31 times have had difficulty (stress) usually and always versus never and sometimes. Also OR for the other three models between ‘family health’ and ‘Parenting Stress’; ‘Family health’ and ‘Aging Parents Stress’; ‘Family health’ and ‘Gratitude’ are 1.63, 1.58 and 2.32, respectively.

Table 8. Logistic regression models for health COVID-19 and the relationships Personals, Parenting, Aging Parents and Gratitude

Independent Variable	You, or members of your family becoming ill with COVID-19			
	Personal	Parenting	Aging Parents	Gratitude
Odds Ratios	1.35	1.63	1.58	2.32
95% Confidence Intervals	(1.31, 1.40)	(1.59, 1.68)	(1.53, 1.63)	(2.14, 2.57)
Percent of cases correctly classified	72.64%	78.35%	65.86%	75.48%

## VI. CONCLUSION

Although the pandemic has declined recently, there is still a need for increased policy measures to ease the effects of the Covid-19 pandemic.

Health institutions need to renew their capacity, hospital conditions, health staff and trust in citizens, because out of 49.5% of households that have been infected themselves or a family member with Covid-19, indicate that 79.4% have not been hospitalized in hospital. In terms of personal stress that may have consequences in the future, are not-socialization as a result of being closed indoors, disruption of daily aspects of life, and from receiving incorrect or contradictory information.

Parents who have had children are also tired of advising or assisting their children on adhering to the rules against the COVID-19 Pandemic. There were also concerns during the pandemic towards elderly parents because they have been the most vulnerable stratum.

Most of the population after the occurrence of the COVID-19 pandemic, are now grateful for some aspects of their lives.

The mathematical models we constructed showed that the health effect from COVID-19 had an impact on the four (4) factors: Personal, Parenting, Aging Parents and Gratitude.

Based on the findings of this study, we recommend that all institutions together with responsible persons and society in general work together to heal the consequences of the pandemic and return to pre-pandemic life.

## REFERENCES

1. Açıkgöz, Ö., & Günay, A. (2020). The early impact of the Covid-19 pandemic on the global and Turkish economy. *Turkish journal of medical sciences*, 50(SI-1), 520-526.
2. Akat, M., & Karataş, K. (2020). Psychological effects of COVID-19 pandemic on society and its reflections on education. *Electronic Turkish Studies*, 15(4).
3. Asahi, K., Undurraga, E. A., Valdés, R., & Wagner, R. (2021). The effect of COVID-19 on the economy: Evidence from an early adopter of localized lockdowns. *Journal of global health*, 11.
4. Bhinder, N., Masliy, O., Ivanchenko, I., Petruk, V. A., Bachynska, N. (2021). Evaluating the Effectiveness of Using Sport and Traditional Games at the Higher Military Educational Establishments in a Pandemic and Post-pandemic Period. *Ann Appl Sport Sci*. 9 (4).
5. Bukari, C., Essilfie, G., Aning-Agyei, M. A., Otoo, I. C., Kyeremeh, C., Owusu, A. A., Amuquandoh, K.F., Bukari, K. I., (2021). Impact of COVID-19 on poverty and living standards in Ghana: A micro-perspective. *Cogent Economics & Finance*, 9(1), 1879716.
6. Dallolio, L., Marini, S., Masini, A., Toselli, S., Stagni, R., Bisi, M.C., Gori, D., Tessari, A., Sansavini, A., Lanari, M., Bragonzoni, L., Ceciliani, A., The impact of COVID-19 on physical activity behaviour in Italian primary school children: a comparison

- before and during pandemic considering gender differences. *BMC Public Health* **22**, 52 (2022).
7. Dong, Y., Mo, X.I., Hu, Y., Qi, X., Jiang, F., Jiang, Z. and Tong, S., 2020. Epidemiological characteristics of 2143 pediatric patients with 2019 coronavirus disease in China. *Pediatrics*, *145*(6), p.e20200702.
  8. Lightfoot, E., Moone, R. P., (2020) Caregiving in Times of Uncertainty: Helping Adult Children of Aging Parents Find Support during the COVID-19 Outbreak, *Journal of Gerontological Social Work*, *63*:6-7, 542-552, DOI: 10.1080/01634372.2020.1769793.
  9. Gupta, M., Abdelmaksoud, A., Jafferany, M., Lotti, T., Sadoughifar, R., Goldust, M. (2020). COVID-19 and economy. *Dermatologic therapy*, *33*(4), e13329-e13329.
  10. Iecovich, E. (2008). Caregiving burden, community services, and quality of life of primary caregivers of frail elderly persons. *Journal of Applied Gerontology*, *27*(3), 309–330.
  11. Institute of Public Health of the Republic of North Macedonia. <https://www.iph.mk>.
  12. Katzmarzyk, P.T., Friedenreich, C., Shiroma, E.J., Lee, I.M., (2021). Physical inactivity and non-communicable disease burden in low-income, middle-income and high-income countries. *Br J Sports Med*. *29*:bjsports-103640.
  13. Kohl, H.W. 3rd, Craig, C.L., Lambert, E.V., Inoue, S., Alkandari, J.R., Leetongin G., Kahlmeier, S., Lancet physical activity series working group. The pandemic of physical inactivity: global action for public health. *Lancet*. 2012;380(9838):294–305.
  14. Kutsar, D., and Kurvet-Käosaar, L., (2021) The Impact of the COVID-19 Pandemic on Families: Young People’s Experiences in Estonia. *Front. Sociol.* *6*:732984. doi: 10.3389/fsoc.2021.732984.
  15. Krendl, A. C., & Perry, B. L., (2021). The impact of sheltering in place during the COVID-19 pandemic on older adults’ social and mental well-being. *The Journals of Gerontology: Series B*, *76*(2), e53-e58.
  16. Lei, M. K., & Klopach, E. T. (2020). Social and psychological consequences of the COVID-19 outbreak: The experiences of Taiwan and Hong Kong. *Psychological trauma: theory, research, practice, and policy*, *12*(S1), S35.
  17. Osofsky, J. D., Osofsky, H. J., & Mamon, L. Y. (2020). Psychological and social impact of COVID-19. *Psychological Trauma: Theory, Research, Practice, and Policy*, *12*(5), 468.
  18. Pietrobelli, A., Pecoraro, L., Ferruzzi, A., Heo, M., Faith, M., Zoller, T., Antoniazzi, F., Piacentini, G., Fearnbach, S.N., Heymsfield, S.B., (2020). Effects of COVID-19 lockdown on lifestyle behaviors in children with obesity living in Verona, Italy: a longitudinal study; *28*(8):1382–5.
  19. Postmus, J. L., Hoge, G. L., Breckenridge, J., Sharp-Jeffs, N., Chung, D. (2020). Economic abuse as an invisible form of domestic violence: A multicountry review. *Trauma, Violence, & Abuse*, *21*(2), 261–283.
  20. Pratibha, S., & Krishna, M. (2022). The effect of COVID-19 pandemic on economic growth and public debt: an analysis of India and the global economy. *Journal of Economic and Administrative Sciences*.
  21. Ruiz-Zaldibar, C., García-Garcés, L., Vicario-Merino, Á., Mayoral-Gonzalo, N., Lluesma-Vidal, M., Ruiz-López, M., & Pérez-Manchón, D. (2022). The Impact of COVID-19 on the Lifestyles of University Students: A Spanish Online Survey. *Healthcare (Basel, Switzerland)*, *10*(2), 309. <https://doi.org/10.3390/healthcare10020309>
  22. Samarah, W. A. (2021). Evaluating the Effect of Covid-19 on the Palestinian Economy by Estimating the Relationship Between Economic Growth and Unemployment in Palestine. *Studies in Business and Economics*, *16*(2), 206-217.



23. Sampson, L., Ettman, C.K., Abdalla, S.M., Colyer, E., Dukes, K., Lane, K.J., Galea, S. (2021). Financial hardship and health risk behavior during COVID-19 in a large US national sample of Women. *SSM-Popul. Health*, 13, 100734.
  24. Sneed, R. S., Key, K., Bailey, S., & Johnson-Lawrence, V. (2020). Social and psychological consequences of the COVID-19 pandemic in African-American communities: Lessons from Michigan. *Psychological Trauma: Theory, Research, Practice, and Policy*, 12(5), 446.
  25. UNDP (2020) "Socio-Economic Assessment of COVID19's Impact in North Macedonia: Policy Response, Economic Recovery and Growth", Special issue, June 2020.
  26. Wu, Z., & McGoogan, J. M. (2020). Characteristics of and important lessons from the coronavirus disease 2019 (COVID-19) outbreak in China: Summary of a report of 72 314 cases from the Chinese center for disease control and prevention. *JAMA*, 323(13), 1239–1242.
  27. Zimmermann, P., Curtis, N. (2020) Coronavirus infections in children including COVID-19: an overview of the epidemiology, clinical features, diagnosis, treatment and prevention options in children. *Paediatric Infectious Disease Journal*, Volume 39,5, p.355– 68. doi: 10.1097/INF.0000000000002660.
-

## Fenomen Pazarlamanın Marka Tutumuna ve Tüketici Satın Alma Niyetine Etkisi

Meriç Altaylı ve Reha Saydan

<sup>1</sup>Uluslararası Ticaret ve Finans / İktisadi ve İdari Bilimler Fakültesi, Arel Üniversitesi, Türkiye

<sup>2</sup>İşletme / İktisadi ve İdari Bilimler Fakültesi, Van Yüzüncü Yıl Üniversitesi, Türkiye

\*([mericaltayli@arel.edu.tr](mailto:mericaltayli@arel.edu.tr)), 0009-0009-6651-1106

**Özet** – Sosyal medyanın kullanımının artmasıyla birlikte, bireyler fikirlerini, yaşam tarzlarını sosyal medya aracılığıyla yansıtmaktadır. Bireylerin satın alma davranışları da sosyal medyaya verdikleri önem doğrultusunda, bu platformlardan etkilenmektedir. Son dönemlerde en çok kullanılan platformlardan biri olan instagramın popülerliğinin artması, fenomen adı verilen dijital ortamın yeni ünlülerinin ortaya çıkmasına zemin hazırlamıştır. Fenomenler instagramda fotoğraf, video, hikaye paylaşarak, tüketicilerin ürünü satın almadan önce bilgi edinmelerini veya tüketicinin haberi olmadığı bir ürün hakkında satın alma niyeti oluşturmalarını sağlamaktadırlar. Tüketicilerin zihninde, fenomenlere duydukları güven ve hayranlıktan ötürü reklamı yapılan ürün hakkında satın alma niyeti oluşacağı düşünülmektedir. Bu doğrultuda tüketicilerin fenomenler aracılığıyla marka yönelik olumlu tutum sergileyeceği düşünülmektedir.

Bu araştırmanın amacı instagram fenomenlerinin çevrim içi kaynak güvenilirliği (güvenilirlik, uzmanlık/yetkinlik, çekicilik ve kendini ifade etme) boyutlarının tüketicinin markaya yönelik tutumu ve satın alma niyeti üzerindeki etkisini belirlemektir. Araştırmanın örneklemi kolayda örnekleme yöntemi ile gerçekleştirilmiş ve analize uygun 434 kişinin verisi elde edilmiştir. Verilerin analizi SPSS programında gerçekleştirilmiştir. Yapılan çoklu regresyon analiz sonuçlarına göre fenomenlerin çevrim içi kaynak güvenilirliği boyutlarından güvenilirlik, uzmanlık/yetkinlik, çekicilik ve kendini ifade etme boyutlarının tüketicinin markaya yönelik tutum ve satın alma niyeti üzerinde anlamlı ve olumlu bir etkisi olduğu sonucuna varılmıştır. Bununla birlikte marka tutumunun da satın alma niyeti üzerinde anlamlı ve olumlu bir etkisi olduğu tespit edilmiştir.

*Anahtar Kelimeler* — Instagram, Çevrim içi kaynak güvenilirliği, Fenomen, Marka tutumu, Satın alma niyeti

### 1.GİRİŞ

Günümüzün dijital dünyasında içerik üreterek deneyimlerini, marka iş birlikleri çerçevesinde marka / ürün mesajlarını paylaşan fenomenlerin varlığı bilinmektedir. Bu kişiler öncelikle sosyal medya sayesinde ünlü olan, belirli bir takipçi sayısına sahip kişilerdir. Fenomenler paylaşımları ile takipçileri üzerinde etkisi olan sosyal medya kullanıcıları olarak tanımlanabilir (Boran, 2023).

Fenomen kavramı insanları, hayranları ve iletişimlerini, davranışlarını ve sunumlarını takip eden diğer bireyleri etkileyen kişilere verilen isimdir. Fenomen rolüne giren herhangi bir kişi, tutumları veya düşünceleri ile özdeşleşen veya yalnızca bir fenomenin etkisi altında olan bir taraftar tabanına sahiptir. Çoğu zaman bu kişinin onlar üzerindeki etkisi rasyonel inançlardan değil, sempati ve kişisel sevgiden gelir. Fenomenin etkisinin nedeni ne olursa olsun, değerlendirme ve

ölçmenin bazı yönleri olan bir gerçektir. Bu ölçümlere göre, etkileyici (fenomen) kişi önemli faaliyetleri olan kişiler olarak değerlendirilebilir (Vodak vd., 2019). Fenomen kavramı aynı zamanda başkalarını etkileme gücüne sahip olan bireyler olarak da tanımlanabilir (Djafarova ve Trofimenko, 2019).

Fenomen pazarlama, medyanın dijital dönüşümü çağında en umut verici pazarlama stratejilerinden biri olarak kabul edilmektedir. Sosyal platformlardan biri olan instagram, şirketlere ürünlerini ve hizmetlerini, doğrudan bir reklam olarak tanınmadan, fenomenler aracılığıyla pazarlamak için büyük bir fırsat sunmaktadır (Alassani ve Göretz, 2019).

Fenomen pazarlama, tüketicileri hedeflemek için fenomenleri kullanan bir pazarlama iletişimi biçimidir. Şirketlerin, tüketicilerin tanıdıkları ve hayran oldukları birine duydukları güvene dayalı olarak markalarını ve bağlılıklarını oluşturmalarına yardımcı olur. Fenomen pazarlamanın fenomenlere duyulan ilgi ve bağlılık sayesinde tüketici yaşam tarzları üzerindeki etkili olduğu düşünülmektedir (Nadanyiova, vd., 2020).

Fenomen pazarlama stratejileri her zaman doğal olması ve fenomenlerin kişiliği ve inançları ile uyumlu olması gerekmektedir. Bu nedenle işletmeler, fenomenlerin gönderi stiliyle tutarlı veya en azından onu anımsatan bir şekilde ürünlerinin reklamını yapmaya çalışması önemlidir. İşletmeler başarılı olursa, tüketiciler sponsorlu ürünü satın alma konusunda daha iyi izlenimlere ve daha güçlü niyetlere sahip olacaktır (Alboqami, 2023).

Bu çalışmanın amacı instagram fenomenlerinin çevrim içi kaynak güvenilirliği (güvenilirlik, uzmanlık / yetkinlik, çekicilik ve kendini ifade etme) boyutlarının tüketicinin markaya yönelik tutumu ve satın alma niyeti üzerindeki etkisini belirlemektir. Bu doğrultuda, Djafavora ve Trofimenko (2019) tarafından geliştirilen ve dört boyuttan oluşan çevrim içi kaynak güvenilirliği modelinden faydalanılmıştır. Bu çalışma ile instagram fenomenlerinin güvenilirliğinin tüketicilerin marka tutumu ve satın alma niyeti üzerindeki etkileri incelenerek literatürde var olan çalışmalara katkı sağlamayı amaçlamaktadır.

## II. LİTERATÜR

Fenomen pazarlamayla ilgili literatür incelendiğinde instagram fenomenlerinin güvenilirlik, uzmanlık, çekicilik ve kendini ifade etme yeteneği özelliklerinin,

marka tutumu ve satın alma niyetine etkisini inceleyen birçok araştırmaya rastlanmaktadır. Kaynak güvenilirliği modelini geliştiren Ohanian (1990) birçok araştırma tarafından uyarlanmış ve geliştirilmiştir (Lou ve Yuan, 2019; Güven ve Köken, 2022). Ohanian (1990) kaynak güvenilirliği modelini güvenilirlik, çekicilik, uzmanlık alt boyutları ile açıklamıştır. Kaynak güvenilirliği modelinin alt boyutlarının satın alma niyeti üzerinde anlamlı bir etkisi olduğu sonucuna ulaşmıştır. Literatüre bakıldığında kaynak güvenilirliği modelinin satın alma niyeti üzerinde etkisini inceleyen çalışmalar görülmektedir (Immanuel ve Bianda, 2021; Chetioui, Benlafqih, ve Lebdaoui, 2020; Durmaz, Cavus ve Wilk-Jakubowski, 2023; Halim, Rianto ve Hebrard, 2020; Dwidienawati, Tjahjana, Abdinagoro, ve Gandasari, 2020; Cleo ve Sopiah, 2021). Durmaz ve arkadaşları (2023) fenomen pazarlamanın tüketici satın alma niyetleri üzerinde olumlu bir etkiye sahip olduğunu vurgulamışlardır. Chetioui ve arkadaşları (2020) moda fenomenlerinin marka tutumunu ve tüketici satın alma niyetini olumlu yönde etkilediğini belirtmişlerdir. Immanuel ve Bianda (2021) algılanan güvenilirlik, güven ve çekiciliğin, fenomenlere yönelik tutum üzerinde pozitif ve anlamlı bir etkiye sahip olduğunu vurgulamışlardır. Buna karşılık, algılanan uzmanlığın, fenomenlere yönelik tutum üzerinde olumsuz ve önemsiz bir etkisi olduğunu belirtmişlerdir. Martiningsih ve Setyawan (2022) fenomenlerin çekiciliği ve uzmanlığı, Covid-19 salgını sırasında Shopee pazarında sunulan ürünlerde satın alma niyetini olumlu ve önemli ölçüde etkilediğini, fenomenin güvenilirliğinin ise satın alma niyeti üzerinde anlamlı bir etkisinin olmadığını belirtmişlerdir. Bilro ve arkadaşları (2020) yaptıkları çalışma ile özellikle genç kadın tüketicilerde, fenomenlerin instagram paylaşımlarının tüketicinin satın alma niyeti üzerinde etkili olduğunu vurgulamışlardır. Ayrıca marka tutumu ile ilgili olarak, belirli bir fenomenin markayı yükseltmesi / alçaltması durumunda tüketicilerin bir marka hakkındaki görüşlerini (olumlu veya olumsuz) değiştirme eğiliminde olduklarını da belirtmişlerdir.

Johansen ve Guldvik (2017) fenomen pazarlamanın satın alma niyeti üzerinde doğrudan bir etkisinin olmadığını ve fenomen pazarlamanın normal çevrimiçi reklamdan daha verimli bir pazarlama stratejisi olmadığını belirtmiştir. Literatürde paralel şekilde fenomen pazarlamanın tüketici satın alma niyeti üzerinde etkisi olmadığını sonucuna ulaşmış çalışmalar bulunmaktadır (Müller, Mattke ve Maier, 2018; Nurhandayani, Syarief, ve Najib, 2019; Astuti ve Risqiani, 2020; Putri ve Tiarawati, 2021; Fernando,

2021; Shrestha, 2022). Riedl ve Luckwald (2019) Instagram gönderisinin reklam etkisi, klasik basılı reklamdan daha düşük olduğunu ve instagram gönderisinin en büyük etkisi, tüketicilerin fenomenleri (takipçi durumu) takip ettiği durumlarda olduğunu belirtmişlerdir. Ancak Patmawati ve Miswanto (2022) fenomenin bir markanın reklamını yaptıktan sonra tüketici farkındalığını ve tüketicinin satın alma niyeti düzeyini artırmada etkili olduğunu kanıtlamışlardır. Tüketici yüksek farkındalığa sahip olduğunda satın alma niyetine sahip olmak için büyük olasılıkla daha fazla bilgi arayacaktır.

Djafavora ve Trofimenko (2019) yaptıkları çalışma ile kaynak güvenilirliği modeline kendini sunma yeteneğini ekleyerek genişletilmiş kaynak modeli sunmuşlardır. Şirketlerin ürün onayı için fenomenleri giderek daha fazla kullandıklarını belirtmişlerdir. Bu çalışma ile kaynak güvenilirliği, kişisel sunum ve fenomenlerin onaylanmasına yönelik tüketici davranışı arasındaki ilişkileri incelemişlerdir. Bulgulara göre kullanıcıların belirli çevrimiçi davranış ve kendini tanıtmaya ölçütlerini takip ettikleri takdirde fenomenleri güvenilir bulduklarını belirtmişlerdir. Aanchal (2020) fiziksel görünüm, uzmanlık, deneyim, güvenilirlik boyutlarının dikkat çekmek, ilgi çekmek ve davranış değişikliğini etkilemek ve dolayısıyla satın alma kararlarını yönlendirmek için gerekli olduğunu sonucuna ulaşmıştır.

Ekstam ve Bjurling (2018) yaptıkları çalışma ile giyim endüstrisindeki ücretli sosyal medya pazarlaması ve fenomen pazarlamayı kıyaslamışlardır. Katılımcıların fenomen pazarlamaya maruz kaldıklarında marka algılarının genellikle daha yüksek olduğunu sonucuna ulaşmışlardır. Bir çok yazar fenomen pazarlamanın önemli bir ticari pazarlama tekniği olduğunu belirtmişlerdir (Leung, Bai ve Stahura, 2015; Infante ve Mardikaningsih, 2022; Hudders, Jans, ve Veirman, 2021). Sosyal medya fenomenleri, sosyal medya platformlarındaki fotoğraflar, videolar ve diğer güncellemeler aracılığıyla tüketicilerin bir marka veya ürünle ilgili algılarını şekillendirdiği belirtilmiştir (Saima ve Khan, 2020).

### III.KONU VE YÖNTEM

#### A.Araştırmanın Amacı

Günümüzde bilgisayar ve internet teknolojisindeki gelişmeler ve buna bağlı olarak akıllı cihazların yaygın hale gelmesiyle ürün ve markalara yönelik deneyimler de farklı bir boyut kazanmıştır. Bu gelişmelerle birlikte

pazarlama faaliyetlerine ve dolayısıyla tüketici satın alma davranışlarına sosyal medya fenomenlerinin etkisi gün geçtikçe artış göstermiştir. Bu platformlarda yer alan fenomenler ürün ve markaların farkındalığını arttırmakta ve bu şekilde sosyal medyada yer alan bireylerin satın alma karar sürecini etkilemektedir. Bu bağlamda bu araştırmanın amacı instagram fenomenlerinin çevrim içi kaynak güvenilirliği (güvenilirlik, uzmanlık/yetkinlik, çekicilik ve kendini ifade etme) boyutlarının tüketicinin markaya yönelik tutumu ve satın alma niyeti üzerindeki etkisini belirlemektir.

#### B.Araştırmanın Kapsamı ve Kısıtlar

Araştırmanın bulguları değerlendirilirken dikkate alınması gereken bazı kısıtlar bulunmaktadır. Elde edilen bulgular sosyal medya platformlarından sadece instagram kullanıcıları kapsamaktadır. Bu nedenle bulguların diğer sosyal medya platformları için genelleştirilebileceği söylenemez.

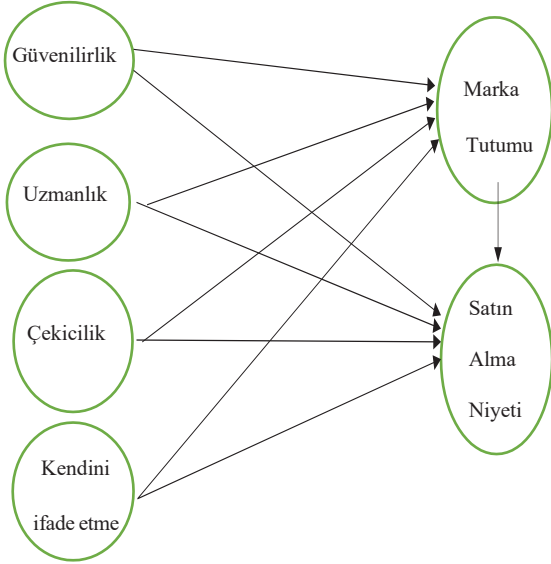
Sonuçların genelleştirilebilmesi için farklı sosyal medya platformlarını da kapsayacak şekilde yapılması gereklidir. Ayrıca tüketici satın alma davranışları zaman içerisinde farklılık göstereceğinden farklı zaman dilimlerinde yapılan çalışmaların farklı sonuçlar verebileceği de araştırmanın bir diğer kısıtını oluşturmaktadır. Ayrıca araştırma maliyeti ve zaman kısıtı nedeniyle araştırma sadece Van ilinde gerçekleştirilmiş, örneklem sayısı Van ile sınırlı tutulmuş ve kolayda örnekleme yöntemi kullanılmıştır. Araştırmanın sahip olduğu tüm bu kısıtlara rağmen sonuçların daha sonra yapılacak çalışmalara katkı sağlayacağı düşünülmektedir.

#### C.Araştırmanın Modeli ve Ölçeği

Fenomen özelliklerinin marka tutumu ve satın alma niyeti üzerindeki etkisini tespit etmek için gerçekleştirilen bu çalışmada, Çevrim içi kaynak

güvenirliliğini ifade eden Djafavora ve Trofimenko'nun (2019) geliştirdiği dört boyuttan oluşan ölçekten yararlanılmıştır. Marka tutumu ölçeği Zarantonello ve Schmitt'in (2010) ve satın alma niyeti ise Hsu vd (2013) çalışmasından yararlanılmıştır.

#### Fenomen Pazarlamanın Alt Boyutları



#### D. Araştırmanın Hipotezleri

Araştırmanın amacı ve değişkenlerine uygun olarak geliştirilen hipotezler aşağıda verilmiştir. Uzmanlık, klasik kaynak güvenilirliği modelinde kaynak güvenilirliğinin boyutundan biridir (Ohanian, 1990). Ayrıca fenomenin uzmanlığına dayanan kaynakların, pazarlama bağlamında kanıtlanmış bir yöntem olan “Uzmanların ifadelerine güvenilebilir” gibi kuralların kullanımını etkilediğini belirtilmiştir (Ratneshwar ve Chaiken, 1991). Bu bilgiler doğrultusunda aşağıdaki hipotez oluşturulmuştur:

*H<sub>1</sub> : Fenomenin uzmanlığı marka tutumu üzerinde etkilidir.*

McGuire (1985), kaynak çekiciliğinin bir iletişim mesajının etkinliğini doğrudan etkilediğini savunmuştur. Tüketicilerin çekici bir bir kaynak tarafından verilen bilgileri kabul ettikleri belirtilmiştir. Ayrıca, çekici olarak bilinen ünlülerin marka tutumu ve satın alma niyetleri üzerinde olumlu bir

etki yaratacağı düşünülmektedir (Erdogan, 1999). Amelina ve Zhu (2016) yaptıkları çalışma ile kaynak güvenilirlik modeline dayanarak marka tutumunun, onaylayanın çekiciliğinden etkilendiğini vurgulamışlardır.

Bu bilgiler doğrultusunda aşağıdaki hipotez oluşturulmuştur:

*H<sub>2</sub> : Fenomenin çekiciliği marka tutumu üzerinde etkilidir.*

Kaynak güvenilirliğinin belirleyicilerinden biri, gönderenin algılanan güvenilirliğidir. (Hovland ve diğerleri, 1953'den aktaran Ismagilova vd 2020); Kaynak güvenilir olduğunda bilginin güvenilirliğinden alıcı tarafından daha az kuşku duyulur (Sparkman ve Locander, 1980'den aktaran aktaran Ismagilova vd 2020). Kaynak güvenilirliği terimi bir bireyin bir bilgi kaynağını tarafsız, inanılır ve doğru olarak algılayıp algılamadığını ifade etmektedir (Lu vd, 2014). Ayrıca güvenilir bulunan bir kaynağın marka tutumunu olumlu yönde etkileyeceği düşünülmektedir (Schouten vd, 2020). Bu bilgiler doğrultusunda aşağıdaki hipotez oluşturulmuştur. Jin ve arkadaşları (2019) instagram ünlülerinin markayla ilgili paylaşımlarına maruz kalan tüketicilerin, kaynağı daha güvenilir olarak düşündükleri, ilgili markaya yönelik daha olumlu bir tutum sergilediklerini tespit etmişlerdir.

*H<sub>3</sub> : Fenomenin güvenilirliği marka tutumu üzerinde etkilidir.*

Öz sunum, bir bireyin sosyal bir ortamda ve kendisi tarafından sunumu olarak tanımlanır. Bireylerin başkaları tarafından nasıl algılanmak istediklerini göstermektedir. Bireyler kendileriyle ilgili bilgileri diğer kullanıcılarla kapsamlı bir şekilde paylaştığından ötürü, bu kavramsosyal medya bağlamında kilit öneme sahiptir. Bireyler yazılı ve görsel iletişim kullanarak sosyal kimliklerini inşa etmektedirler (Kim ve Chock, 2015). Bu bağlamda aşağıdaki hipotez kurulmuştur:

*H<sub>4</sub> : Fenomenin kendini ifade etme yeteneği*

*marka tutumu üzerinde etkilidir.*

Kaynak güvenilirliği modeline göre, bilgi kaynakları güvenilirlik, çekicilik ve uzmanlık yoluyla hedef tüketiciler üzerinde ikna edici bir etki yaratması beklenmektedir (Ohanian, 1990). Kaynak güvenilirliği modeline göre uzmanlığı yüksek olan ünlüler, uzmanlığı az olanlara göre daha ikna edicidir. Yapılan çalışmalar kaynak güvenilirliği boyutlarından biri olan uzmanlığın satın alma niyeti üzerinde etkili olduğunu destekler niteliktedir (Trivedi ve Sama, 2020; Li ve Peng, 2021). Bu bağlamda aşağıdaki hipotez kurulmuştur.

*H<sub>5</sub>: Fenomenin uzmanlığı satın alma niyeti üzerinde etkilidir.*

Kaynak çekicilik modeli (McGuire, 1985), aşinalık, benzerlik, beğenilebilirlik ve çekicilik gibi kaynak özelliklerini dikkate alır. Bir iletişimci çekici olduğunda, izleyiciler iletişimcinin mesajını beğenmeye ve kabul etmeye daha istekli olduğu düşünülmektedir (Kim, 2021). Çekici iletişimcilerin, çekici olmayan iletişimcilerden daha güvenilir bulunmakta, çekici bir iletişimciyi görmenin getirdiği zevk veya tatmin, kişinin onun mesajını değerlendirmesinde genelleştirmekte ve durumda çekici yüzlerin dikkati dağıttığını, karşı tartışmayı engellediğini ve böylece tutum değişikliğini kolaylaştırır dediği düşünülmektedir.

Çekici iletişimciler, çekici olmayanlara göre daha çok sevilir bu durum ise iletişimcinin mesajının daha fazla kabul görmesine yol açar (Snyder ve Rothbart, 1971). İletimcinin alıcı tarafından algılanan fiziksel çekiciliği, alıcının ilk yargısını ve ardından etkileyici tarafından önerilen ürüne yönelik satın alma niyetini etkilediği düşünülmektedir (Baker ve Churchill, 1977). Bu bilgiler doğrultusunda aşağıdaki hipotez oluşturulmuştur.

*H<sub>6</sub>: Fenomenin çekiciliği satın alma niyeti üzerinde etkilidir.*

Kaynak güvenilirliği, alıcının reklamla ilgili mesajını kabul etmesini etkileyen iletişimci(fenomenin) pozitif özelliği olarak tanımlanabilir(Ohanian, 1990).Güvenilirlik, kaynağın bütünlüğüyle ilişkilidir.Aynı zamanda

mesajın alıcısının iletişimci hakkında geçerli, dürüst ve doğru bir mesaj iletme yeteneğine sahip olduğunu düşünmesiyle ile doğrudan bağlantılıdır. Yapılan araştırmalar, instagram etkileyicilerinin satın alma niyetiyle pozitif bir ilişkisi olduğunu bulmuşlardır (Chekima vd 2020 ; Erdogan, 1999 ; Erdem ve Swait 2004). Sonuç olarak etkileyiciye duyulan güvenin takipçilerin satın alma niyetini olumlu etkileyeceği düşünülmektedir (Moreira, 2021; Dinesha ve Hansika 2022; Saima ve Khan, 2020). Nam (2018) yaptığı araştırmayla, fenomen güvenilirliği, bilgi kalitesi, fenomen ve ürünler arasındaki ilişki ve tüketici katılımı olmak üzere dört bileşenle, sosyal medyada fenomen pazarlamanın Ho Chi Minh şehrindeki tüketicilerin satın alma niyeti üzerindeki etkilerini inceleyen modele katkıda bulunmaktadır. Fenomen pazarlamanın tüketici satın alma kararına etkileriyle alakalı bulgulardan fenomenin güvenilirliğinin önemini vurgulamaktadır.

Ayrıca, içerikleri etkin oluşturmak ve ürüne göre fenomen seçmek fenomen pazarlaması üzerinde olumlu bir etkiye sahiptir. Chetioui ve arkadaşları (2020) gerçekleştirdikleri çalışmada güvenilir olarak algılanan fenomenlerin, takipçilerin tutumlarını ve satın alma niyetlerini etkileme olasılığının daha yüksek olduğunu belirtmişlerdir.Bununla birlikte tüketicilerin popüler fenomenler tarafından tavsiye edilen bir markayı takdir etme veya önerme olasılığının daha yüksek olduğunu vurgulamışlardır. Şeker (2021) yaptığı çalışma ile tüketiciler için güven, şeffaflık, dürüstlük ve karşılıklı etkileşim tüketicilerin fenomenleri takip edip, etmeme kararında ve dolayısıyla yapılan paylaşımlar doğrultusunda satın alma kararının gerçekleşmesinde etkili olduğunu vurgulamıştır. Bu bilgiler doğrultusunda aşağıdaki hipotez oluşturulmuştur.

*H<sub>7</sub>: Fenomenin güvenilirliği satın alma niyeti üzerinde etkilidir.*

Fenomenin kimliğinin ve güvenilirliğinin sunumu, sosyal medya

pazarlamasında oldukça önemlidir. Çünkü bu tür pazarlama stratejisi güçlü iknalar olmaksızın düzenli bir etkileşime dayanmaktadır. Yapılan çalışmalar sosyal medya kullanıcılarının kendilerine güvenen bir benlik sergilemeleri için onlara ilham veren ve onları ikna eden yüksek kaliteli pozitif imajlar sunan mikro ünlüleri takip etmeyi sevdiğini ve insta-ünlülerin başarılarından ve yaşam tarzlarından ilham aldıklarını göstermektedir (Tanha, 2020 ; Chiang ve Suen, 2015 ; Djafarova ve Trofimenko, 2019 ). Bu bilgiler ışığında aşağıdaki hipotez oluşturulmuştur.

*H<sub>8</sub>: Fenomenin kendini ifade etme yeteği satın alma niyeti üzerinde etkilidir.*

Markaya yönelik tutum bireylerin markayla ilgili görüş ve tecrübelerine dayanan tepkilerdir. Markayı oluşturan tüm değerlerin birleşimi olarak da belirtilebilir (Cop ve Baş, 2010). Fenomenlerin reklamını yapmış olduğu ürünlere karşı tüketiciler tarafından markaya yönelik pozitif veya negatif bir tutum oluşmaktadır. Satın alma niyeti ise etkileyici tarafından reklamı yapılan ürünü satın alma taahhüdünde bulunan bireyler olarak tanımlanabilir (Müller vd, 2018). Tüketicilerin markaya yönelik yapmış olduğu değerlendirmeler neticesinin olumlu olması durumunda ürünü satın almaya, çevresindeki kişilere tavsiye etmeye meğilli olacağı düşünülmektedir. Yapılan çalışmalar da marka tutumunun satın alma niyeti üzerinde anlamlı bir etkiye sahip olduğunu destekler niteliktedir (Abzari vd, 2014 ; Lee vd, 2017). Temizkan ve Ali (2022) kaynak güvenilirliği modelinin güvenilirlik ve uzmanlık boyutlarının marka tutumu üzerinde pozitif bir etkisi olduğunu, çekicilik boyutunun ise satın alma niyeti üzerinde anlamlı bir etkisi olduğu belirtilmişlerdir. Bu bilgiler doğrultusunda aşağıdaki hipotez oluşturulmuştur.

*H<sub>9</sub>: Marka tutumu satın alma niyeti üzerinde etkilidir.*

## *E.Araştırmanın Örnekleme ve Veri Toplama Yöntemi*

Araştırmanın amacı doğrultusunda çalışmanın örneklemini en az bir instagram fenomenini takipeden ve 18 yaş ve üzerinde Van ilinde ikamet eden instagram kullanıcıları oluşturmaktadır. Araştırma kapsamında yüz yüze ve googledoc üzerinden online olarak iki farklı yöntemle 414 anket uygulanmıştır. Çalışma kapsamında elde edilen veriler SPSS 20 Programından faydalanılarak, faktör analizi, ve regresyon analizleri yapılarak analiz gerçekleştirilmiştir.

Araştırmada uygulanan anket formu üç bölümden meydana gelmektedir. Birinci bölümde; tüketicilerin sosyal medya kullanımı ve takip ettikleri fenomenlere ilişkin sorular yer almaktadır. İkinci bölümde instagram fenomenlerinin çevrim içi kaynak güvenilirliği (güvenilirlik, uzmanlık/yetenlik, çekicilik ve kendini ifade etme ) boyutlarının tüketicinin markaya yönelik tutumu ve satın alma niyeti üzerindeki etkisine yönelik 5 noktalı Likert ölçeğine göre (1: Kesinlikle katılmıyorum... 5: Kesinlikle katılıyorum) hazırlanmış 26 ifade bulunmaktadır. Anketin üçüncü bölümünde ise katılımcıların demografik özelliklerini tespit etmeye yönelik sorular bulunmaktadır.

## *F.Verilerin Analizi*

Araştırmada verilerin analizi ve bulguların değerlendirilebilmesi için SPSS programı kullanılmıştır. Öncelikle frekans analizleri ile tanımlayıcı istatistiksel analizlerden sonra güvenilirlik testleri, normallik testleri, Faktör ve Regresyon analizi uygulanmıştır. Analizler %95 güven aralığında gerçekleştirilmiştir.

## *G.Bulgular*

Çalışmanın bulgular bölümünde, tanımlayıcı istatistikler, faktör analizine yönelik sonuçlar,ölçeklerin geçerlilik ve güvenilirlikleri ve

hipotezlerin testlerine yer verilmektedir.

### G.1 Katılımcıların Instagram Kullanımına Yönelik Frekans Analizleri

Tablo 1: Katılımcıların Instagram kullanımına ve takip ettikleri fenomen sayısına ilişkin frekans dağılımları

Instagram'da takip edilen fenomen sayısı	Frekans	Yüzde
1-2	204	47,0
3-4	106	24,4
5-6	45	10,4
7-8	20	4,6
9-10	13	3,0
11 ve üstü	46	10,6
<b>Toplam</b>	<b>434</b>	<b>100</b>
Instagram'a ortalama giriş sıklığı	Frekans	Yüzde
Her gün	399	91,6
Haftada birkaç gün	15	3,5
Haftada bir gün	3	0,5
15 günde bir	11	2,5
Ayda bir gün	4	0,9
Ayda bir günden daha az	2	0,5
<b>Toplam</b>	<b>434</b>	<b>100</b>
Instagram'a girilen gün geçirilen ortalama süre	Frekans	Yüzde
1 saatten az	135	31,1
1-2 saat	171	39,4
3-4 saat	75	17,3
5-6 saat	34	7,8
7-8 saat	5	1,2
8 saatten fazla	14	3,2
<b>Toplam</b>	<b>434</b>	<b>100</b>

Fenomenleri takip eden 434 katılımcıya takip ettikleri fenomen sayısı sorulmuştur. 1-2 fenomeni takip eden kişi sayısı ankete katılanların %47'sini oluşturmaktadır. Fenomenleri takip eden katılımcılara instagramda ortalama vakit geçirme sıklığı sorulmuştur. Katılımcıların büyük çoğunluğunu oluşturan %91.9 oranla "her gün" seçeneğini belirtmişlerdir. Fenomenleri takip eden katılımcılara instagrama girdikleri gün için ortalama vakit geçirme süreleri hakkında soruya katılımcıların, %39.4'si günde 1-2 saat

arası instagram plattformunda vakit geçirdiğini belirtmesi dikkat çekici bulgular arasında yer almaktadır.

### G.1.2. Faktör Analizleri ve Sonuçları

Çalışmada kullanılan çevrim içi kaynak güvenilirliği ölçeğinin, markaya yönelik tutum ölçeğinin ve satın alma niyeti ölçeğinin yapısal geçerliliği incelenmiştir. Ölçeklerin yapı geçerliliğinin test edilmesine yönelik keşfedici diğer bir ifadeyle açıklayıcı faktör analizi (exploratory factor analysis) kullanılmıştır.

#### G.1.2.1 Bağımsız Değişkenlere İlişkin Faktör Analizinin Uygulanması

Araştırmada kapsamında bağımsız değişkenler 24 adet ifadeden oluşmaktadır. Bu ifadeler arasındaki ilişkileri belirlemek ve ifadeleri belirli boyutlar altında toplamak amacıyla açıklayıcı faktör analizi uygulanmıştır. Bağımsız değişkenlere yönelik KMO ve Bartlett's Testi sonuçları Tablo 2 'de gösterilmiştir.

Tablo 2: Bağımsız Değişkenlere İlişkin KMO ve Bartlett's Testi Sonuçları

KMO ve Bartlett's Testi		
Kaiser-Meyer-Olkin Ölçek Geçerliliği	,958	---
Bartlett's Küresellik Testi	Approx. Chi-Square	8432,368
	Ki kare	300
	Serbestlik Derecesi	,000

Tablo 2'de gösterildiği üzere bağımsız değişkenler için yapılan faktör analizinde KMO değeri 0,958 olarak bulunmuştur. KMO skorunun mükemmel seviyede olduğu ve faktör analiz için örneklem büyüklüğünün yeterli ve



uygun olduğu söylenebilir.

KMO değerinin belirlenmesinden sonra faktör analizinin uygunluğunu belirlemek amacıyla değişkenler arasında korelasyonların varlığına ilişkin istatistiksel bir test olan Bartlett's Küresellik testi sonuçlarına bakmak gerekmektedir. Bu konuda korelasyonun değişkenler arasındaki yeterliliği önemlidir ve anlamlılık seviyesinin  $< 0,05$  şartının sağlanması zorunludur. Tablo 2'de görüldüğü üzere Bartlett's anlamlılık değeri  $p=0,000$  olarak belirlenmiş böylece Bartlett's küresellik testinin istatistiki açıdan anlamlı ve mükemmel bir korelasyondan bahsedilebilir. Faktör yüklerine göre maddelerin toplandıkları faktörlerdeki yüklerin birbirine uzaklığının en az % 10 olması gerekmektedir. Bu kurala bütün maddeler uyum sağladığı için faktör analizi sonucu değerlendirildiğinde ölçekten herhangi bir maddenin çıkarılması söz konusu değildir. Bağımsız değişkenlere yönelik olarak yapılan faktör analizi sonuçları Tablo 3'de belirtilmiştir.

Tablo 3: Bağımsız Değişkenlere İlişkin Faktör ve Güvenilirlik Analizi Sonuçları

	Faktör Yükleri	Açıklanan Varyans(%)	Cronbach's Alpha
<b>Faktör 1: Algılanan Uzmanlık</b>		<b>26,319</b>	<b>,794</b>
Takip ettiğim fenomenler alanlarında uzman kişilerdir	,762		
Takip ettiğim fenomenler, çok bilgili kişilerdir.	,776		
Takip ettiğim fenomenler alanında yeterli bilgi birikimime tecrübeye sahip kişilerdir.	,740		

	Faktör Yükleri	Açıklanan Varyans(%)	Cronbach's Alpha
<b>Faktör 2: Algılanan Çekicilik</b>		<b>16,431</b>	<b>,849</b>
Fiziksel olarak çekici (güzel, zarif, klas) fenomenleri izlemeyi tercih ederim.	,834		
Çekicilik, bir fenomen için önemli bir özelliktir.	,779		
Çekici bir fenomenin, ünlülerin onayladığı bir markaya yönelik satın alma niyetimi etkilediğini hissediyorum.	,655		
Çekici fenomenler tarafından desteklenen bir markayı daha çok hatırlıyorum	,627		
<b>Faktör 3: Algılanan Güvenilirlik</b>		<b>17,264</b>	<b>,743</b>
Satın alma kararları vermek için takip ettiğim fenomene/ fenomenlere güvenebileceğime inanıyorum.	,778		
Takip ettiğim fenomenin/ fenomenlerin samimi olduğuna inanıyorum.	,639		
Takip ettiğim fenomenin/ fenomenlerin reklamları yaptıkları ürünleri kullandıklarına inanıyorum.	,694		

	Faktör Yükleri	Açıklanan Varyans(%)	Cronbach' sAlpha
<b>Faktör 4: Kendini İfade Etme Yeteneği</b>		<b>10,054</b>	<b>,944</b>
Takip ettiğim fenomen/fenomenler istikrarlıdır.	,639		
Takip ettiğim fenomen/fenomenler güven telkin eder.	,571		
Takip ettiğim fenomenin/fenomenlerin paylaştığı içerikler ilgi çekicidir.	,773		
Takip ettiğim fenomenin/fenomenlerin paylaştığı görseller ilham verir.	,740		
Takip ettiğim fenomen/fenomenler arkadaş canlısıdır.	,739		
Takip ettiğim fenomen/fenomenler pozitifdir.	,844		
Takip ettiğim fenomen/fenomenler içerik paylaşımında aktiftir	,819		
Takip ettiğim fenomen/fenomenler iyi niyetlidir.	,733		
Takip ettiğim fenomenin / fenomenlerin mesaj verme gücü yüksektir	,751		
Takip ettiğim fenomen/fenomenler yüksek kaliteli gönderi paylaşır	,770		
<b>Açıklanan Toplam Varyans</b>	<b>71,083</b>		

Tablo 3'de görüldüğü gibi bağımsız değişkenler için gerçekleştirilen faktör analizinde 4 boyut elde edilmiştir. Analiz sonucundaki boyutlar sırasıyla algılanan uzmanlık, algılanan çekicilik, algılanan güven ve kendini ifade etme yeteneğidir. Analiz sonucunda 4 faktör oluşmuş ve bu faktörler %71,083' ünü açıklamaktadır.

Tablo 3'de yer alan ölçeklerin Cronbach Alfa katsayıları algılanan uzmanlık 0,794, algılanan

çekicilik 0,849, algılanan güven 0,743 ve kendini ifade etme yeteneği 0,944 olarak belirlenmiştir.

Faktör analizi ile oluşan 4 boyuta ilişkin yorum ve değerlendirmeler aşağıda özetlenmiştir.

#### **Algılanan Uzmanlık:**

Algılanan uzmanlık boyutunu oluşturan faktör, toplam varyansın % 26,319'unu açıklamaktadır. Algılanan uzmanlık boyutunun güvenilirlik katsayısı 0,794 olarak belirlenmiştir. Bu nedenle bu boyuta yer alan ifadelerin oldukça güvenilir olduğu kabul edilebilir. Algılanan uzmanlık boyutunu oluşturan üç ifadenin faktör yükleri 0, 776 ile 0,740 arasında değişmektedir. Bu faktöre en yüksek katkıyı 0.776'lik değerle "Takip ettiğim fenomen / fenomenler, çok bilgili kişilerdir" ifadesi sağlamaktadır. Bu faktöre en düşük katkıyı ise 0,740 değerle "Takip ettiğim fenomen /fenomenler alanında yeterli bilgi birikimi ve tecrübeye sahip kişilerdir" değişkeni sağlamaktadır.

#### **Algılanan Çekicilik:**

Algılanan çekicilik boyutunu oluşturan faktör, toplam varyansın %16,431'ini açıklamaktadır. Algılanan çekicilik boyutunun güvenilirlik katsayısı 0,849 olarak belirlenmiştir bu nedenle bu boyuta yer alan ifadelerin oldukça güvenilir olduğu kabul edilebilir. Algılanan çekicilik boyutunu oluşturan dört ifadenin faktör yükleri 0,834 ile 0,627 arasında değişmektedir. Bu faktöre en yüksek katkıyı 0,834'lik değerle "Fiziksel olarak çekici (güzel, zarif, klas) fenomenleri izlemeyi tercih ederim" ifadesi sağlamaktadır. Bu faktöre en düşük katkıyı ise 0,627 değerle "Çekici fenomenler tarafından desteklenen bir markayı daha çok hatırlıyorum." değişkeni sağlamaktadır.

#### **Algılanan Güven:**

Algılanan güven boyutunu oluşturan faktör, toplam varyansın %17,264'ünü açıklamaktadır. Algılanan güven boyutunun güvenilirlik katsayısı 0,743 olarak belirlenmiştir bu nedenle bu boyuta yer alan ifadelerin oldukça güvenilir olduğu kabul edilebilir. Algılanan güven boyutunu oluşturan üç ifadenin faktör yükleri 0,778 ile 0,694 arasında değişiklik göstermektedir. Bu faktöre en yüksek katkıyı 0,778'lik değerle "Satın alma kararları vermek için takip ettiğim fenomene/ fenomenlere güvенеbileceğime inanıyorum." ifadesi

sağlamaktadır. Bu faktöre en düşük katkıyı ise 0,694 değerle “Takip ettiğim fenomenin/ fenomenlerin reklamını yaptıkları ürünleri kullandıklarına inanıyorum.” değişkeni sağlamaktadır.

#### **Kendini İfade Etme Yeteneği:**

Kendini ifade etme boyutunu oluşturan faktör, toplam varyansın %10,054’ünü açıklamaktadır. Kendini ifade etme boyutunun güvenilirlik katsayısı 0,944olarak belirlenmiştir bu nedenle bu boyuta yer alan ifadelerin oldukça güvenilir olduğu kabul edilebilir. Kendini ifade etme yeteneğini oluşturan üç ifadenin faktör yükleri 0,571 ile 0,844arasında değişiklik göstermektedir. Bu faktöre en yüksek katkıyı 0,844’lük değerle “Takip ettiğim fenomen/ fenomenler pozitifdir” ifadesi sağlamaktadır. Bu faktöre en düşük katkıyı ise 0,571 değerle “Takip ettiğim fenomen/ fenomenler güven telkin eder.” değişkeni sağlamaktadır.

#### **Markaya yönelik tutum ölçeği açıklayıcı faktör analizi**

Faktör analizi öncesinde elde edilen verilerin analize uygun olup olmadığını tespit etmek amacıyla KMO örneklem yeterliliği ve Bartlett’s küresellik testi uygulanmıştır. Markaya yönelik Tutum ölçeğine yönelik KMO ve Bartlett’s Testi sonuçları Tablo 4’da görülmektedir.

Tablo 4: Markaya Yönelik KMO ve Bartlett’s Testi Sonuçları

KMO ve Bartlett’s Testi		
Kaiser-Meyer-Olkin Ölçek Geçerliliği	,851	---
Bartlett’s Küresellik Testi	Approx. Chi-Square	8432,368
	Serbestlik Derecesi	3
	Anlamlılık (Sig)	,000

Tablo 4’de görüldüğü üzere yapılan analiz ile KMO değeri 0,851 olarak tespit edilmiş ve Bartlett sig. değeri p=0,000 olarak bulunmuştur. Elde edilen KMO

skoru 0,5’den büyük ve Bartlett’s Testi’nin de <0,05 şartını sağlaması nedeniyle verilerin faktör analizine uygun olduğu belirlenmiştir. Markaya yönelik tutum ölçeğine açıklayıcı faktör analizi uygulanmış ve sonuçlar aşağıdaki tabloda gösterilmiştir.

Tablo 5: Markaya Yönelik Tutum Boyutu Faktör Analizi

	Faktör Yükleri	Açıklanan Varyans(%)	Cronbach’s Alpha
<b>Faktör 1: Markaya Yönelik Tutum</b>		<b>83,442</b>	<b>,901</b>
Takip ettiğim fenomenin / fenomenlerin reklamını yaptığı markalara güvenirim.	,901		
Takip ettiğim fenomenin / fenomenlerin reklamını yaptığı marka, güçlü bir izlenim bırakıyor.	,921		
Takip ettiğim fenomenin /fenomenlerin reklamını yaptığı markayı denemek istiyorum.	,918		

Markaya yönelik tutum ölçeğinde bulunan 3 ifadeye faktör analizi uygulanmış ve faktör yükleri tek boyutta toplanmıştır. Ayrıca, Markaya Yönelik Tutum boyutunun Cronbach’s Alpha güvenilirlik değeri 0,901 olarak belirlenmiştir. Bu nedenle bu boyutta yer alan ifadelerin güvenilir olduğu söylenebilir. Markaya yönelik tutum faktörü toplam varyansın % 83,442 sini açıklamaktadır. Markaya yönelik tutum faktörü 3 değişkenden oluşmaktadır Değişkenlerin faktör yükleri 0,921 ile 0,901 arasında değişmektedir. Değişkenlere yönelik faktör yükleri incelendiğinde faktöre en yüksek katkıyı sağlayan 0,921 değerle “Takip ettiğim

fenomenin / fenomenlerin reklamını yaptığı marka, güçlü bir izlenim bırakıyor” değişkenidir.

Tablo 6: Satın Alma Niyeti KMO ve Bartlett’s Testi Sonuçları

KMO ve Bartlett’s Testi		
Kaiser-Meyer-Olkin Ölçek Geçerliliği	,811	---
Bartlett’s Küresellik Testi	Approx. Chi-Square	618,712
	Serbestlik Derecesi	1
	Anlamlılık (Sig)	,000

Tablo 6’da görüldüğü üzere yapılan analiz sonucunda KMO değeri 0,811 olarak bulunmuş ve Bartlett sig. değeri  $p=0,000$  olarak tespit edilmiştir. Elde edilen KMO skoru 0,5’den büyük ve Bartlett’s Testi’nin de  $<0,05$  şartını sağlaması nedeniyle verilerin faktör analizine uygun olduğu belirlenmiştir. Satın alma niyeti ölçeğine açıklayıcı faktör analizi uygulanmış ve sonuçlar aşağıdaki tabloda gösterilmiştir.

Tablo 7 : Satın Alma Niyeti Boyutu Faktör Analizi

	Faktör Yükle ri	Açıklanan Varyans( %)	Cronbach’s Alpha
<b>Faktör 1: Satın Alma Niyeti</b>		<b>86,056</b>	<b>,838</b>
Çoğu zaman, takip ettiğim fenomenin/fenomenlerin reklamını yaptığı ürünleri satın alma niyetim vardır.	,901		
Genelde takip ettiğim fenomen/fenomenler tarafından tanıtılan ürünleri ve/veya hizmetleri tavsiye ederim.	,921		

Satın alma niyeti ölçeğinde bulunan 2 ifadeye faktör analizi uygulanmış ve faktör yükleri tek boyutta toplanmıştır. Ayrıca, Satın Alma Niyeti boyutunun Cronbach’s Alpha güvenilirlik değeri 0,838 olarak belirlenmiştir. Bu nedenle bu boyutta yer alan ifadelerin güvenilir olduğu söylenebilir. Satın alma niyeti faktörü toplam varyansın % 86,056 ‘sını açıklamaktadır. Satın alma niyeti faktörü 2 değişkenden oluşmaktadır. Değişkenlerin faktör yükleri 0,921 ile 0,901 arasında değişmektedir. Değişkenlere yönelik faktör yükleri incelendiğinde faktöre en yüksek katkıyı sağlayan 0,921 değerle “Genelde takip ettiğim fenomen/fenomenler tarafından tanıtılan ürünleri ve/veya hizmetleri tavsiye ederim.” değişkenidir.

### G.2 Regresyon Analizi

Regresyon analizi, değişkenler arasındaki ilişkilerin araştırılması için kullanılan istatistiksel bir araçtır. Genellikle, araştırmayı yapan kişi bir değişkenin diğeri üzerindeki nedensel etkisini tespit etmeye çalışmaktadır. Regresyon analizi sonucu değerlendirildiğinde anlamlılık düzeyinin (p) , 005’ten küçük olması varsayılan etkinin anlamlı olduğu sonucuna varılmaktadır. Tablo 8’de fenomenin satın

alma niyeti üzerindeki etkisine yönelik regresyon analizi sonuçları yer almaktadır.

Tablo 8: Fenomenin Uzmanlık, Çekicilik, Güvenirlilik Ve Kendini İfade Algısı İle Marka Tutumuna Yönelik Regresyon Tablosu

Bağımsız Değişkenler	B	Standart Hata	$\beta$	T	P
Sabit	-,339	,139		-2,44	,015
Uzmanlık	,080	,027	,091	2,97	,003
Çekicilik	,162	,044	,143	3,71	,000
Güvenirlilik	,313	,042	,301	7,37	,000
Kendini İfade	,511	,040	,463	12,7	,000

Bağımsız Değişkenler	Colinetary	Tolerans	VIF
Sabit			
Uzmanlık		,981	1,019
Çekicilik		,630	1,588
Güvenirlilik		,560	1,787
Kendini İfade		,704	1,421
F=161,984 p=,000 R=,776 R <sup>2</sup> =,602			
Durbin-Watson İst.= 1,958			
p < 0.005; Bağımlı Değişken: Markaya Yönelik Tutum			

Araştırma bağlamında ele alınan fenomen pazarlamanın uzmanlık, çekicilik, güvenirlilik ve kendini ifade boyutları ile marka tutumu arasında korelasyonun pozitif yönlü olduğu ve bağımsız değişkenlerin marka tutumu değişkeninde gözlenen varyansın yaklaşık %60'ını açıkladığı tespit edilmiştir. Çoklu regresyon analizi sonuçlarına bakıldığında varyans etki faktörü VIF (Variance Inflation Factor) değerinin 5'ten düşük olması ve tolerans değerinin 0,20'den büyük olması analizlerde çoklu bağlantı probleminin yaşanmadığını göstermektedir (Hines ve Montgomery, 1990).

Oluşturulan hipotezler kapsamında

regresyon analiz sonuçlarına göre modelin anlamlı olduğu görülmektedir (p= 0,000). Fenomenin uzmanlığı ( $\beta=$ ,091), çekiciliği ( $\beta=$ ,143), güvenirlilik ( $\beta=$ ,301) ve kendini ifade ( $\beta=$ ,463) boyutlarının marka tutumu üzerinde anlamlı ve olumlu bir etkisi bulunmaktadır (p< 0,05). Marka tutumunun üzerinde etkili olan boyutların beta katsayıları incelendiğinde, fenomenin kendini ifade ( $\beta=$ ,463) boyutunun daha güçlü etkiye sahip olduğu görülmektedir. Kendini ifade boyutunun ardından güvenirlilik ( $\beta=$ ,301) ve çekicilik ( $\beta=$ ,143) boyutları gelmektedir. Son olarak fenomenin uzmanlığı ( $\beta=$ ,091) ise marka tutumu üzerinde diğerlerinden daha az bir etkiye sahip olduğu görülmektedir. Analiz sonuçlarına göre "Fenomenin uzmanlığı marka tutumu üzerinde etkilidir" şeklinde ifade edilen H1 hipotezi "Fenomenin çekiciliği marka tutumu üzerinde etkilidir" şeklinde ifade edilen H2 hipotezi, "Fenomenin güvenirliliği marka tutumu üzerinde etkilidir" şeklinde ifade edilen H3 hipotezi ve "Fenomenin kendini ifade yeteneği marka tutumu üzerinde etkilidir" şeklinde ifade edilen H4 hipotezleri kabul edilmiştir.

Tablo 9: Fenomenin Uzmanlık, Çekicilik, Güvenirlilik Ve Kendini İfade Algısı İle Satın Alma Niyetine Yönelik Regresyon Tablosu

Bağımsız Değişkenler	B	Standart Hata	$\beta$	T	P
Sabit	-,281	,134		-2,08	,037
Uzmanlık	,073	,026	,086	2,77	,003
Çekicilik	,202	,042	,184	4,76	,000
Güvenirlilik	,326	,041	,326	7,94	,000
Kendini İfade	,429	,039	,403	11,04	,000

Bağımsız Değişkenler	Colinetary	Tolerans	VIF
Sabit			
Uzmanlık		,981	1,019
Çekicilik		,630	1,588

<b>Güvenirlilik</b>		,560	1,787
<b>Kendini İfade</b>		,704	1,421
	F= 158,569 p=,000 R=,772 R2=,596		
	Durbin-Watson İst.= 1,958		
	p < 0.005; Bağımlı Değişken: Satın Alma Niyeti		

Fenomen pazarlama boyutlarının katılımcıların satın alma niyeti üzerindeki etkisinin test edilmesi amacıyla çoklu regresyon analizi gerçekleştirilmiştir. Çoklu regresyon analizi sonuçlarına bakıldığında varyans etki faktörü VIF (Variance Inflation Factor) değerinin 5'ten düşük olması ve yine tolerans değerinin 0,20'den büyük olması analizlerde çoklu bağlantı problemi olmadığını göstermektedir (Hines ve Montgomery, 1990). Ayrıca Durbin-Watson değerinin 2 değerine yakın olması durumunda da çoklu doğrusal regresyon modeli açısından oto-korelasyon şüphesi ortadan kalkmaktadır. Araştırma bağlamında ele alınan fenomen pazarlama boyutları ile satın alma niyeti arasında korelasyonun pozitif yönlü olduğu ve bağımsız değişkenlerin satın alma niyeti değişkeninde gözlenen varyansın yaklaşık %60 (R2=,596) açıkladığı tespit edilmiştir.

Fenomen pazarlama değişkenlerinin katılımcıların satın alma niyeti üzerindeki etkisini test etmek amacıyla yapılan çoklu regresyon analizi sonuçları incelendiğinde uzmanlık, çekicilik, güvenilirlik ve kendini ifade etme değişkenlerinin satın alma niyeti üzerinde anlamlı bir etkisinin olduğu gözlenmiştir (F=158,569; p< .000).

Fenomenin uzmanlık ( $\beta=,086$ ), çekicilik ( $\beta=,184$ ), güvenilirlik ( $\beta=,326$ ), kendini ifade ( $\beta=,403$ ) boyutlarının satın alma niyeti üzerinde anlamlı ve olumlu bir etkileri bulunmaktadır (p< 0,05). Satın alma niyeti üzerinde etkili olan boyutların beta katsayıları incelendiğinde, fenomenin kendini ifade boyutunun daha güçlü etkiye sahip olduğu görülmektedir. Kendini ifade boyutunun ardından güvenilirlik boyutu, güvenilirlik boyutunun ardından ise çekicilik ve uzmanlık

boyutları gelmektedir. Analiz sonuçlarına göre “Fenomenin uzmanlığı satın alma niyeti üzerinde etkilidir” şeklinde ifade edilen H5 hipotezi, “Fenomenin çekiciliği satın alma niyeti üzerinde etkilidir” şeklinde ifade edilen H6 hipotezi ve “Fenomenin güvenilirliği satın alma niyeti üzerinde etkilidir” şeklinde ifade edilen H7 hipotezi ve “Fenomenin kendini ifade etme yeteneği satın alma niyeti üzerinde etkilidir” şeklinde ifade edilen H8 hipotezi kabul edilmiştir.

Tablo 10 : Marka Tutumu İle Satın Alma Niyetine Yönelik Regresyon Tablosu

Bağımsız Değişkenler	B	Standart Hata	B	T	P
<b>Sabit</b>	,236	,078		3,025	,003
<b>Marka Tutumu</b>	,842	,026	,840	32,205	,000
	F= 1037,164 p=,000 R=,840 R <sup>2</sup> =,706				
	Durbin-Watson İst.= 1,957				
	p < 0.001; Bağımlı Değişken: Satın Alma Niyeti				

Tablo-10'da görüldüğü üzere marka tutumu ile satın alma niyeti arasındaki korelasyonun pozitif yönlü olduğu görülmektedir. Araştırma bağlamında ele alınan marka tutumu değişkeninin satın alma niyeti üzerinde gözlenen varyansın yaklaşık % 70'ini (R2=,706) açıkladığı tespit edilmiştir. Marka tutumunun satın alma niyeti üzerindeki etkisini analiz etmek amacıyla yapılan regresyon analizi sonuçları incelendiğinde marka tutumunun satın alma niyeti üzerinde pozitif yönde anlamlı bir etkisinin olduğu gözlenmiştir (F= 1037,164; p< .000). Bu sonuçlara göre “Marka tutumu satın alma niyeti üzerinde etkilidir.” şeklinde ifade edilen H9 hipotezi kabul edilmiştir.

Tablo 11 : Araştırma Hipotezlerine İlişkin Sonuçlar

Hipotezler	Sonuç
<b>H<sub>1</sub></b> : Fenomenin uzmanlığı marka tutumu üzerinde etkilidir	Desteklendi
<b>H<sub>2</sub></b> : Fenomenin çekiciliği marka tutumu üzerinde etkilidir	Desteklendi
<b>H<sub>3</sub></b> : Fenomenin güvenilirliği marka tutumu üzerinde etkilidir	Desteklendi
<b>H<sub>4</sub></b> : Fenomenin kendini ifade etme yeteneği marka tutumu üzerinde etkilidir	Desteklendi
<b>H<sub>5</sub></b> : Fenomenin uzmanlığı satın alma niyeti üzerinde etkilidir	Desteklendi
<b>H<sub>6</sub></b> : Fenomenin çekiciliği satın alma niyeti üzerinde etkilidir	Desteklendi
<b>H<sub>7</sub></b> :Fenomenin güvenilirliği satın alma niyeti üzerinde etkilidir	Desteklendi
<b>H<sub>8</sub></b> : Fenomenin kendini ifade etme yeteneği satın alma niyeti üzerinde etkilidir	Desteklendi
<b>H<sub>9</sub></b> : Marka tutumu satın alma niyeti üzerinde etkilidir	Desteklendi

#### IV. SONUÇ VE TARTIŞMA

İnternet çağı, kullanıcılara sosyal medya kanallarında bağlantı kurmak, bilgi paylaşmak ve akranlarıyla iletişim kurmak için sınırsız fırsatlar sunmaktadır. Bununla beraber sosyal medyanın faydaları yalnızca bireysel iletişim düzeyiyle sınırlı kalmamaktadır. Bu nedenle kuruluşlar, pazarlama stratejilerinin bir parçası olarak Facebook, Youtube ve Instagram gibi kanalları aktif olarak kullanmaktadırlar. Ayrıca ürünlerini desteklemek için fenomen olarak da bilinen popüler sosyal medya kişileriyle de pazarlama faaliyetlerini sürdürmeye başlamışlardır. Fenomenlerin pazarlama faaliyetlerinde yer alması, fenomen pazarlamanın ortaya çıkmasına sebep olmuştur.

Fenomen pazarlamanın yaygın olarak kullanılan mecralardan biri olan instagram, kullanıcıların fenomen olmak için çaba gösterdiği, bu doğrultuda içeriklerini de takipçi sayılarını arttırmaya yönelik

çeşitli düzenlemelerin yapıldığı, diğer kullanıcılarında takip ettikleri fenomenlerin paylaşımlarından etkilendiği bir platforma dönüşmüştür.

Bu çalışma ile, instagram fenomenlerinin çevrim içi kaynak güvenilirliği boyutlarının tüketicilerin marka tutumu ve satın alma niyetleri üzerindeki etkisinin belirlenmesi hedeflenmiştir. Bu doğrultuda yapılan çalışmada instagramda en az bir fenomeni takip eden sosyal medya kullanıcılarının, fenomenlerin çevrim içi kaynak güvenilirliğini çekicilik, güvenilirlik, uzmanlık ve kendini ifade etme yeteneği olmak üzere 4 boyutta algıladıkları belirlenmiştir. Bu sonuç Djafavora ve Trofimenko (2019) tarafından geliştirilen 4 boyutlu “çevrim içi kaynak güvenilirliği modeli” ile uyumludur.

Yapılan değerlendirmeler sonucunda araştırmada yer verilen değişkenlerin güvenilirlik ve geçerliliklerin yüksek olduğu sonucuna ulaşılmıştır.

Fenomen pazarlama değişkenlerinin katılımcıların satın alma niyeti ve marka tutumu üzerindeki etkisini görmek için çoklu regresyon analizi yapılmıştır. Bu analize göre uzmanlık, çekicilik, güvenilirlik ve kendini ifade etme değişkenlerinin marka tutumu ve satın alma niyeti üzerinde anlamlı bir etkisinin olduğu sonucuna varılmıştır. Jin vd (2019), Nam (2018), Demirci (2021) kaynak güvenilirliğinin tüketici satın alma niyetini olumlu etkilediği sonucuna varmışlardır.

Çalışmanın bulgularına bakıldığında instagram fenomenlerinin çekiciliğinin marka tutumu ve satın alma niyeti üzerinde anlamlı ve olumlu bir etkisinin olduğu belirtilmiştir. Fenomenin çekiciliğinin markaya karşı olumlu tutum geliştirmedeki etkisi literatürdeki çeşitli çalışmaların bulguları (Baudier vd, 2023, Seiler ve Kucza, 2017, Nıloy vd 2023) ile paralellik göstermektedir. Instagram fenomenlerinin uzmanlığının marka tutumu ve tüketicilerin satın alma niyeti üzerindeki etkisine bakıldığında anlamlı ve olumlu bir etkisi olduğu görülmektedir. Amelina ve Zhu, (2016), Avcı ve Yıldız (2019) gerçekleştirdikleri çalışmalarda farklı olarak uzmanlığın, marka tutumunu önemli ölçüde etkilemediğini sonucuna varmışlardır.

Fenomeninin kendini ifade etme yeteneğinin tüketicinin marka tutumu ve tüketicilerin satın alma niyeti üzerinde

anlamli ve olumlu bir etkisinin bulunduđu görülmüştür. Kendini ifade etme yeteneđi boyutunun satın alma niyeti üzerindeki etkisi regresyon analizi gerçekleştirilerek, diđer boyutların etkisiyle karşılaştırılmıştır. Buna göre fenomenin kendini ifade etme boyutunun diđer boyutlarla kıyaslandığında daha güçlü etkiye sahip olduđu görülmektedir. Kendini ifade etme boyutunun ardından güvenilirlik boyutu, güvenilirlik boyutunun ardından ise çekicilik ve uzmanlık boyutları gelmektedir. Tüketicilerin fenomenleri daha çekici, pozitif, arkadaş canlısı, iyi niyetli ve sosyal medyaki paylaşımlarında aktif ve yüksek kaliteli gönderiler paylaşması gibi özelliklerin tüketicilerin markaya yönelik tutumlarının daha olumlu etkilendiđi şeklinde yorumlanabilir.

Araştırmanın bulgularına göre marka tutumunun satın alma niyeti üzerinde anlamli ve olumlu bir etkisi bulunmaktadır. Bu bulgu Alwan ve Alshurideh (2022) ; Mao vd (2020), çalışmaları ile uyumluluk göstermektedir. Trivedi ve Sama (2020) fenomenler aracılığıyla tüketicilerin markaya olan ilgisinin artacağını ve marka hayranlığına dönüşeceğini belirtmişlerdir. Marka hayranlığı ile güçlü bir tüketici-marka ilişkisine işaret etmekte ve dolayısıyla tüketicinin satın alma niyetini olumlu anlamda etkilemektedir. Demirci (2021) yaptığı çalışma ile fenomen pazarlamanın tüketicinin satın alma kararında marka algısı, marka kalitesi gibi unsurları olumlu yönde etkilediđini, fenomen pazarlama faaliyetlerin markaya duyulan ilgiyi arttırdığını markanın tüketicinin zihninde konumlandırılması güçlendiđini ve bu sayede satışların artmasına da sebebiyet verdiđini belirtmiştir. Ayrıca fenomenler içerik paylaşımında bulunurken marka güveni, kalite, marka imajını destekleyen nitelikte paylaşımlarda bulunması satın alma kararını olumlu yönde etkileyeceđini de belirtmiştir.

Fenomenlerin çevrim içi kaynak güvenilirliđi boyutlarının satın alma niyeti üzerindeki etkileri değerlendirildiğinde araştırmanın bulguları işletmelere dođru

fenomeni seçmek için bilgi sunabilir. İşletmeler fenomenler aracılığıyla ürün ve hizmetlerinin tanıtımı gerçekleştirerek, markaları hakkında olumlu bir tutum kazanmayı ve satın alma niyetini oluşturmayı hedeflerler. Bunu gerçekleştirmek için fenomenlerin güvenilirlik, uzmanlık, çekicilik ve kendini ifade yeteneklerine önem vermeleri gerekmektedir. Fenomenlerin mesajlarını sosyal medya aracılığıyla nasıl ifade ettikleri, kendilerini takipçilerine nasıl tanıttığı, paylaşımlarında tutarlı, istikrarlı ve aktif olması, fenomenin sahip olduđu özelliklerin takipçiler tarafından çekici algılanması, fenomenin yeterli bilgi birikimine sahip olması gibi özelliklerin tüketicilerin satın alma niyetinde olumlu etki yaratmaktadır. Dolayısıyla işletmeler hangi fenomen ile çalışması gerektiđinin kararını vermek için kaynak güvenilirliđi boyutlarını dikkate alarak dođru seçim yapılmasını kolaylaştırabilir. Bunun dışında araştırmanın bulguları aynı zamanda fenomenlere takipçi sayılarını arttırmak için dikkat etmeleri gereken unsurlar hakkında bilgi sağlayacağı düşünölmektedir.

Sonuç olarak, sosyal medya araçlarının kullanımında popülerliđin artması ve tüketicilerin aktif olarak kullanmasından ötürü işletmelerin pazarlama faaliyetlerini bu alana kaymasına sebep olmuştur. Bu amaçla mevcut ve potansiyel müşterilerinin dikkatini çekmek amacıyla facebook, twitter ve instagram gibi sosyal medya araçlarının kullanılması yaygınlaşmıştır. Özellikle instagram'ın kullanıcı sayısının diđer platformdaki kullanıcı sayılarına göre fazla olması işletmelerin pazarlama faaliyetlerini instagram üzerinde gerçekleştirmesini sağlamıştır. Instagramda pazarlama faaliyetleri fenomenler aracılığıyla yapılmaya başlanmıştır. Fenomenler markayı temsil eden kişiler olduğundan dolayı, fenomenlerin tüketiciler tarafından nasıl algılandığını ölçmek ve dođru fenomeni seçmek işletmeler için önemlidir. Bundan dolayı fenomenlerin



sahip olduđu özelliklerin tüketiciler tarafından nasıl algılandığını anlamaya yönelik yapılan çalışmalar artmaktadır.

Instagram fenomenlerinin çevrim içi kaynak güvenilirliği boyutlarının tüketicilerin marka tutumuna ve satın alma niyetlerine etkisini ortaya koymaya çalışan bu çalışmanın pazarlama alanındaki gelecek çalışmalar için faydalı olacağı düşünülmektedir. Bu çalışmada sosyal medya platformlarından instagram fenomenleri ele alınarak gerçekleştirilmiştir. Gelecek çalışmalar için diğer sosyal medya platformlarındaki fenomenler ele alınarak yapılması önerilebilir. Gelecek çalışmalar için bir diğer öneri ise takipçi sayıları farklı olan fenomenlerin marka tutumu ve satın alma niyetine etkilerinin araştırılması literatüre katkı sağlayabilir.

## KAYNAKÇA

- Aanchal, N. (2020). Impact of influencer marketing on purchase intention with specific reference to health and beauty products. *International Journal of Creative Research Thoughts*, 8(3), 3157-3170.
- Abzari, M., Ghassemi, R. A., ve Vosta, L. N. (2014). Analysing the effect of social media on brand attitude and purchase intention: The case of Iran Khodro Company. *Procedia-Social and Behavioral Sciences*, 143, 822-826.
- Alassani, R., ve Göretz, J. (2019). Product placements by micro and macro influencers on Instagram. In International conference on human-computer interaction (pp. 251-267). Springer, Cham.
- Alboqami, H. (2023). Trust me, I'm an influencer!-Causal recipes for customer trust in artificial intelligence influencers in the retail industry. *Journal of Retailing and Consumer Services*, 72, 103-242.
- Ali, A. A. A., ve Temizkan, V. (2022). The effect of Instagram influencers' characteristics on attitude towards the brand and purchase intention. *Business ve Management Studies: An International Journal*, 10(2), 740.
- Alwan, M., ve Alshurideh, M. (2022). The effect of digital marketing on purchase intention: Moderating effect of brand equity. *International Journal of Data and Network Science*, 6(3), 837-848.
- Amelina, D. and Zhu, Y.Q. (2016). Investigating Effectiveness of Source Credibility Elements on Social Commerce Endorsement: The Case of Instagram in Indonesia. Pacific Asia Conference on Information Systems, Chiayi, 232. Erişim Adresi: <https://core.ac.uk/download/pdf/301369608.pdf>.
- Astuti, W. D., & Risqiani, R. (2020). Impact of Social Media Influencer Marketing on the Intention to Buy Online Through Attitude on Advertising and Brands. In International Conference on Management, Accounting, and

- Economy (ICMAE 2020) (pp. 221-225). Atlantis Press.
- Avcı, İ., ve Yıldız, E. (2019). Fenomenlerin güvenilirlik, çekicilik ve uzmanlık özelliklerinin marka tutumu, satın alma niyeti ve elektronik kulaktan kulağa pazarlama üzerindeki etkileri: *Instagram örneği. Kocaeli Üniversitesi Sosyal Bilimler Dergisi*, 2(38), 85-107
- Baker, M. J., ve Churchill Jr, G. A. (1977). The impact of physically attractive models on advertising evaluations. *Journal of Marketing research*, 14(4), 538-555.
- Baudier, P., de Boissieu, E., ve Duchemin, M. H. (2023). Source Credibility and Emotions generated by Robot and Human Influencers: The perception of luxury brand representatives. *Technological Forecasting and Social Change*, 187, 122255.
- Bilro, R. G., Loureiro, S. M. C., Rosado-Pinto, F., & Costa, I. (2020). The impact of influencer marketing and instagrammers on consumer purchase intentions and brand attitude. The impact of influencer marketing and instagrammers on consumer purchase intentions and brand attitude, 478-479.
- Boran, T. (2023). Dijital Pazarlama Sürecinde Sosyal Medya Etkileyicilerinin (Influencer) Tercih Edilme Nedenlerini Saptamaya Yönelik Bir Araştırma. *Uluslararası Halkla İlişkiler ve Reklam Çalışmaları Dergisi*, 6(1), s. 10-35.
- Chekima, B., Chekima, F. Z., ve Adis, A. A. A. (2020). Social media influencer in advertising: The role of attractiveness, expertise and trustworthiness. *Journal of Economics and Business*, 3(4).
- Chetioui, Y., Benlafqih, H., & Lebdaoui, H. (2020). How fashion influencers contribute to consumers' purchase intention. *Journal of Fashion Marketing and Management: An International Journal*, 24(3), 361-380.
- Chiang, J. K. H., ve Suen, H. Y. (2015). Self-presentation and hiring recommendations in online communities: Lessons from LinkedIn. *Computers in Human Behavior*, 48, 516-524.

- Cleo, & Sopiah. (2021). The Influence of Social Media Marketing Activities on Purchase Intention Through Brand Awareness. *KnE Social Sciences*, 2021, kss-v5i8
- Cop, R. ve Baş, Y. (2010). “Marka Farkındalığı ve Marka İmajı Unsurlarına Karşı Tüketici Algıları Üzerine Bir Araştırma”. *Selçuk Üniversitesi İ.B.F.F Sosyal ve Ekonomik Araştırma Dergisi*, Sayı: 19, 321-340.
- Demirci (2021). Influencer (Nüfuz) Pazarlamasında Tüketici Satın Alma Niyetini Etkileyen Faktörler: Sosyal Medya Kullanıcıları Üzerine Bir Araştırma, Gümüşhane: Yüksek Lisans Tezi. <http://acikerisim.gumushane.edu.tr/xmlui/handle/20.500.12440/2615>. Erişim Tarihi: 01.02.2022
- Dinesha, P. K. C., ve Hansika (2022) , D. G. S. Impact Instagram Influencers’source Credibility On Consumers’buying Intention: With Special Reference To The Fashion Industry In Sri Lanka. 2,33 – 74
- Djafarova, E., ve Trofimenko, O. (2019). ‘Instafamous’–credibility and self-presentation of micro- celebrities on social media. *Information, communication ve society*, 22(10), 1432-1446.
- Durmaz, Çavuş, ve Grzegorz Wilk-Jakubowski (2023). The Effect of Influencer Marketing on Trust, Trust Tendency and Consumer Purchase Intention: *Instagram Example. Research in Economics and Management*,8(1), 1-10
- Dwidienawati, D., Tjahjana, D., Abdinagoro, S. B., & Gandasari, D. (2020). Customer review or influencer endorsement: which one influences purchase intention more?. *Heliyon*, 6(11)
- Ekstam, V., & Bjurling, L. (2018). Influencer marketing’s effect on brand perceptions–A consumer involvement perspective.
- Erdem, T., ve Swait, J. (2004). Brand credibility, brand consideration, and choice. *Journal of consumer research*, 31(1), 191-198.
- Erdogan, B. Z. (1999). Celebrity endorsement: A literature

- review. *Journal of marketing management*, 15(4), 291-314.
- Fernando, E., Ikhsan, R. B., Surjandy, S., Condrobimo, A. R., Meyliana, M., Amalina, A. N., ... & Syahbani, T. H. M. (2021). Marketing influencer: How to measure purchase intention using social media-Study of confirmatory factor analysis. *In 2021 International Conference on Information Management and Technology (ICIMTech)* (Vol. 1, pp. 23-26). IEEE.
- Güven, E., & Köken, M. M. (2022). Sosyal medya pazarlamasında fenomenlerin online kaynak güvenilirliğinin marka değeri ve satın alma niyetine etkisi. *Alanya Akademik Bakış*, 6(3), 2853-2868.
- Halim, E., Rianto, A., & Hebrard, M. (2020). The Impact of Marketing Influencer and Information Quality to Purchase Intention of Instagram Users. *In 2020 International Conference on Information Management and Technology (ICIMTech)* (pp. 794-799). Ieee.
- Hsu, C. L., Lin, J. C. C., ve Chiang, H. S. (2013). The effects of blogger recommendations on customers' online shopping intentions. *Internet Research*, 23(1), 69-88.
- Hudders, L., De Jans, S., & De Veirman, M. (2021). The commercialization of social media stars: a literature review and conceptual framework on the strategic use of social media influencers. *International Journal of Advertising*, 40(3), 327-375.
- Immanuel, D. M., & HS, A. B. (2021). The impact of using influencer on consumer purchase intention with attitude towards influencer and brand attitude as mediator. *Journal Aplikasi Manajemen*, 19(4), 766-781.
- Infante, A., & Mardikaningsih, R. (2022). The Potential of social media as a Means of Online Business Promotion. *Journal of Social Science Studies (JOS3)*, 2(2), 45-49.
- Ismagilova, E., Slade, E., Rana, N. P., ve Dwivedi, Y. K. (2020). The effect of characteristics of source credibility on consumer behaviour: A meta- analysis. *Journal of Retailing and Consumer Services*, 53, 101736

- Jin, S. V., Muqaddam, A., ve Ryu, E. (2019). Instafamous and social media influencer marketing. *Marketing Intelligence ve Planning*.
- Johansen, I. K., & Guldvik, C. S. (2017). Influencer marketing and purchase intentions: how does influencer marketing affect purchase intentions? (Master's thesis).
- Kim, D. Y., ve Kim, H. Y. (2021). Trust me, trust me not: A nuanced view of influencer marketing on social media. *Journal of Business Research*, 134, 223-232.
- Kim, J. W., ve Chock, T. M. (2015). Body image 2.0: Associations between social grooming on Facebook and body image concerns. *Computers in human behavior*, 48, 331-339.
- Lê Giang Nam, H. T. D. (2018). Impact Of Social Media Influencer Marketing On Consumer At Ho Chi Minh City. *The International Journal Of Social Sciences And Humanities Invention*, 5(05),4710-4714.
- Lee, E. B., Lee, S. G., ve Yang, C. G. (2017). The influences of advertisement attitude and brand attitude on purchase intention of smartphone advertising. *Industrial Management ve Data Systems*.
- Leung, X. Y., Bai, B., & Stahura, K. A. (2015). The marketing effectiveness of social media in the hotel industry: A comparison of Facebook and Twitter. *Journal of Hospitality & Tourism Research*, 39(2), 147-169.
- Li, Y., ve Peng, Y. (2021). Influencer marketing: purchase intention and its antecedents. *Marketing Intelligence ve Planning*.
- Lou, C., & Yuan, S. (2019). Influencer marketing: How message value and credibility affect consumer trust of branded content on social media. *Journal of interactive advertising*, 19(1), 58-73.
- Mao, Y., Lai, Y., Luo, Y., Liu, S., Du, Y., Zhou, J., ... ve Bonaiuto, M. (2020). Apple or Huawei: Understanding flow, brand image, brand identity, brand personality and purchase intention of

- smartphone. *Sustainability*, 12(8), 3391.
- Martiningsih, D. A., & Setyawan, A. A. (2022). The impact of influencers' credibility towards purchase intention. In *International Conference on Economics and Business Studies (ICOEBS 2022)* (pp. 196-204). Atlantis Press.
- McGuire, W. J. (1985). The nature of attitudes and attitude change. *Handbook of social psychology*, 2, 233-346
- Moreira, J. F. D. S. (2021). *Influencer marketing: the effect of influencer credibility on attitude towards the influencer-brand collaboration and purchase intention* (Doctoral dissertation).
- Müller, L., Mattke, J., & Maier, C. (2018). # Sponsored# ad: exploring the effect of influencer marketing on purchase intention.
- Nadanyiova, M., Gajanova, L., Majerova, J., ve Lizbetinova, L. (2020, June). Influencer marketing and its impact on consumer lifestyles. In *Forum Scientiae Oeconomia* (Vol. 8, No. 2, pp. 109-120).
- Niloy, A. C., Alam, J. B., ve Alom, M. S. (2023) *Influencer Marketing: Factors Influencing A Customer's Purchase Intention*.
- Nurhandayani, A., Syarief, R., & Najib, M. (2019). The impact of social media influencer and brand images to purchase intention. *Jurnal Aplikasi Manajemen*, 17(4), 650-661.
- Oya, E. R. U., Çelik, İ. K., Çelik, S., & Ruziye, C. O. P. (2018). Kaynak olarak YouTuber'a güvenilirliğin ve marka güveninin gençlerin satın alma niyetine etkisi. *Ekonomik ve Sosyal Araştırmalar Dergisi*, 14(2), 219-238.
- Ohanian, R. (1990). Construction and validation of a scale to measure celebrity endorsers' perceived expertise, trustworthiness, and attractiveness. *Journal of advertising*, 19(3), 39-52.
- Patmawati, D., & Miswanto, M. (2022). The Effect of Social Media Influencers on Purchase Intention: The Role Brand Awareness as a Mediator. *International Journal of*

- Entrepreneurship and Business Management*, 1(2), 170-183.
- Putri, F. E. V. S., & Tiarawati, M. (2021). The Effect of Social Media Influencer and Brand Image On Online Purchase Intention During The Covid-19 Pandemic. *Ilomata International Journal of Management*, 2(3), 163-171.
- Ratneshwar, S., & Chaiken, S. (1991). Comprehension's role in persuasion: The case of its moderating effect on the persuasive impact of source cues. *Journal of consumer research*, 18(1), 52-62.
- Riedl, J., & Luckwald, L. V. (2019). Effects of influencer marketing on Instagram. In *Effects of influencer marketing on Instagram: Riedl, Joachim | uLuckwald, Lisa von. [Weidenberg]: Access Marketing Management eV.*
- Saima, & Khan, M. A. (2020). Effect of social media influencer marketing on consumers' purchase intention and the mediating role of credibility. *Journal of Promotion Management*, 27(4), 503-523.
- Schouten, A. P., Janssen, L., & Verspaget, M. (2020). Celebrity vs. Influencer endorsements in advertising: the role of identification, credibility, and *Product- Endorser fit. International journal of advertising*, 39(2), 258-281.
- Seiler, R., & Kucza, G. (2017). Source credibility model, source attractiveness model and match-up- hypothesis: An integrated model. *Journal of international scientific publications: economy & business*, 11.
- Shrestha, A. N. (2022). The impact of digital influencers on attitude towards brand, purchase intention and brand attachment (Doctoral dissertation).
- Snyder, M., & Rothbart, M. (1971). Communicator attractiveness and opinion change. *Canadian Journal of Behavioural Science/Revue canadienne des sciences du comportement*, 3(4), 377
- Şeker, A (2021) *İnfluencerların Tüketici Satın Alma Tutum Ve Davranışlarına Etkileri Üzerine Nitel Bir Araştırma*. Dokuz Eylül Üniversitesi İşletme Fakültesi Dergisi, 22(1), 19-42.



- Tanha, M. A. (2020). Exploring the credibility and self-presentation of Insta micro-celebrities in influencing the purchasing decisions of Bangladeshi users. *Search Journal of Media and Communication Research*, 12(2), 1-20.
- Trivedi, J., & Sama, R. (2020). The effect of influencer marketing on consumers' brand admiration and online purchase intentions: An emerging market perspective. *Journal of Internet Commerce*, 19(1), 103-124.
- Vodák, J., Cakanova, L., Pekar, M., & Novysedlak, M. (2019). Influencer marketing as a modern phenomenon in reputation management. *Managing Global Transitions*, 17(3), 211-220.

## **Global Food Insecurity: Problems and Policy Recommendations**

Prof. Dr. Seyfettin Erdoğan<sup>1</sup> ve Prof. Dr. Ayfer Gedikli<sup>2</sup>

<sup>1</sup> *Department of Economics, Faculty of Political Sciences, Istanbul Medeniyet University, Turkey,*  
[erserdagm@hotmail.com](mailto:erserdagm@hotmail.com), ORCID: 0000-0003-2790-4221

<sup>2</sup> *Department of Economics, Faculty of Political Sciences, Duzce University, Turkey*

### **Abstract**

The problem of food scarcity, which has been accepted as a problem of poor African countries for many years, has become a much more complex global problem for both developed and developing countries with the COVID-19 pandemic restrictions. During the pandemic period, the disruption of the global supply chain, and the interruptions in goods transportation, seriously impacted the global food supply. The Ukraine War, which started right after the pandemic restrictions were alleviated, was also an important event that threatened global food supply security. The fact is that Ukraine and Russia were the two countries that provided a significant portion of the global grain supply. Thus, import and food transport to other countries from the Ukraine ports could not continue due to the war and the threats of Russia. Unsustainable food transports might cause food shortage in many countries, especially in poor African countries which are highly dependent on Ukrainian and Russian grains. In this study, the problems and obstacles for food supply security that has been experienced since the pandemic period will be discussed in detail. Various policy recommendations will also be put forth for the current political and economic improvements in the study.

*Keywords- Ukraine, Russia, COVID-19 pandemic, food supply security*

### **I. INTRODUCTION**

Human health is shaped by not only genetic factors but also external factors. Some of these external factors include nutrition, water supplies, environment, and disease, as well as economic, social, and political conditions. These factors always interact with each other and they sometimes cause unexpected health consequences. One factor that directly affects human health is food security (Jaron and Galal,

2009:684). Food security can be defined as having enough physical, social, and economic access to sufficient, nutritious, and safe food to meet dietary needs and to have an active and healthy life (FAO, 2003a). It has four dimensions: availability, access, utilization, and stability (Weismann, et al., 2009; Gittlesohn et al., 1998). It can be determined by various levels at the global, regional, national, and individual household levels since it has multidimensional factors such as natural

disasters, climate change, civil conflicts, and social conditions. (Abdullah et al., 2017). Indeed, a sufficient supply of nutrients and health-improving substances are the basis of a healthy diet. However, there is not a standard adequate and balanced receipt for everybody. Depending on the energy and nutrient requirements it may vary from one individual to another and from one society to another (Jaron and Galal, 2009:685).

Food insecurity, on the other hand, is the absence of one or more of those conditions (Azmadzai and Akbay, 2020). The World Bank (1986) defined "food insecurity" as difficulty accessing enough food for a sustainable healthy life. Thus, food security is directly related to the availability of enough food. According to the Food and Agriculture Organization of the United Nations (FAO) (2023a), a person is defined as food insecure when he can hardly access enough nutritious and safe food to sustain an active and healthy life. Food insecurity can be due to the unavailability of food or limited resources to obtain food and it can be at different levels of severity. The cost of food insecurity is inadequate diets which causes vulnerability of exposed people to diseases. As a result, they have weak alertness, vitality, and vigor which cause limited power to fulfill their responsibilities both at home and at work. They may have low academic and working performance leading to poor human resources and poor output (World Bank, 1986:4).

For many years, food insecurity was considered a problem of under developed countries. However, COVID-19 Pandemic and the Ukraine War changed whole idea. Food insecurity can be a problem of developed, emerging and under developed countries. Until those two events, countries did not care much about sustainable food availability. The pandemic period and the Ukraine War disrupted sustainable food production and import. Starting from underdeveloped countries, hunger and food shortage became a great risk for all countries.

In this paper, the reasons and problems of global food insecurity both in developed and developing countries will be discussed. In this vein, in the first part, the current situation of the global food insecurity will be analyzed. The effect of Ukraine crisis in the global food insecurity will be discussed as well. In the final part, some policy recommendations will be put forth to provide more sustainable food.

## II. FEATURES OF FOOD INSECURITY

Food insecurity can be either chronic or transitory. Chronic food insecurity is continuous inadequate nutrition that may cause a lack of an active and healthy life. Chronic food insecurity leads to limited ability to afford enough food or to produce their own, whereas transitory food insecurity is a temporary condition that causes limited access to food due to unstable food prices, poor food production, famine, or household income losses (World Bank, 1986:1). FAO (2023a)

categorized the food insecurity according to its severity. As illustrated in figure-1, while the

green box represents mild food insecurity, the red box illustrates severe food insecurity.

**Figure-1.** Levels of food insecurity



**Source:** FAO (2023a)

People who are categorized as having moderate food insecurity have insufficient money or resources to afford a healthy diet. Even if they can find food, they are always uncertain about finding enough food again. In their daily life, they are used to skipping meals or running out of food frequently. According to FAO (2023a), the worst one is the severe food insecurity category. People in this category suffer from running out of food very occasionally and they live without eating the whole day or many times during the year.

Particularly in the least developed countries and in some of the low-middle income countries many people have to live with a very limited amount of food which causes deficiency in their diets. To compensate for the quality of life of the poor, it is not enough to increase the amount of food consumed by malnourished people through redistributive measures. Indeed, this amount needs to be added to the already increasing demand of increasing population and economic growth. Even the food exporter countries may have to import the food they need for food security

(World Bank, 1986:4). Food security may be either permanent or transitory. Global and domestic price volatilities, losses in household purchasing power, and famine are some of the common reasons of transitory food insecurity (World Bank, 1986:4-5 and Ayaviri-Nina et al., 2022).

### III. CURRENT SITUATION OF GLOBAL FOOD INSECURITY

Actually, the world has abundant food. The growth of global food production is more than the population growth. The problem is that many people do not live where abundant food is produced. For example, while the developed countries produce half of the world's grain, their population is less than ¼ of the world's population. Thus, sharing the food product among the people is problematic. Hundreds of millions of people from developing or poor countries do not share this abundance. On the contrary majority of the world population suffers from food insecurity mainly caused by lack of domestic production and purchasing power. Most of the poor countries have chronic food shortages because of unfavorable planting

and harvesting conditions as well as lack of technology and innovation since they have limited capital to allocate to R&D investments. As a result, limited numbers of countries are self-sufficient in food supply whereas the others heavily rely on food imports from food exporter countries (Jaron and Galal, 2009:685).

Moreover, climate changes, regional conflicts, the Covid-19 pandemic which caused a global shutdown, and the Ukraine war fuelled the global rising prices of fuel, food, and fertilizer. Today, not only refugees, homeless people, or the poor, but also people from rich and developed countries are at risk of food insecurity (World Food Program, 2022:1).

FAO (2022:25) revealed that 720 to 811 million people faced chronic hunger in 2020, and every year up to 10 million people added to this number, and almost 60 million people in five years. Moderate or severe food insecurity is estimated at 2 billion people. Those people cannot access regular, safe, nutritious, and sufficient food. Ukraine crisis raised this number by 7.6 to 13.1 million undernourished people in the 2022-2023 period. Under these global conditions, it is hardly possible to reach Zero Hunger level by 2030. On the contrary, if current conditions continue, the number of people affected by hunger will be more than 840 million people by 2030 (FAO, 2020:xvii)

In figure-2, percentages of undernourished people globally are illustrated. While it was 12,1% in 2005, it declined to 7,5% in 2017. However, it started to rise again starting from 2018 and reached 9,2% in 2022. According to

these percentages, number of people fighting with hunger was 793,4 million people in 2005. It decreased to 571,8 million in 2017 and rose to 783,1 million people in 2022 (FAO, 2023a). Between 2019 and 2021 period, 150 million people added to the number of un nourished people all over the world. Compared with the pre-Covid-19 pandemic period, the prevalence of undernourishment increased by 1,3%. While it was 7,9% in 2019, it reached to 9,2% in 2022. Furthermore, economic recovery after the pandemic slowed down in 2022 compared with 2021. Thus, the number of acutely malnourished people has reached record highs. While acutely malnourished children were estimated at 47 million globally prior to the Covid-19 pandemic, it rose to 60 million in 2022. Rising prices of food and energy, and the war between Ukraine and Russia worsened the situation. The income of the vulnerable people and recovery of employment levels were negatively affected and caused an incline in hunger (FAO, 2023b:6; World Food Program, 2022:2).

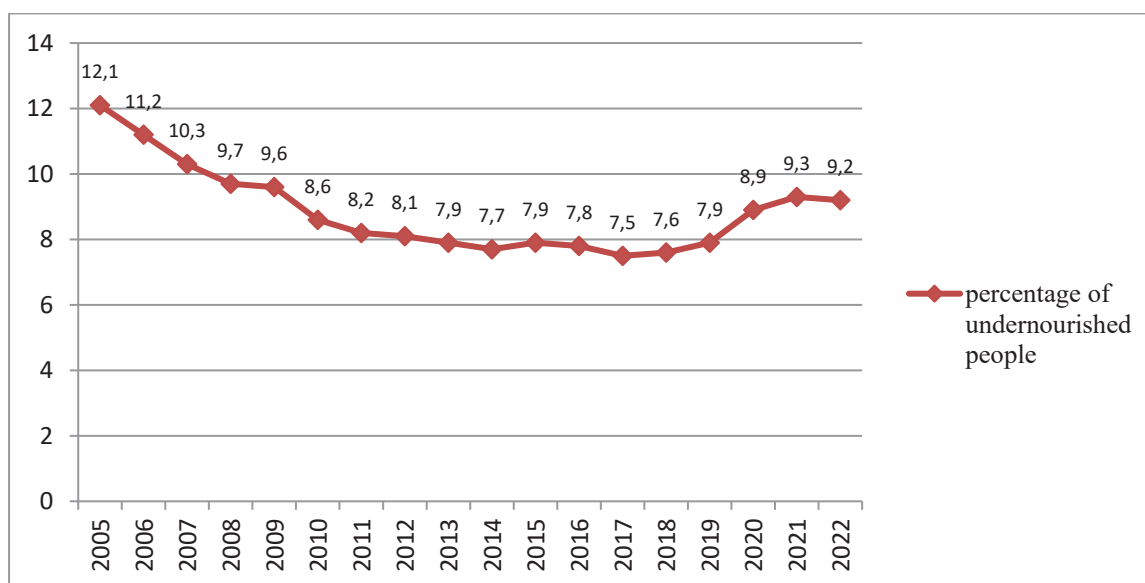
Even before the Ukraine war, international food commodity prices had reached record values due to high energy prices, market conditions, fertilizers, and other agricultural services. The war aggravated the process.

Both Russia and Ukraine are prominent players in the global food and agricultural products trade. Wheat exports from both countries accounted for about 30% of the global market in 2021. Ukraine's maize export share was 16% representing the world's 4th largest maize

exporter. Sunflower oil exports from both countries represented 78% of global supply. The Russian Federation is also one of the greatest exporters of fertilizers. Almost 50 countries depend on the Russian Federation and Ukraine for 30% of their wheat needs. Thus, the Ukraine war will have multiple implications for global markets and food

supplies, representing a challenge for food security for many dependent countries, especially for low-income food import-dependent countries (FAO, 2022b:1).

**Figure-2.** Percentage of undernourished people in the global population



Source: World Bank (2023)

**Table-1.** Prevalence of food insecurity among countries belonging to different economic classes

Region/Country	% of undernourishment to the total population		% of severe food shortage to the total population		% of moderate food insecurity to the total population		% of obese adults in total population	
	2004-2006	2020-2022	2014-2016	2020-2022	2014-2016	2020-2022	2012	2016
World	12	9,2	7,8	11,3	21,9	29,5	11,8	13,1
Least developed countries	25,3	21,7	19,8	24,2	50,4	59,3	4,9	6
Low-income countries	26,9	27,9	22,5	28	55,6	65,7	6	6,9
Lower-middle income countries	18,2	13,5	10,9	16,2	27,6	39,6	7	8,2

Upper-middle income countries	6,9	<2,5	3	4,6	12,7	16,2	11,5	13,2
High-income countries	<2,5	<2,5	1,5	1,6	8,3	7,6	22,3	24,3

Source: FAO (2023b:148)

**Table-2.** Prevalence of food insecurity in urban and rural areas among the regions

	Percentage of severe food insecurity		Percentage of moderate or severe food insecurity	
	Rural	Urban	Rural	Urban
World	12,8	9,4	33,3	26
Northern Africa	10,1	11,9	29,9	30
Sub-Saharan Africa	27,6	23	68,1	62,5
South-eastern Asia	3,1	2,1	17,8	12,9
Southern Asia	21,7	17,6	42,5	39
Western Asia	9,4	10,2	37,6	32,9
Latin America	13,6	9,4	39,3	31,2
Western Europe	1,5	1,8	5	6,1
Eastern Europe	1,3	1,4	7,1	7
Northern America	0,7	0,9	6,9	9,1

Source: FAO (2023b:178)

### A. Reasons of global food insecurity

#### a. Climate change and environmental degradation

Extreme climate events such as floods, famine, heavy rains, or fire have become very common in recent years due to climate shocks in many vulnerable regions of the world. Global warming and climate changes negatively affect agricultural production which results in agricultural product shortages and increasing food prices. La Nina, for example, caused a reverse effect on agricultural production since

2020 resulting in livestock and crop losses (World Food Program, 2022:4). Wars and social conflicts may also cause environmental degradation. Russia and Ukraine both account for 20% of the global forest area. After the Chernobyl exclusion, there have been 31 large fires affecting 10.287 ha area. Not only fires but also radioactive pollution caused catastrophic damage to the environment. During the war between the two countries, agricultural areas, and forests are damaged (FAO, 2022b:12).

**b. Risk of civil unrest**

There is a vicious cycle between hunger and social conflicts. Social conflicts cause hunger, hunger drives social conflict. In other words, each reason can be the result of the other. Food security, as a result of high food prices, amplifies the risks of civil unrest, democratic breakdown, and street fighting between different economic, social, or ethnical groups. Those conflicts were mainly triggered by food and hunger riots. Riots may cause death of hundreds of people during the fights, and government interventions to control the riot. Syria, Yemen, and Libya experienced armed conflicts due to skyrocketing food price increases (World Food Program, 2022:5).

**c. Negative consequences of financial and trade sanctions**

NATO and allied countries initiated heavy sanctions on Russia due to the Ukraine invasion. With 9,000 different targeted sanctions, Russia became the world's most sanctioned country by breaking the record of Iran. Russia immediately launched the counter-sanctions to EU member countries, the UK, Canada, and other allies of the Western block. The counter-sanctions are composed of bans on a series of products including energy and agricultural products. Agricultural product sanctions affected not only EU countries and Canada but also many African countries that are dependent on agricultural imports from Russia. Agricultural product sanctions cause food shortages, food shortage leads to sharp

increases in food prices as well as nutrition insecurity for consumers (Abu Hattab, 2022:5)

**d. Increasing energy prices**

There is a double crisis composed of spikes in food price prices and energy prices. The food insecurity problem that showed itself with the Ukraine crisis is actually a phase of higher energy and food prices amid the pandemic. Prior to the Ukraine war, there had been an increase in energy prices due to the lockdowns during the Covid-19 pandemic period. Actually, economic lockdowns reduced the oil demand to approximately eighteen million barrels/day relative to the end of 2019. Demand reduction caused a reduction in oil prices. By the end of 2020, it was 20 dollars/barrel, representing 1/3<sup>rd</sup> of pre-pandemic prices. By 2021, economies reopened and there was a spike increase of 9% in energy demand all over the world. The combination of rising demand and reduced oil supply led to a demand/supply gap for oil. This was one of the basic reasons for increasing energy prices. Sharp energy price increases triggered food price inflation as fertilizer production is an energy incentive process. Thus, rising energy prices aggravated the fertilizer prices. Since there were food production disruptions, there was a food shortage that negatively affected many African and Asian countries. When the Ukraine war started, the world had already been suffering



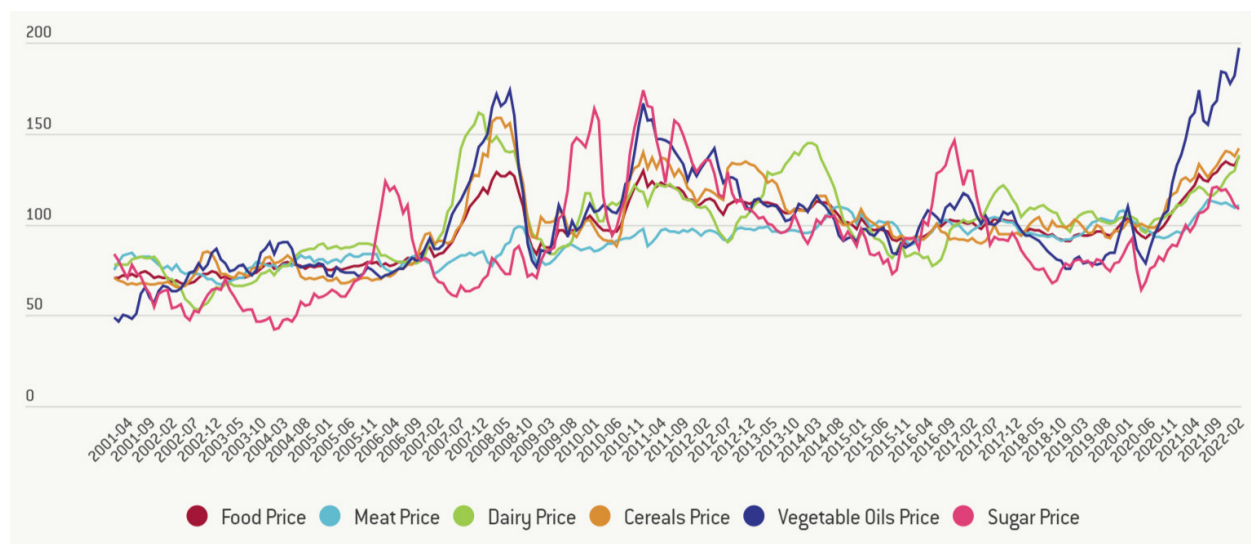
from price disruptions in the food and energy sectors. The Ukraine war doubled the negative effects of food disruptions and the energy sector (Montesclaros and Sembiring, 2022:6-7).

**e. Increasing food prices**

Prior to the Ukraine war, Ukraine and Russia were the major food exporters having 6% of global market shares each in food calories. Countries like Jordan, Yemen, Israel, and many African countries are the ones that are heavily dependent on basic commodity imports significantly from Russia and Ukraine. In short, higher food prices with a shortage in supply may bring a great problem for fragile countries on food assistance (European

Parliament, 2022). Particularly Least Developed Country and Low-Income Food-Deficit Country groups may have difficulties with market disruptions and skyrocketing increasing food prices. Those countries are highly dependent on imported food and fertilizers which are mostly supplied by Ukraine and Russia. Indeed, even before the invasion of Ukraine, food prices were at record levels. Due to the increasing demand after the Covid-19 pandemic and disrupted supply chain because of the pandemic, food prices have skyrocketed ([www.bruegel.org](http://www.bruegel.org)). Prior to the Ukraine crisis, the aforementioned countries were already negatively affected by the international food and fertilizer prices (FAO, 2022:1).

**Figure-3.** Monthly real food price indexes (2001-2022)



Source: [www.bruegel.org](http://www.bruegel.org) (2023)

Due to the sudden reduction in grain and sunflower seed exports by Ukraine and Russia,

there was a shortage of vegetable oil. Although the vegetable oil prices were rising starting

from June 2020, after the Ukraine crisis the price increases became steeper as shown in figure-3. The most vulnerable countries are in the Middle East and North Africa region that rely on imports which more than 10% of their cereals from Ukraine and Russia to sustain their cereal consumption. The Middle Eastern most at-risk countries are Jordan, Lebanon, Israel, and Yemen. Lebanon and Yemen have already food insecurity problems and import 47% and 31% of their cereals respectively from Ukraine and Russia. Libya is also very vulnerable, relying on imports for up to 90% of its cereal consumption on the imports of these two countries. Ukraine provides 40% and Russia 15% of Libya's cereal imports ([www.bruegel.org](http://www.bruegel.org), 2023).

Furthermore, since there is no possibility of finishing the war in the near future, agricultural crops were not planted in Ukraine which will cause extra shortage in agricultural products. As a result, in the 2022/23 season, a considerable supply gap would remain in global grain and sunflower seed markets, even though alternative-producing countries expand their output in response to the higher prices. This process would keep international food prices elevated well above the normal levels (FAO, 2022:2).

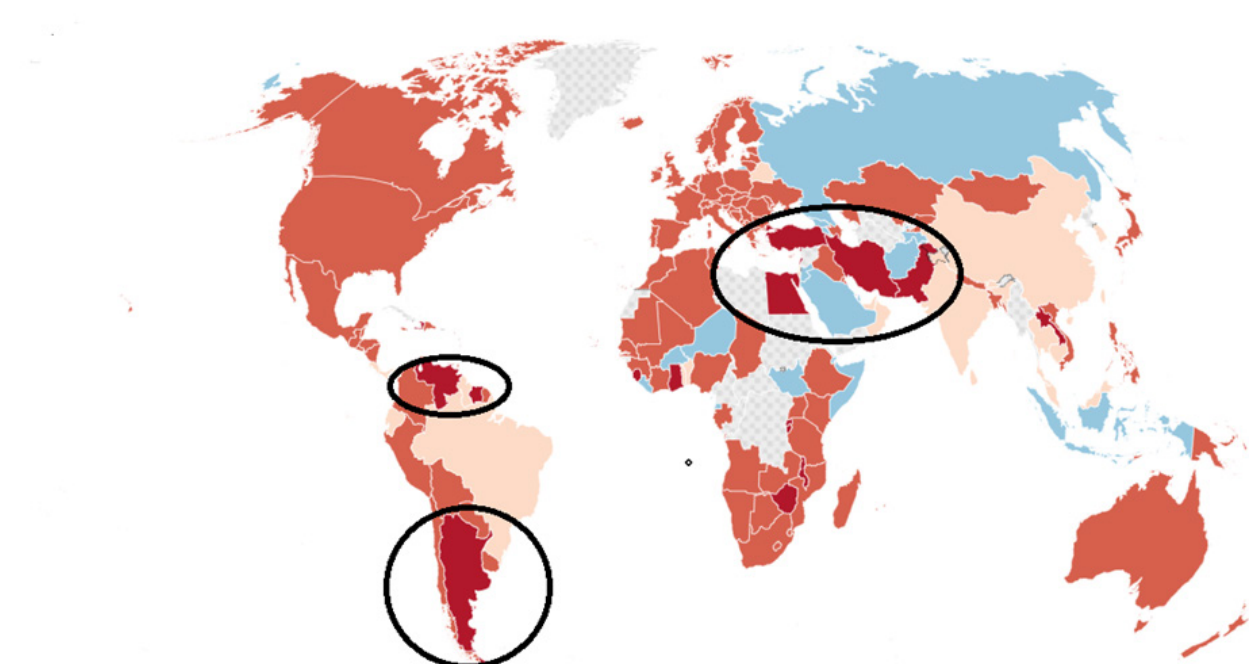
Food prices have been rising since 2020. The food price index showed record increases in February 2022 and reached another new record in March 2022 by rising 30% above its value in the same month last year. Since then it did not show a remarkable decline. Besides,

domestic prices increased by 15% or more in 40 countries in 2022 (World Food Program, 2022:3).

In Map-1, food inflation hot points are circled. The circled areas represent the highest food inflation areas. Those countries had to experience more than 30% inflation rates for food.

**Map-1.** Global food inflation hot points

■ <2 ■ 2-5 ■ 5-30 ■ >30



**Source:** World Bank (2023).

According to the World Bank (2023), Venezuela had 414,1%, Argentina 116,9%, Surinam 70,5%, Egypt 65,8%, Turkiye 54,1%, Iran 42,7%, Pakistan 39,5% inflation rate in March 2023-June 2023 period. Those countries represent the highest food price increases in the world.

Increasing inflation deteriorated household income and consumption all over the world. Actually, household consumption declined

more than GDP. National consumption spending represents the value of home consumption. National consumption spending fell in many countries, especially in developing ones. Households in those countries were hit twice by rising food prices and falling incomes. Furthermore, food expenditures account for a greater share of household consumption than food production in GDP. Thus, interrelated effects of food shortage,

fuel, and fertilizer shocks resulted in sharp declines in household consumption by almost 3% in many developing countries (Arndt et al., 2022:6).

#### IV. POLICY RECOMMENDATIONS

(FAO, 2022a:4; FAO, 2022b:4; World Food Program, 2022:9)

- The supply chain has been broken since the Covid-19 pandemic period. The supply chain should be fully operational including livestock, food processing infrastructure, and protection of standing crops. All countries should support keeping international trade in food and fertilizer open to meet the domestic and international demand.
- Countries which are highly dependent on food imports from Ukraine and Russia should diversify its international trade partners and search for alternative partner countries to import food. They should also diversify their domestic production bases.
- The food security problem is mostly confronted by vulnerable groups such as refugees, immigrants, and the poor. Those groups of people should be supported by the local governments to ensure to get their daily diet.
- Hosting countries should alleviate hard measures that prohibit refugees and immigrants from working. By lifting legal barriers to working, those people can earn money to get enough food to survive.
- Market transparency in agricultural commodity markets and international cooperation should be strengthened to continue to function properly and trade in food and agricultural products.
- All of the countries should volunteer to ensure trade is open, particularly for strategic commodities such as food, fuel, and fertilizers. Export restrictions and barriers should be alleviated. Besides, if food, fertilizer, pesticides, and fuel need to be imported, they should be supported by subsidies. Humanitarian assistance should be exempted from trade restrictions.
- International cooperation should be ensured to foster climate actions, social protection, and sustainable food production.
- Hunger or food shortage should be used as a weapon and ensure humanitarian access to negatively affected populations.
- Ukraine war caused a displacement of local farmers leading to limited agricultural labor availability. International cooperation should support agricultural labor to continue plantation. The "grain corridor" solution can be considered a good start. With the mediation of Turkiye and the UN, Ukraine and Russia signed an agreement on the resumption of

Ukraine's grain shipments from Black Sea ports to the world (AA, 2022).

- There is a shortage of agricultural inputs, raw materials, fuel, seeds, fertilizers, and pesticides due to the Ukraine war. Disruption of all agricultural necessities and materials should be provided by the global food supply chains.
- Due to military activities, most of the crops were damaged during the vegetative stages in spring. Besides, agricultural infrastructure was also destroyed in Ukraine. It may be a good short-term solution to get the support of international organizations such as The World Bank. Those institutions may provide both know-how and financial support to selected countries to allocate to intensify the agricultural production whose infrastructure is convenient for sustainable agricultural production. For example, small producers and exporters in African countries such as Egypt, Morocco, and Kenya can increase their market share in food production and food processing sectors (Abu Hattab, 2022:5).

## V. CONCLUSION

The global lockdown period that started with the COVID-19 pandemic led to the emergence of not only health-related problems but also problems related to food supply security. In addition to the supply chain disruptions during the pandemic period, protectionist policies and rapidly increasing food prices began to

threaten the lives of people, especially those living in poor countries. The Ukrainian War caused the global threat perception regarding food supply security to rise to higher levels. Essentially, Ukraine and Russia are the world's most important grain exporting countries. The war between these two countries has become a problem that threatens not only these countries, but also all countries that import agricultural products from these countries.

Besides, problems in the supply of fertilizer, which is among Russia's important export items, have led to a decrease in yields in countries producing agricultural products. Successive global events have revealed the necessity for each country to develop its own policies regarding food supply security. In this context, it has been understood that all countries need to develop their own policies regarding the production of the agricultural sector at least to meet the domestic need.

## REFERENCES

- AA (2022). Türkiye at heart of Ukraine grain corridor deal: UN official. 22 July 2022. <https://www.aa.com.tr/en/russia-ukraine-war/turkiye-at-heart-of-ukraine-grain-corridor-deal-un-official/2643708>
- Abdullah; Zhou, D.; Tariq, S.; Sajjad, A.; Waqar, A.; Izhar, U.; and Aasir, I. (2017). Factors Affecting Household Food Security in Rural Northern Hinter Land of Pakistan. *Journal of the Saudi Society of Agricultural Sciences*, 18(2), 201-210.

- Abu Hatab, A. (2022). Russia's invasion of Ukraine jeopardizes food security in Africa-Shocks to global food supply chains could lead to social and political unrest. *The Nordic Africa Institute Policy Notes*, 5. <http://nai.diva-portal.org/smash/get/diva2:1682307/FULLTEXT01.pdf>
- Arndt, C.; Diao, X.; Dorosh, P.; Pauw, K. and Thurlow, J. (2022). Russia-Ukraine War and the Global Crisis: Impacts on Poverty and Food Security in Developing Countries. *International Food Policy Research Institute, Global Crisis Country Series. Country Brief*, 20. <https://ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/136382/filename/136594.pdf>
- Ayaviri-Nina, V.D.; Quispe-Fernandez, G.M.; Vanegas, J.L.; Ortega-Mejia, V.; and Cordero-Ahiman, O.V. (2022). Importance of purchasing power and education in the food security of families in rural areas-case study: Chambo, Ecuador. *Sustainability*, 14(10), 6068; <https://doi.org/10.3390/su14106068>
- Azmadzai, A.K. and Akbay, C. (2020). The Factors Affecting Food Security in the Eastern Region of Afghanistan. *KSU Journal of Agriculture and Nature*, 23 (2): 000-000. DOI:10.18016/ksutarimdog.vi.596442
- European Parliament (2022). Russia's war on Ukraine: Impact on food security and EU response. At a Glance. [https://www.europarl.europa.eu/RegData/etudes/ATAG/2022/729367/EPRS\\_ATA\(2022\)729367\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/ATAG/2022/729367/EPRS_ATA(2022)729367_EN.pdf)
- FAO (2003). Trade Reforms and Food Security: Conceptualizing the Linkages. Food and Agriculture Organization of the United Nations, Rome.
- FAO (2020). The state of food security and nutrition in the world- transforming food system for affordable health diets. <https://doi.org/10.4060/ca9692en>
- FAO (2022a). Information Note-The importance of Ukraine and the Russian Federation for global agricultural markets and the risks associated with the current conflict. Rome. [https://www.fao.org/fileadmin/user\\_upload/fao\\_web/2022/Info-Note-Ukraine-Russian-Federation.pdf#page=25](https://www.fao.org/fileadmin/user_upload/fao_web/2022/Info-Note-Ukraine-Russian-Federation.pdf#page=25)
- FAO (2022b). Impact of the Ukraine-Russia conflict on global food security and related matters under the mandate of the Food and Agriculture Organization of the United Nations (FAO). Council, Hundred and Seventieth Session, 13-17 June 2022. CL 170/6. <https://www.fao.org/3/njl164en/njl164en.pdf>
- FAO (2023a). Hunger and food insecurity. <https://www.fao.org/hunger/en/>
- FAO (2023b). The state of food security and nutrition in the world-urbanization, agrifood systems, transformation and healthy diets across the rural-urban continuum. <https://www.fao.org/3/cc3017en/cc3017en.pdf>
- Gittlesohn J, Mookherji S, Pelto G 1998. Operationalizing Household Food Security in Nepal. *Food Nutrition Bulletin*, 19: 210-220.

Jaron, D. and Galal, O. (2009). Food security and population health and well being. *Asia Pacific Journal Clinical Nutrition*, 18(4), 684-687.

<https://www.bruegel.org/blog-post/impact-war-ukraine-food-security>

Montesclaros, J.M.L. and Sembiring, M. (2022). Food Insecurity Beyond Borders: Untangling the Complex Impacts of Ukraine War on Global Food Security. *NTS Insight*, No. IN22-03, August 2022.

Weismann, D.; Bassett, L., Benson T.; and Hoddinott, J. (2009). Validation of the World Food Programme's Food Consumption Score and Alternative Indicators of Household Food Security. *International Food Policy Research Institute*, Discussion Paper No. 00870.

World Bank (1986). *Poverty and Hunger, Issues and Options for Food Security in Developing Countries*. The World Bank, 9275, February 1986, Washington, D.C., U.S.A.

World Bank (2023). Food inflation heat map. July 31, 2023. <https://www.worldbank.org/en/topic/agriculture/brief/food-security-update#:~:text=Approximately%209.2%25%20of%20the%20world's,11.3%25%20being%20severely%20food%20insecure.>

World Food Program (2022). War in Ukraine drives global food crisis- hungry world at critical crossroads. <https://docs.wfp.org/api/documents/WFP-0000140700/download/>

[www.bruegel.org](http://www.bruegel.org) (2023). The impact of the war in Ukraine on food security.

## **Crowdfunding as a Modern Fundraising Technique within the framework of Sustainable Development: The Case of Turkey as an Emerging Economy**

Fatih Kayhan<sup>1</sup>, Berna Ak Bingül<sup>2</sup> and Gökhan Işıl<sup>3</sup>

<sup>1</sup>Finance and Banking, Kırklareli University, Türkiye

<sup>2</sup>Finance and Banking, Kırklareli University, Türkiye

<sup>3</sup>Banking, Marmara University, Türkiye

\*[fatih.kayhan@klu.edu.tr](mailto:fatih.kayhan@klu.edu.tr), ORCID No: 0000-0001-7844-8663

[berna.akbingul@klu.edu.tr](mailto:berna.akbingul@klu.edu.tr), ORCID No: 0000-0002-2813-2780

[gokhanisil@marmara.edu.tr](mailto:gokhanisil@marmara.edu.tr), ORCID No: 0000-0001-9932-3499

**Abstract** – The purpose of the research is to review crowdfunding within the context of sustainable development. Crowdfunding is regarded as a comparatively new and modern funding model for financing new projects that are in need of funds (for especially ‘start-ups’).

The approach used is SWOT analysis. In view of the fact that crowdfunding is a relatively new funding module in financial system of Turkey, data is not available for carrying out a quantitative (econometric) analysis.

The main results of review of current figures are as follows: SWOT analysis indicates that strong side of this model is that this business is in its early age in Turkey, it has great potential to grow. The weakness of is that investors are not familiar with this funding technique. The greatest opportunity facing this model is dynamic business structure and growing entrepreneurship in the country. The leading threat is considered to be volatile economic and financial environment in Turkey.

Important conclusions and policy recommendations: Crowdfunding’ as one of the non-banking direct-finance applications continue to be enhanced to ensure sustainable development in especially emerging economies. Secondary legislation is being developed by regulatory bodies related with crowdfunding. Policy recommendations: Taking into account the current inadequate amount of investment, crowdfunding system should be promoted, advertisement and publicity is needed. Further, secondary market for this funding model should be established within Borsa-Istanbul.

*Keywords* – Crowdfunding, Fundraising, Türkiye

### I. INTRODUCTION

It is a very well-known fact that financial system makes it available for those who have access funds to invest and those who lack funds to make investments to meet with the help of financial institutions by using financial instruments in financial markets under the supervision of government regulations and regulators.

Crowdfunding has arisen as an alternative funding method vis-a-vis conventional funding methods like bank-lending/funding or fund-raising by issuing a debt obligation

This new funding model is crucial and used especially for entrepreneurships with limited capital and start-ups that generally have difficulty in reaching funds due to lack of collateral



requested by banks in return for loans. In addition, banks may not be willing to extend loan for newly established businesses due to the risks inherent in newly established undertakings.

This study reviews crowdfunding within the context of sustainable development. Crowdfunding is a method of collecting money to finance projects and businesses. It helps fundraisers raise money from a large number of people by way of online platforms. It is generally employed by startup companies or growing businesses as a technique of accessing alternative funds. Another way of saying, it is an innovative way of providing funding for new projects, businesses or ideas.

Data is retrieved from the website of ‘Startups.watch’ and official website of Capital Market Board of Türkiye (‘Sermaye Piyasası Kurulu’). Due to lack of data, rather than quantitative (econometric) analysis, SWOT Analysis is utilized as a method.

This study argues that ‘Crowdfunding’ as one of the non-banking direct-finance applications continue to be enhanced to ensure sustainable development in especially emerging economies. There exist some issues to be solved regarding development of crowdfunding like lack of secondary market and lack of publicity.

Motivation of this study is that in Türkiye alternative funding models have been growing in line with the growing economic activity, entrepreneurs, business activity. Analyzing crowdfunding is of great significance considering this very fact.

Scope of this study is limited to Turkey. The contribution of the study to the literature is that this overview study will fill a gap regarding crowdfunding since literature is scarce in this funding model.

Crowdfunding is regarded as a comparatively new and modern funding model for financing new projects that are in need of funds (for especially ‘start-ups’). Legal Framework of Crowdfunding (Turkey): Communique upon Crowdfunding’ ((III – 35/A.2) was issued by Capital Market Board of

Turkey (Official Gazette, dated October 27th, 2021, numbered 31641) in order to facilitate development of entrepreneurship and entrepreneurs’ access to funds.

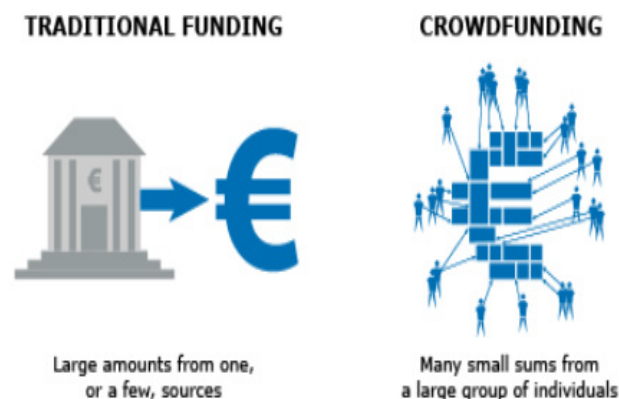


Figure 1. Traditional Funding vs. Crowdfunding

Source: [https://single-market-economy.ec.europa.eu/access-finance/guide-crowdfunding/what-crowdfunding/crowdfunding-explained\\_en](https://single-market-economy.ec.europa.eu/access-finance/guide-crowdfunding/what-crowdfunding/crowdfunding-explained_en)

This study includes the following parts: Introduction is the first part. Literature review is the second part. Third section provides recent figures about crowdfunding. SWOT analysis is provided in the fourth part. The fifth and the last part concludes the study.

## II. LITERATURE REVIEW

This part covers some literature related to the crowdfunding. It is apparent that literature is scarce in regard to this relatively new line of business/funding method. However, in the future, literature will have grown considerable and a number of studies including quantitative analysis will be available.

Petruzzelli, A. et al. (2019) argue that in spite of the large body of knowledge rapidly accumulated on crowdfunding as well as the growing relevance of this phenomenon for sustainability, studies are scarce on the role of crowdfunding for sustainability-oriented projects, and many related issues are still far from being fully understood. This indicates a clear need for explain the main dynamics of the relationship between

crowdfunding and sustainability, and also opening up useful directions for future research on this relationship.

Martinez-Climent et al. (2019) argue that the notion of crowdfunding is widely studied, on the other hand the sustainability of crowdfunded ventures is getting growing interest from academia and society. They implement bibliometric analysis in order to study the relation between crowdfunding and crowdfunded ventures' sustainability orientation. They analyze the number of publications, type of publications, and most productive countries, journals and authors. Besides, they analyze the most cited articles and examined their approach to sustainability and crowdfunding. The results show that a sustainability orientation could give rise to change in the current financial and environmental system.

Böckel, A. et al. (2021) review the relation between crowdfunding and sustainability. The findings show that this field of study has a relatively short history but already shows signs of growing maturity.

Kuran, I. (2022) argues that it would be beneficial to utilize the crowdfunding system as an alternative and complementary financing instrument in regional development policies. The paper concludes that benefiting from the crowdfunding system in the regional development process in Turkey will have significant impacts such as the adoption and support of the projects in addition to financing the projects to be implemented, thus it increases the chances of the projects to be successful.

### III. CROWDFUNDING IN NUMBERS

This part provides up to date information/figures related to crowdfunding. It is seen that this new line of business is improving in Türkiye and the World considerably.

	2017	2018	2019	2020	2021	2022
Equity Based Crowdfunding Deal Size (\$)	0M	0M	0M	2M	1.9M	10.6M
Seed Stage Deal Size (\$)	59M	48M	49M	68M	138M	273M
% of Deal Size	0%	0%	0%	3%	1.4%	3.9%
Equity Based Crowdfunding Deal Count	0	0	0	1	18	46
Seed Stage Deal Count	166	127	116	190	298	269
% of Deal Count	0%	0%	0%	0.5%	6.0%	17.1%

Figure 2. Equity Based Crowdfunding Deals (Türkiye)

Source: Startups.watch

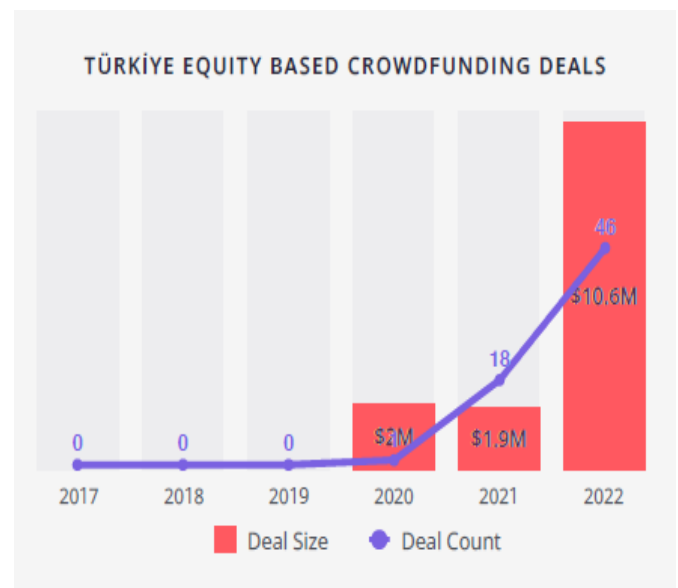


Figure 3. Equity Based Crowdfunding Deals (Türkiye)

Source: Startups.watch

As can be seen from Figure 3, crowdfunding has been developing in terms of both deal size and deal count.

DEAL SIZE BY VERTICALS	2018	2019	2020	2021	2022
Financing	\$7,465,642,496	\$6,344,570,430	\$5,292,086,442	\$7,138,430,109	\$13,882,494,116
YoY Growth		-16%	-17%	25%	52%
Payment	\$4,566,317,872	\$5,626,227,400	\$6,978,070,434	\$21,536,377,602	\$11,422,025,367
YoY Growth		23%	24%	238%	-47%
Cryptocurrency, Blockchain	\$2,023,155,338	\$1,628,867,586	\$1,657,894,481	\$12,734,791,325	\$11,400,082,982
YoY Growth		-19%	2%	688%	-10%
Banking	\$1,941,896,300	\$3,868,784,200	\$4,227,318,013	\$11,965,314,054	\$8,441,667,563
YoY Growth		99%	9%	184%	-30%
Insurance	\$2,980,220,707	\$4,380,951,329	\$3,891,745,526	\$9,700,610,934	\$6,739,867,576
YoY Growth		47%	-13%	153%	-31%
Trading, Investing	\$1,985,088,582	\$1,515,626,098	\$2,750,619,227	\$7,478,493,416	\$5,147,244,669
YoY Growth		-24%	81%	172%	-31%
Corporate Finance	\$1,497,719,111	\$2,319,495,637	\$1,559,215,227	\$6,426,113,897	\$3,581,709,721
YoY Growth		55%	-33%	312%	-44%
Personal Finance Management	\$479,133,475	\$940,445,584	\$735,150,974	\$2,386,876,388	\$1,256,917,778
YoY Growth		98%	-23%	225%	-47%
Wealth Management	\$533,534,628	\$520,720,782	\$571,281,473	\$2,066,459,378	\$971,361,691
YoY Growth		-2%	10%	282%	-53%
Scoring, Identity, Fraud	\$1,034,983,597	\$811,750,847	\$692,139,770	\$2,818,473,724	\$787,260,159
YoY Growth		-22%	-15%	278%	-70%
Crowdfunding	\$219,605,971	\$289,650,986	\$149,126,232	\$668,747,332	\$469,789,084
YoY Growth		32%	-49%	349%	-30%
Money Transfer	\$365,821,717	\$382,772,569	\$877,902,860	\$2,151,943,711	\$575,278,215
YoY Growth		5%	129%	149%	-73%

Figure 4. Fintech Deals by Verticals

Source: Global Fintech Activities – Annual Report 2022- Startups.Watch

When deal size by verticals is analyzed in Figure 4, a remarkable increase in crowdfunding business activity can be observed.

IV. ANALYSIS AND FINDINGS

This part SWOT analysis (Strengths, Weaknesses, Opportunities, and Threats) is provided. The reason why this method of analysis is preferred is related to the very fact that data for this business is not big enough to conduct a time-series or panel data analysis. SWOT analysis indicates that;

*Strong side of this model* is that this business is in its early age in Turkey, it has great potential to grow.

*The weakness of this model* is that investors are not familiar with this funding technique.

*The greatest opportunity* facing this model is dynamic business structure and growing entrepreneurship in the country.

*The leading threat* is considered to be volatile economic and financial environment in Turkey.

The followings are the key findings related to this line of business (when considering figures, numbers and limited data):

1. In Turkey, the current investments under the coverage of crowdfunding is are funded by 1000 - 2000 investors. Therefore, this funding technique needs to be promoted to public and investors for raising big amounts.

2- Secondary market is needed for the current and potential investors. To this end, crowdfunding market –a new market- can be introduced under Borsa-Istanbul (Istanbul Stock Market). Shares of this funding can be traded like stock market.

3- Only individual investors can invest in venture companies and business ideas. Besides, institutional investors like mutual funds and private pension funds should be able to provide financial resource for this system, which can be possible by a regulation of Capital Market Board.

4- For venture companies to collect more funds, in addition to equity-based funding and debt-based funding, mortgage-based funding can be introduced (that is, crowdfunding based on real estate, popular in Western Countries).

V. CONCLUSION

Crowdfunding as a new funding model is attracting much more attention within the context of sustainable development. As an alternative financing tool in comparison to bank-lending, this model has been improving and turn out to be a funding solution especially for new startups and small businesses.

Considering all information, recent figures the following conclusions can be made about crowdfunding as far as the application of this model in Türkiye is concerned:

There is much more room for the utilization of financial services provided by crowdfunding given the limited level of financial services utilization in the face of traditional / conventional funding methods,

Crowdfunding as one of the non-banking direct-finance applications continue to be enhanced to ensure sustainable development in especially emerging economies.

Secondary legislation is being developed by regulatory bodies related with crowdfunding.

Policy recommendations of this study are as follows: Taking into account the current inadequate amount of investment, crowdfunding system should be promoted, advertisement and publicity is needed. Further, secondary market for this funding model should be established within Borsa-Istanbul.

#### REFERENCES

Böckel, A., Hörisch, J. & Tenner, I. (2021). A systematic literature review of crowdfunding and sustainability: highlighting what really matters. *Management Review Quarterly*, 71, 433–453.

Kuran, I. (2022). Bölgesel Kalkınma Sürecinde Kitle Fonlama Sisteminin Rolü: SWOT Analizi. *Ekonomi Politik Araştırmalar Dergisi*, 5, 1-13.

Martinez-Climent, C., Costa-Climent, R., Oghazi, P. (2019). Sustainable Financing Through Crowdfunding, *Sustainability*, 11(3), 934; <https://doi.org/10.3390/su11030934>

Petruzzelli, A., Natalicchio, A., Panniello, U., Roma, P. (2019). Understanding the crowdfunding phenomenon and its implications for sustainability, *Technological Forecasting and Social Change*, 141, 138-148.

Turkish Startup Ecosystem – Year in Review 2022, Access: 26 October 2023, <https://www.startups.watch>

Global Fintech Activities – Annual Report 2022, Access: 26 October 2023, <https://www.startups.watch>

Capital Markets Board of Türkiye, Access: 26 October 2023, <https://www.spk.gov.tr/sirketler/kitle-fonlama-platformlari/bilgi-formlari>

Central Securities Depository & Trade Repository of Türkiye, Access: 26 October 2023, <https://www.mkk.com.tr/en/depository->

[services/markets-and-platforms/crowdfunding-platform](https://www.mkk.com.tr/en/depository-services/markets-and-platforms/crowdfunding-platform)

Crowdfunding, Access: 26 October 2023 <https://www.crowdfunding.com/>

European Commission, Access: 26 October 2023, [https://single-market-economy.ec.europa.eu/access-finance/guide-crowdfunding/what-crowdfunding/crowdfunding-explained\\_en](https://single-market-economy.ec.europa.eu/access-finance/guide-crowdfunding/what-crowdfunding/crowdfunding-explained_en)

## Global Supply Chain Recovery: Challenges and Solutions

Prof. Dr. Ayfer Gedikli<sup>1</sup> ve Prof. Dr. Seyfettin Erdoğan<sup>2</sup>

<sup>1</sup>Department of Economics, Faculty of Political Sciences, Duzce University, Turkey, [ayfergedikli@gmail.com](mailto:ayfergedikli@gmail.com)  
ORCID: 0000-0002-7128-1976

<sup>2</sup>Department of Economics, Faculty of Political Sciences, Istanbul Medeniyet University,  
[seyfettin.erdogan@medeniyet.edu.tr](mailto:seyfettin.erdogan@medeniyet.edu.tr), Turkey

### Abstract

A very discontending situation started with the COVID-19 pandemic and became inextricable with the Ukraine War in the global economy and production due to the interruptions in the supply chains. In addition to the rapidly increasing inflation due to the limited supply that could meet the rapidly increasing demand after the pandemic, the sharp increases in energy prices due to the Ukraine War have devastating effects on sustainable, cheap, and convenient production. Disruptions in the supply chain exasperated the material transfers and shipping which caused extra burden on global production. Protectionist policies of the governments and increasing labor costs are also caused global supply chain disruptions. All these problems caused fast increases in inflation rates globally. Furthermore, supply chain breaks caused increases in raw materials and other inputs which caused sharp increases in product prices. In this study, supply chain problems which arose from the pandemic period and the Ukraine crisis will be analyzed. Data from the international institutions will be used for evaluations. Besides, alternative policy suggestions for the safe and sustainable global operation of the supply chain will be put forward.

**Keywords:** Supply chain, COVID-19 pandemic, the Ukraine War

### I. INTRODUCTION

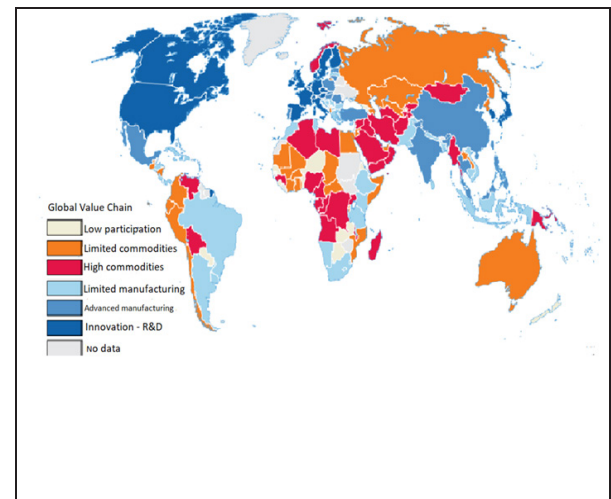
A hundred years ago, typical trade was based on producing and selling locally. In case of traveling long distances, merchandises were too expensive to afford. Since the beginning of globalization in the 1980s, industrial firms benefited from globalization and initiated international global supply chains to maximize cost-effective production, transportation, and logistics. Thanks to

globalization and cheaper transportation, more and more manufacturing has moved to places where production costs are lower. Thus, the world has become more interconnected. As global markets grew, competition became more integrated and turned to entire supply chains instead of individual companies. Having more integrated international trade, the global supply chain has gained importance since the

mid-1990s. The growth of cheap manufacturing in China motivated companies to change their production processes to get raw and intermediate materials from China. Just in a decade, imports from China to the US, the greatest economy in the world, increased from \$45 billion in 1995 to \$280 billion in 2006. Global supply chain contributed international production to being cost-effective and convenient. By having more profit rates, both import and export rates surged tremendously during the 2000s. In 2021, China was the leading country in total imports in the world. China had a \$3.382.435.785 import with 15.43% of global imports. The US followed China with \$1.703.893.334 and a 7.77% share. Germany was recorded as the third greatest importer in 2021 with \$1.538.830.200 and a 7.02% share. In the same year, the US was the leading country in total exports with \$3.291.674.759 and 13.55% of global exports. China was the second greatest exporter with \$2.419.607.092 and 9.9%. Germany was the third greatest exporter with \$1.353.626.272 and 5.5% of the global export volume (World Integrated Trade Solution, 2021). Map-1 represents the global value chain and the position of the countries. In parallel with the export and import performances, the value chains of the individual countries show similar performances. High exporter performance is highly related to applying innovative technologies and R&D whereas many African countries indicated poor

export/import performance and stayed back in the global value chain. Besides, Map-1 indicates that North America and Europe represent R&D and innovation. China, India, Turkey, and Mexico have advanced manufacturing production, and Russia and Australia have limited commodities. Indeed, Russia's economy is mostly based on natural resource extraction and exporting (Vidrova, 2020:2; World Bank, 2020:2; EY, 2022:1).

Map-1. Global value chain



Source: World Bank (2020:2)

International trade and global supply chain continued to grow until the Covid-19 pandemic in 2020-2021. The pandemic hampered the global trade of goods due to supply chain disruptions. Global lockdowns and shutdowns of factories (especially in China and in some other Asian countries) as well as labor mobility restrictions caused great disruptions in logistic networks. Increasing shipping costs and longer delivery times led to great losses in global

trade. During the recovery period of the pandemic, there was increasing demand for intermediate goods to satisfy the increasing demand to initiate the production processes. The limited supply of intermediate goods in the recovery period caused bottlenecks all over the world (Benigno et al., 2022:1). After the pandemic period, hard days of profitable and convenient global supply chain architecture were gone. Furthermore, it has been threatened by excessive external factors such as global political conflicts, disasters, increasing protectionism, global inflation after the pandemic, and wage inflation in developing countries. Thus, conventional supply chains may be inadequate for future economic activities and many companies try to rearrange their global supply chain setup. The key factor should be having resilient supply chains to keep their companies in a competitive position (EY, 2022:1).

All in all, especially in the last two decades, the world has been suffering from either economic and political problems or disasters. There were many local and international political conflicts between the countries such as the trade war between the US and China, the Ukraine War, the Syria Civil War, etc. The COVID-19 pandemic had also devastating effects on the global supply chains. Finally, the Ukraine War has been adversely affecting the global food chain as well as energy and other goods transfers. As one of the crucial factors of global trade, the problems of global supply chain

management are critical to discuss to have a resilient and sustainable supply chain.

Thus, the aim of this study is to analyze the negative effects of the COVID-19 pandemic and Ukraine war on the global supply chain. The fact is that the higher the harmful effects the higher the global trade and production is impacted.

In this study, in the proceeding part, the theoretical framework of the supply chain will be explained. In the third part, the current condition of the global supply chain will be analyzed. In the analysis, the reasons for the problems and alternative policy recommendations to overcome these problems will be handled.

#### *A. Supply Chain: Theoretical Framework*

In the globalized world, supply chains are the arteries of international trade and production. As one of the main factors of global commerce, supply chain management has become a strategic agenda item for every country. Today, the supply chain is essential in a highly competitive, highly connected, volatile, and fast-changing global economic and political environment. Mangan and Lalwani (2016:10) defined a supply chain as the network of organizations that are included in the process either as upstream or downstream linkages to produce values in the form of products and services to satisfy the customers.

In this vein, the term supply chain refers to strategic issues and logistics stands for tactical and operational solutions to transport and delivery problems. Hence, logistics is a part of the supply chain process which involves planning, implementing, and monitoring to have an efficient, effective forward and reverse flow and storage of goods and services. This process includes the production-to-consumption process to meet the needs of customers. To handle all these processes, supply chain management is crucial. Indeed, supply chain management is the systematic and strategic coordination of conventional business functions and strategic tactics to improve the long-term performance of individual companies and the supply chain as a whole system (Vidrova, 2020:2).

In a broader definition, Millar (2023:4) explained supply chain as the process of planning and executing the necessary materials, raw materials, sellable products, delivery as well as return of products and services in accordance with customer orders. According to the definition, there are five key components of supply chain management: source, plan, production, delivery, and return.

Based on these functions, supply chain management has five stages (Daniel, 2023):

- i. *Plan*: The Plan is the decision of material managers about how to proceed using supply chain analytics

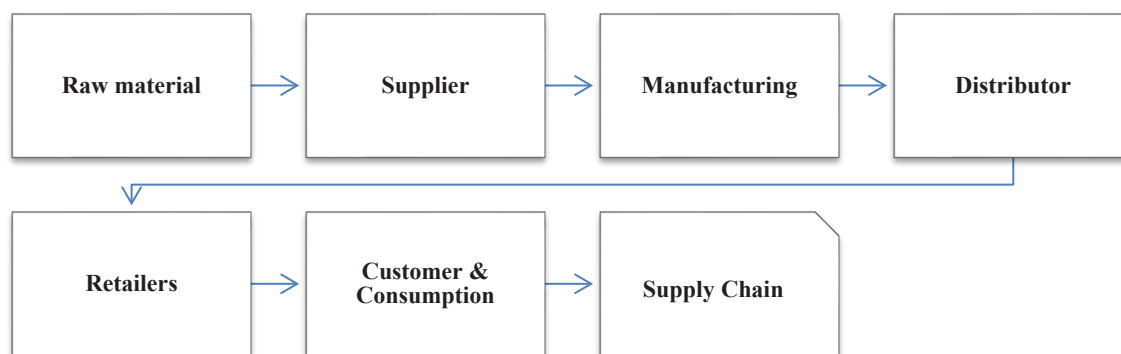
based on the expectations of customers.

- ii. *Source*: This is the stage where supply chain collaboration starts. At this stage, the organization identifies and chooses the vendor that can supply materials efficiently according to contracts.
- iii. *Make*: This is the production stage and manufacturing. In this stage, scheduling the production, testing, fulfilling the requirements, packing, storage, and release processes are implemented.
- iv. *Delivery*: This stage involves the logistics and focuses on transferring the finished goods to customers.
- v. *Return*: The returns of defective products and products that will not be supported flow in this stage. This stage also involves inventory and transportation management.

Related to this management process, supply chain management consists of production, purchasing, transportation, warehouse, finance, and marketing functions. Shape-1 illustrates the supply chain stream.



Shape-1. Supply Chain Stream



Source: Mangan and Lalwani (2016:11)

Supply chain management has become more sophisticated than it was a hundred years ago. While it was a labor incentive in the old days, there was engineering and managing of complex global and regional networks. In the 1960s, the supply chain started to fragment. In the 1980s, with the initiation of globalization, integration between the countries started. When it came to 2000s the total integration formed among the countries (Mangan and Lalwani, 2016:11). As the supply chain gets more sophisticated, it becomes more complex while having more value addition. Since the supply chain is the integration of information and resources through a series of value-added activities, the industrial level represents the highest value addition (Acquaye et al., 2017:573).

A well-designed supply chain management may have enormous benefits that bring more profit, higher competitive advantage, and greater brand image. These benefits include

the following (Vidrova, 2020:6-7; Daniel, 2023):

- Reducing costs: The global supply chain provides inputs and raw materials with the lowest prices. Reducing production costs leads to higher profit rates.
- More accurate prediction and meeting the customer demand
- Better supply chain management, lower risk, and predictive capacity
- Better process efficiency and less product waste
- Availability of high-quality products: In highly competitive global supply, a firm can easily find the most suitable quality products with reasonable prices to produce an excellent standard without having a deep search.
- Reducing stocks and inventories: Since companies have trustworthy contracts that ensure sustainable

production, companies do not prefer to keep stocks. The reason is the high costs of storage, rent, thefts, and other risks. Reducing costs contributes to being more competitive in the market.

- Sustainable society and sustainable environment standpoint
- More efficient cash flow
- More efficient logistic
- New opportunities and new markets: Joining to global supply chain also brings new opportunities in different markets. New clients, new contracts, or even new technologies can be obtained.
- Learning from competitors: New production methods and new technologies can be learned and adopted by the company.
- Greater possibility to survive: If the company ensures to have a sustainable and stable supply chain, it can adapt itself to unexpected situations since there are different alternatives for it to implement immediately.

Supply chain management needs retail chains sourcing goods from the supplier country to the purchaser countries. In the process, both manufacturing and transport of the goods should be provided cost-effectively as well as delivered on time. Within the supply chain, logistic operators should also ensure the saleable quality of the

goods. In this vein, targeting the customers' expectations, vendor management should monitor their suppliers and the production process (Branch, 2009:6).

### *B. Challenges of global supply chains*

While there are great opportunities and a high level of cost-effectiveness, there are some challenges and risks that need to be discussed (Vidrova, 2020:4-5):

- Low transparency of supply chain:* As international business and supply chain develop, more companies need to coordinate carriers and suppliers delivering goods all around the world. Growing the volume of imports and exports increases the need for transparency and monitoring of logistic activities. For example, if a company replaces a local supplier company with a Chinese firm, it may be necessary to reassess delivery time and stock levels. In this case, transparency will reduce the risk of delivery delays and other unexpected events that may disturb the process.
- Lack of knowledge about the delivery conditions:* Lack of knowledge about the regulations and delivery conditions may cause extra risks in arranging the production, delivery, and selling processes. Especially, transport

and terminal costs should be calculated precisely. Besides, rules and regulations should be understood very well.

- iii. *Poor inventory management:* Customers prefer to receive their shipments within a few days of the order. Due to shipment or transit time delays, the loss of companies can be enormous. If production is outsourced, such as in China, delivery time can be longer than expected. In this case, solid inventory management and searching for alternative suppliers that can produce and deliver in a shorter time can be quite important.
- iv. *Excessive cost on urgent shipments:* Companies mostly rely on shipping by sea transport. If there is a delay, the alternative transport to sea should not be air transport due to high costs. Instead, road transport or railway can be faster than sea transport and cheaper than air transport. To choose the optimal price option to deliver the goods, a well-designed transport plan should be done.
- v. *What is the Plan B in case of supply chain disruption:* There may be extraordinary problems during the shipment of consignment to the customer. A factory of the supplier may be

damaged, or burned; there may be a disaster that affects the transport; war or social conflicts may impact the timing. Under such conditions, to avoid and prevent supply disruptions, there should be alternative channels to transfer products to alleviate the risk.

## II. THE EFFECTS OF THE COVID-19 PANDEMIC ON GLOBAL SUPPLY CHAIN

The COVID-19 pandemic had a tremendous impact on the global economy. Although the virus spread to all countries, its impact on the economies was diverse. Furthermore, countries were affected repeatedly and at different points as the next waves hit. In the initial lockdown phase of the pandemic, there was a huge drop in global economic activities with trade declines and GDP losses. In the early phases of the outbreak, there was a negative supply shock, leading to the initial supply chain disruption. This was the first step of today's supply chain disruptions. The outbreak froze the economic activities causing supply and depleted inventories. This process forced companies to seek new reroute suppliers. This process is accompanied by insufficient demand and a large collapse in global GDP. The pandemic also deteriorated the employee-employer matches causing disarray and vulnerability to new shocks (Igan, Rungcharoenkitkul, and Takahashi, 2022:1). Application of vaccines and

unprecedented monetary and fiscal policies during the 2020-2021 period caused a fast but asymmetric recovery period across advanced and emerging countries. The uneven effects were because of different reasons. First of all, the response of each government was different both in terms of health policies and monetary and fiscal policies. Secondly, the outbreak caused sectoral demand and supply shocks that caused demand-supply imbalances both at the national and international level causing supply chain bottleneck problems. As the recovery period started, suddenly increasing demand created extra pressure on the supply chain causing inflation. Thus, the recovery phase represents a positive aggregate demand shock. Domestic inflation is caused by aggregate demand shocks as well as sectoral demand and labor supply shocks since pandemic-driven labor dislocations could not be regulated. While the increase in consumer spending could support economies to turn back to the pre-pandemic level, economic activities could not increase

enough because of the slow recovery in supply chain problems. Inconsistency between aggregate demand and aggregate supply resulted in increasing inflation in all economies in 2021. Thus, unless supply chain constraints limiting the production capacity are released, inflation will continue to increase (Kalemlı-Özcan et al., 1-3:2022).

Increasing global demand in 2021 led to a second and more problematic bottleneck in supply chains. Necessary inputs such as semiconductors became scarce, causing the production processes of industries. Thus, although economies re-opened with increasing demand, they all faced low inventories, poor production levels, slow logistics, labor shortages, and supply-demand mismatches (Igan, Rungcharoenkitkul, and Takahashi, 2022:1).

Table-1 illustrates the export performance of selected countries in the 2018-2022 period. Red numbers represent the losses. The greatest loss was recorded in China.

Table-1. Export performance of selected countries (2018-2022)

Country	Export 2022 (\$ thousand)	Trade balance in 2022 (\$ thousand)	Annual growth 2018-2022 (%)	Annual growth 2021-2022 (%)	Share in world exports (%)	Average distance of importing countries (km)	The concentration of importing countries
World	3,593,601,450	877,602,696	11	7	14,7	6,706	0,05
China	2,062,937,261	-1,313,010,925	5	18	8,4	6,645	0,07

USA	1,658,442,825	87,385,783	2	2	6,8	3,073	0,04
Germany	752,071,999	-153,026,533	1	-1	3,1	5,913	0,09
Japan	700,314,893	-42,715,160	6	14	2,9	3,112	0,05
Italy	683,584,759	-47,781,585	4	6	2,8	5,469	0,1
South Korea	611,481,903	-57,611,332	4	-9	2,5	3,222	0,34
Hong Kong	606,853,494	-204,827,905	2	6	2,5	2,9	0,06
France	597,184,953	29,359,374	7	19	2,4	2,893	0,6
Canada	578,281,629	-26,332,978	6	17	2,4	2,764	0,62
Mexico	565,167,530	370,774,139	9	20	2,3	3,863	0,07
Russia	530,481,545	-285,818,339	2	13	2,2	3,961	0,05
UK	515,077,895	39,561,838	6	13	2,1	4,907	0,06
Singapore	469,546,590	105,494,494	14	15	1,9	7,788	0,13
Viet Nam	452,684,214	-279,881,779	9	15	1,8	6,867	0,05
India	424,286,055	-74,769,014	6	8	1,7	2,709	0,06
Spain	402,166,083	112,052,313	12	16	1,6	8,723	0,14
Australia	378,261,077	238,243,818	7	53	1,5	6,53	0,09
Saudi Arabia	353,149,561	58,056,659	10	18	1,4	5,239	0,07

Source: [www.trademap.org](http://www.trademap.org)

In Table-2, the import performances of selected countries are explained. Just like exports, imports also dropped sharply.

Table-2. Import performance of selected countries (2018-2022)

Country	import 2022 (\$ thousand)	trade balance 2022 (\$ thousand)	annual growth 2018-2022 %	annual growth 2021-2022 %	Share in world imports %	distance of supplying country km	supplying country	average tariff %
World	25,049,890,327	-563,110,581	7	14	100	5,293	0,05	
USA	3,375,948,186	-1,313,010,925	7	15	13,5	7,839	0,08	1,5
China	2,715,998,754	877,602,696	8	2	10,8	6,528	0,04	8
Germany	1,571,057,042	87,385,783	6	10	6,3	3,547	0,05	1,3
Japan	905,098,532	-153,026,533	5	17	3,6	6,418	0,08	1,6
UK	816,299,884	-285,818,339	4	17	3,3	4,344	0,05	0,7
France	811,681,399	-204,827,905	5	15	3,2	3,36	0,06	1,3
Italy	743,030,053	-42,715,160	10	31	3	3,043	0,05	1,3
India	732,565,993	-279,881,779	9	28	2,9	5,607	0,05	14,3
South Korea	731,366,344	-47,781,585	9	19	2,9	5,863	0,08	6,6

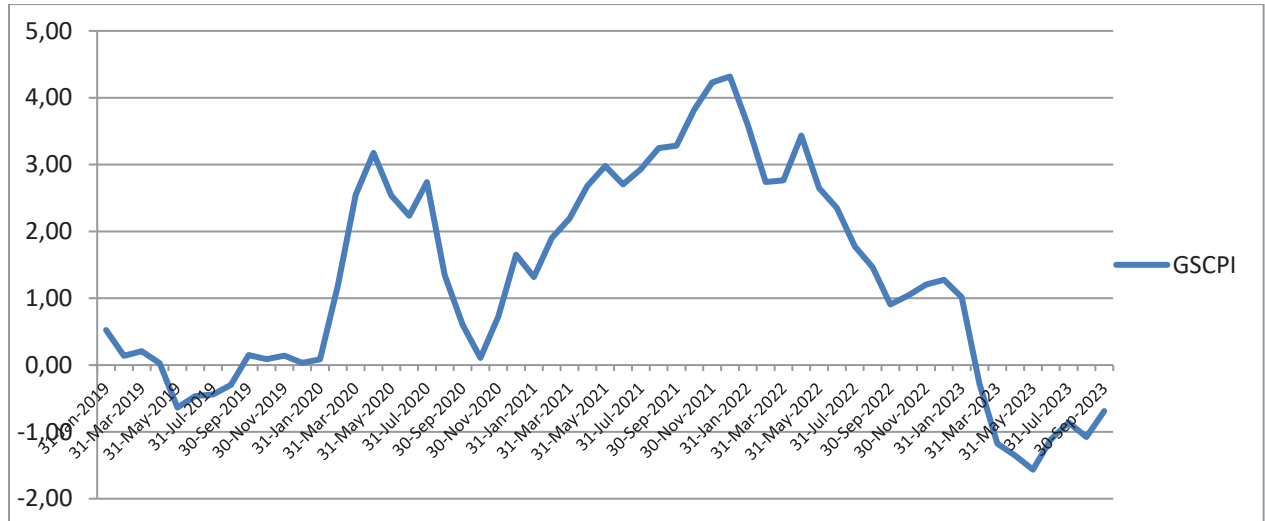
Hong Kong	669,093,235	-57,611,332	3	-6	2,7	2,952	0,19	0
Mexico	604,614,607	-26,332,978	7	19	2,4	7,019	0,24	4,8
Canada	567,825,579	29,359,374	5	16	2,3	5,01	0,27	2,5
Spain	499,055,069	-74,769,014	6	17	2	4,229	0,05	1,3
Singapore	475,516,057	39,561,838	6	17	1,9	5,913	0,07	0
Viet Nam	364,052,096	105,494,494	10	7	1,5	3,505	0,2	6,8
Türkiye	363,710,987	-109,539,088	13	34	1,5	4,302	0,06	5,2
Malaysia	295,092,902	58,056,659	8	24	1,2	5,122	0,09	4
Australia	290,113,770	112,052,313	7	17	1,2	10,001	0,1	1,4

Source: [www.trademap.org](http://www.trademap.org)

During the recovery period of the COVID-19 pandemic, all developed countries including the US, and the EU as well as developing countries suffered from surging inflation rates. The rise in inflation all over the world is related to the expansionary monetary policies during the pandemic period. Most of the countries printed excessive amounts of money to combat the global recession and to support unemployed and needy citizens. Increasing demand after the pandemic also induced the supply side of economies leading to rises in the inflation rates in both advanced and developing countries (Beningo, 2022:8). For the transport sector, while the US ports improved, Europe stunned and China stayed the same showing disrupted shipping through major waterways. Retail inventories and the automobile industry were hit seriously in 2021. Especially chip and semiconductor shortages impacted automobile production (Igan, Rungcharoenkitkul, and Takahashi, 2022:2).

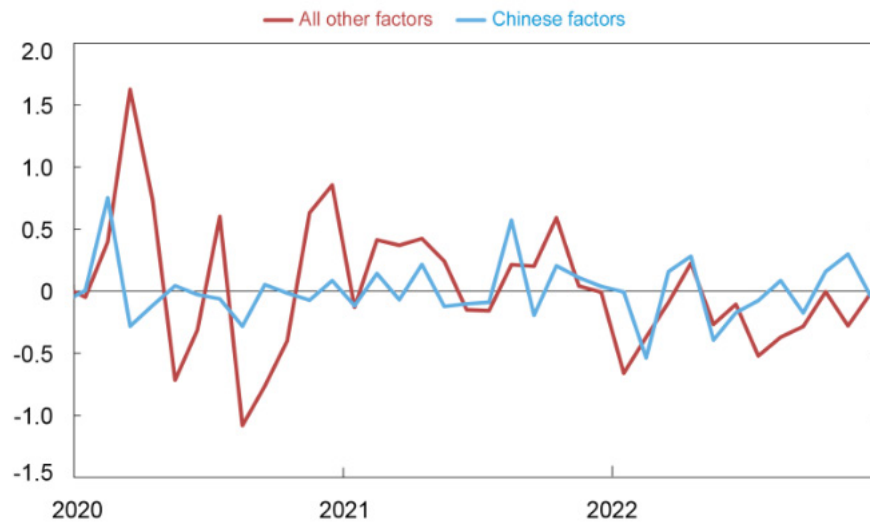
The Global Supply Chain Pressure Index (GSCPI) was developed to measure global supply chain pressures that could be used to identify supply constraints with respect to economic outcomes. Figure-1 illustrates GSCPI over the period 31 January 2019- 30 September 2023. The increases in GSCPI are associated with goods and producer price inflation in the US and the euro area, both during the pandemic period and after the declaration of the Ukraine War (Federal Reserve Bank of New York, 2023).

**Figure-1. The Global Supply Chain Pressure Index (GSCPI) (31 January 2019- 30 September 2023)**



Source: Federal Reserve Bank of New York (2023).

**Figure-2. GSCPI Pressures of China and the other factors during the Covid-19 Pandemic**



Source: Akinci et al. (2023)

During the pandemic, the GSCPI pressure on China was relatively small except for its substantial contribution in February 2020,

April 2022, and October and November 2022. February 2020 was the date that the pandemic was recognized globally and it

was declared that the source of the virus was China. Following this period, tightening supply conditions caused production bottlenecks all over the world. Even though there were second and third waves of the pandemic, they had limited effects on the global supply chain since the vaccines were shut down and lockdown measures were less severe. April 2022 is related to the Ukraine War and disruptions of good transfers. In August 2021, there was a temporary spike in Asia outbound air freight that is not directly related to China's supply (Akinici et al., 2023).

### III. THE EFFECTS OF THE UKRAINE WAR ON GLOBAL SUPPLY CHAIN

Prior to the war, Russia and Ukraine together were the top agricultural exporter of the world. These two countries accounted for 28% of global wheat exports. Ukraine alone provided 46% of global agricultural products. Ukraine also used to export semi-finished materials and raw materials which are the input of different production processes. 25% of global nitrogen fertilizer was provided by Russia. Russia is also one of the most important energy providers in Europe. Russia's export products were fuels and energy products (63%), chemical products (7.4%), metal (10%), and machinery (7.4%). Russia's top importer countries were China (12%) and Germany (9%) (Hamilton, 2023).

The war in Ukraine and the last lockdown in China have caused a third wave of supply chain constraints. The Ukraine War directly impacted the global food supply, energy, and raw materials causing high risk to European manufacturing companies. Lockdowns in China and in industrial provinces such as Shanghai halted shipping and production of intermediate goods in the first quarter of 2022 (Igan, Rungcharoenkitkul, and Takahashi, 2022:2). Right after the invasion, grain exports of Ukraine fell significantly. For example, sunflower oil exports dropped by 50%, maize by 25%, and wheat by 10%. Through Turkey's contributions, there was some recovery in product transfers through the "grain corridor". Many developing African countries were highly dependent on agricultural products imported from Ukraine and Russia. Since almost 50% of their domestic consumption is provided by these two countries, the war affected these countries the most. Furthermore, since it was hard for these poor countries to shift their sources to higher-cost countries, there was an immediate grain shortage in Africa. Food shortage also caused fast-growing food inflation all over the world (Hamilton, 2023).

Russia's invasion of Ukraine caused further complications in global supply chains and is one of the most important reasons for the global inflation problem. Due to the pandemic lockdowns and limited production during that period, it was expected to have shortages of goods by the end of 2022.



While the world was dealing with the global economic recovery, Russia's unexpected decision to invade aggravated the global economic conditions through economic sanctions on Russia and Russia's reactions to the sanctions. Oil and gas prices as well as prices of certain agricultural products have risen significantly leading to inflation pressures and threatening food security in developing countries. Russia is also one of the most important fertilizer producers. The agricultural sectors of fertilizer-importer Table-3. The Most important commodities Ukraine and Russia produce and the price effect of their shortage

countries would be terribly impacted (OECD, 2022). Besides, there has been uncertainty in the metals production in Russia that is indispensable to the supply chains of many manufacturing products. Aluminum, palladium, vanadium, and nickel are the most important raw materials in many sectors. The most important commodities disruptions and their impact on the prices are illustrated in Table-3 (KPMG, 2022):

Commodity	Raw material	Impact on pricing
Grains	Wheat, barley, corn	Russia and Ukraine represent around 30% of the global wheat market. The war caused skyrocketing price increases and increased by 55% by the end of 2022.
Metal/nonmetals	Nickel, neon	Nickel is used in electric vehicle batteries. Russia is the 3 <sup>rd</sup> greatest producer of nickel accounting for 10% of the global nickel market. Ukraine produces 70% of global neon needs. Most of the production is exported to the US. The price of precious metals such as gold and silver was also expected to increase after the invasion.
Energy	Oil, natural gas	Russia is the 3 <sup>rd</sup> greatest oil producer in the world. Thus, global barrel prices surged to more than \$100/barrel since the beginning of the invasion.

Source: (KPMG, 2022)

Due to the increasing inflation problem, many countries increased interest rates to control it. Instead of a global supply chain, many countries announced to build supply operations

closer to the local markets even though they are more costly. Transportation costs also increased due to surging energy prices (Hamilton, 2023).

**IV. OTHER REASONS OF  
GLOBAL SUPPLY  
DISRUPTIONS**

Other reasons of supply chain disruptions are as follows (EY, 2022:3):

*Increasing protectionist policies:* The pandemic changed the policies of the governments. In order to control the virus spread and protect their local economies during the lockdown periods, countries increased the protectionist policies. Many countries encouraged local industries and refused to import goods and capital flows. Protectionist policies caused limits on foreign direct investments. New tariffs, government driven trade regulations and measures resulted in extra pressure on companies and suppliers to arrange their operations. While these measures and restrictions caused benefit to local companies, they shortened supply chains.

*Wage increases in developing countries:* Many international companies preferred producing in different countries to have more cost effective productions. Among all production factors, labor cost is the most important input that determines the production costs. In recent years, there has been wage inflation in those countries. In China, for example, many industrial companies have been suffering from surging labor costs. Compared with Eastern European countries labor cost in China is growing faster and expected to continue in many Chinese provinces. The fact is that their minimum wage and yuan still remain strong. Thus, production costs continue to increase. In this vein, companies will either stop production, or increase the product prices.

**V. DISCUSSION: POLICY  
RECOMMENDATIONS TO  
HAVE A ROBUST AND  
RESILIENT GLOBAL SUPPLY  
CHAIN**

To have a sustainable, robust, and resilient supply chain, four key factors should be taken into consideration. All of the keys are comprised of policy actions and suitable instruments to promote policies and resilient supply chains without discouraging sound, sustainable, and inclusive economic recovery. Promoting cooperation, coherence, and consultation at the international level will promote a resilient supply chain. Four keys to resilient supply chains are as follows (Jansen, 2022:84):

- i. The first key is to predict the risks. There may be internal and external shocks. Firms should diagnose the nature of shocks to identify the most suitable policy to evade the adverse effects of them. For example, the COVID-19 experience is a unique shock. However, having such an experience will give a perfect insight for dealing with similar supply chain disruptions in the future. Taiwan is a good example. Taiwan is highly dependent on international trade. Thus, the country's trade performance is directly affected by the global economic and political shocks. Despite its dependency on global economic activities, during

the COVID-19 outbreak, the country showed a steady increase in export rates in 2020-2021. This shows the importance of resilience through the contracts which allow diversification of export orders from multiple clients (Lee, 2022:8).

- ii. The second key is applying domestic instruments to minimize the risk. At the national level, companies and government can work together to improve the infrastructure and regulatory flexibilities, enable digital trade, and have sustainable procurement strategies to reduce risk and promote sustainable growth.
- iii. The third key is building public-private trust. Public-private cooperation can improve confidence that global supply chains will provide necessary goods and services with the demanded quality at the right time. Risk management at the firm level and strategic governance at the national level are necessary to have successful supply chain management.
- iv. The fourth key is international instruments to keep markets open. In addition to the actions taken by the governments at the national level, collective efforts are needed at the international level. This

strategy can bring a full range of international economic cooperation instruments of policy coordination through multilateral and bilateral agreements.

Other policy recommendations are as follows (Altenburg, Carry, and Steglich, 2022:21):

- v. The development of digital and automation technologies increased the production level in favor of technologically developed countries. This process raised entry barriers and encouraged unequally increased production levels of the countries that have the technological advantage. Although technological development brought a transparent supply chain, technologically underdeveloped countries need to adopt new skills and infrastructure to continue to compete with other countries. To have more technological infrastructure needs not only know-how but also financial support. Thus, developing countries need to act strategically and choose the best technology at a reasonable price.
- vi. While decarbonization strategies are in favor of environmental sustainability, it is challenging for developing countries, particularly for the ones whose economies are highly dependent on fossil fuel exports. Less demand for

environment-pollutant natural resources and increasing demand for environment-friendly energy resources such as renewable energy, green hydrogen, and lithium will change the global supply chain and logistic structure. Hence, natural resource export-dependent countries need to diversify their export goods and find alternative routes to keep staying supply chain.

- vii. The US-China trade war, the Ukraine War, and the economic sanctions against Russia changed supply chains for energy resources exported by Russia and grain exported by Ukraine and Russia. Other countries should benefit from this transient state of the global supply chain. Natural gas producer countries as well as the countries which can take part in logistics can take position in alternative supply chains to take the place of Russia, especially for gas exports to Europe. The agricultural product producer countries can also get benefit from the current struggling situation of Ukraine and Russia. Developing African countries can be a chain of global grain supply chains.
- viii. The sectors that are highly dependent on the metal production of Russia and Ukraine should keep higher just-in-case inventory. If the

material is very strategic and unique to core production, it may be wise to explore a potential merger or joint venture with a local source of supply. Instead of importing from a single source, companies need to develop alternative commodity strategies to alleviate import vulnerabilities (KPMG, 2022).

## VI. CONCLUSION

There has been an increase in international trade since the 1980s. With the impact of globalization, many international companies have made significant changes in their production channels in order to increase their production costs and profits. In addition to providing a significant cost advantage by having cheaper production factors, particularly labor and raw materials, they gained convenience and the highest quality production. The global supply chain offers significant opportunities to companies for the highest quality, cheapest, and lowest wage production.

However, the COVID-19 pandemic, which started at the end of 2019, was a very important factor in breaking the global supply chain. The quarantine measures to control the virus, especially in China, caused a great break in global the supply chain.

The post-pandemic was full of hope for the world. Nevertheless, the limited supply during the pandemic could not satisfy the surging demand. Furthermore, since the global supply

chain was broken, it was hard to find raw and intermediate materials for fast and cheap production. Starting from the global food prices, there has been a growing inflation all over the world in all sectors. While the world was trying to find alternative routes to get raw materials, the world was shocked by the Ukraine War which started in February 2022. The war caused extra economic and social burdens on the global economy mostly on the food shortage and energy price increases.

If global supply chain bottlenecks continue, new supply shocks may arise. War, disasters, outbreaks, and other geopolitical tensions may cause unexpected disruptions to supply chains. The rapid increase in demand side has also an influence on the supply chains. Tight labor market conditions in the service sector also generate extra risk on prices causing extra pressure on them. Rising geopolitical tensions and restrictive trade measures were implemented both during the pandemic and the Ukraine War. Furthermore, fossil fuel consumption and investments were halved to have sustainable environment policies and to decrease carbon footprint which may cause additional bottlenecks for the global supply chain due to energy limitations. Hence, the global supply chain should be sustainable for the benevolence of all countries exploiting the global supply chain. An uninterrupted supply chain will bring more cost-effective, convenient, cheaper, higher quality products and sustainable productions.

## REFERENCES

- Acquaye, A.; Feng, K.; Oppon, E.; Salhi, S. Ibn-Mohammed, T.; Genovese, A. and Hubacek, K. (2017). Measuring the environmental sustainability performance of global supply chains: A multi-regional input-output analysis for carbon, sulphur oxide and water footprints. *Journal of Environmental Management*, 187, 571-585. ISSN 0301-4797
- Akinci, Ö.; Benigno, G.; Clark, H.; Cross-Birmingham, W. and Nourbash, E. (2023). Global Supply Chain Pressure Index: The China Factor. Liberty Street Economics <https://libtystreeteconomics.newyorkfed.org/2023/01/global-supply-chain-pressure-index-the-china-factor/>
- Altenburg, T.; Carry, I.; and Steglich, F. (2022). *Sustainable global supply chains: New policy challenges, new research perspectives*. Sustainable global supply chains- Report 2022. German Federal Ministry for Economic Cooperation and Development, 7-27
- Benigno, G.; di Giovanni, J.; Groen, J.J.; Noble, A.I. (2022). *The GSCPI: A new barometer of global supply chain pressures*. Federal Reserve Bank of New York, Staff Report, No. 1017, May 2022.
- Branch, A. E. (2009). *Global supply chain management and international logistics*. Routledge Publishing.

- Daniel, D. (2023). Supply chain management (SCM). Techtarget. <https://www.techtarget.com/searcherp/definition/supply-chain-management-SCM>
- EY (2022). Why global industrial supply chains are decoupling-Global advanced manufacturing and mobility. [https://assets.ey.com/content/dam/ey-sites/ey-com/en\\_gl/topics/automotive-and-transportation/automotive-transportation-pdfs/ey-why-global-industrial-supply-chains-are-decoupling-v2.pdf](https://assets.ey.com/content/dam/ey-sites/ey-com/en_gl/topics/automotive-and-transportation/automotive-transportation-pdfs/ey-why-global-industrial-supply-chains-are-decoupling-v2.pdf)
- Federal Reserve Bank of New York (2023). Global Supply Chain Pressure Index, <https://www.newyorkfed.org/research/policy/gscpi>.
- Hamilton, E. (2023). The global supply chain consequences of the Russia-Ukraine war. University of Florida News. February 21, 2023. <https://news.ufl.edu/2023/02/russia-ukraine-global-supply-chain/>
- Igan, D.; Rungcharoenkitkul, P.; and Takahashi, K. (2022). *Global supply chain disruptions: Evolution, impact, outlook*. BIS Bulletin, No.61, 28 September 2022.
- Jansen, M. (2022). *For keys to resilient supply chains*. Sustainable global supply chains-Report 2022. German Federal Ministry for Economic Cooperation and Development, 82-86.
- Kalemli-Özcan, Ş.; di Giovanni, J.; Silva, A.; and Yıldırım, M. (2022). *Challenges for monetary policy in a rapid changing world*. ECB Forum on Central Banking, 27-29 June 2022.
- KPMG (2022). Immediate and long-term impacts of the Russia-Ukraine war on supply chains. <https://kpmg.com/us/en/articles/2022/impacts-russia-ukraine-war-supply-chains.html>
- Lee, R. (2022). Implications of the supply chain reforms- A Taiwanese perspective. Center of Asia Studies, May 2022.
- Mangan, J. and Lalwani, C. (2016). *Global logistics and supply chain management*. Third edition.
- Millar, M. (2023). Global supply chain ecosystems- Strategies for competitive advantage in a complex, connected world. Koganpage. Erişim Tarihi 10.09.2023.
- OECD (2022). The supply of critical raw materials endangered by Russia's war on Ukraine. 4 August 2022. <https://www.oecd.org/ukraine-hub/policy-responses/the-supply-of-critical-raw-materials-endangered-by-russia-s-war-on-ukraine-e01ac7be/>
- Vidrova, Z. (2020). Supply chain management in the aspect of globalization. SHS Web Conferences, 74, 04031. <https://doi.org/10.1051/shsconf/20207404031>
- World Bank (2020). World development report-Trading for development in the age of global value chain.

[file:///C:/Users/user/Downloads/9781464814570%20\(2\).pdf](file:///C:/Users/user/Downloads/9781464814570%20(2).pdf)

World Integrated Trade Solution (2021).  
Product Exports by country in US\$ Thousand  
2021.

<https://wits.worldbank.org/CountryProfile/en/Country/WLD/Year/LTST/TradeFlow/Export/Partner/by-country/Product/Total>

[www.trademap.org](http://www.trademap.org) (2023). List of importers.  
[https://www.trademap.org/Country\\_SelProduct.aspx?nvpm=1%7c%7c%7c%7c%7cTOTAL%7c%7c%7c2%7c1%7c1%7c1%7c1%7c2%7c1%7c1%7c1](https://www.trademap.org/Country_SelProduct.aspx?nvpm=1%7c%7c%7c%7c%7cTOTAL%7c%7c%7c2%7c1%7c1%7c1%7c1%7c2%7c1%7c1%7c1)

## Impacts of Ukraine War on Air Transport and Tourism Industry

Prof. Dr. Ayfer Gedikli<sup>1</sup>, Sevim Sayım Madak, Ph.D<sup>2</sup>, and Assist. Prof. Dr. M. Rıza Derindağ<sup>3</sup>

<sup>1</sup> Department of Economics, Faculty of Political Sciences, Duzce University, [ayfergedikli@gmail.com](mailto:ayfergedikli@gmail.com), ORCID: 0000-0002-7128-1976

<sup>2</sup> Istanbul Ticaret University

<sup>3</sup> Batman University

### Abstract

The Covid-19 pandemic, which started in the first quarter of 2020, disrupted the performance of global economic growth. The long-term quarantine measures to control the virus caused severe damage to the global economy and many sub-sectors. The global economy, which started with the waning effects of the pandemic and resolved with normalization, was shaken again, this time by the Ukrainian crisis in February 2022. In both cases, the air transportation and tourism sectors are among the sectors that are most affected. There is no sign of recovery until today particularly for Ukraine and Russia and many countries which have flights to those countries. In this study, the difficult conditions and economic losses of the transportation and tourism sectors will be explained with various data handled from international institutions. The study also provides alternative policy suggestions to alleviate the negative effects of the Ukraine War on the two sectors.

*Keywords- Ukraine War, Covid-19 pandemic, transport sector, tourism sector*

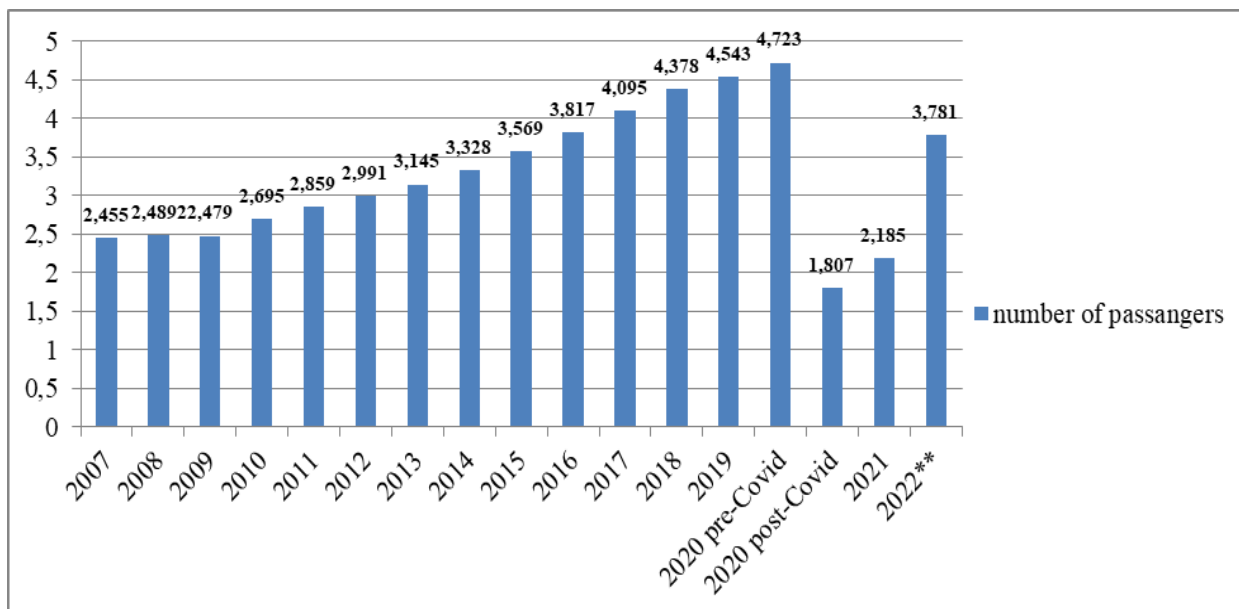
### I. INTRODUCTION

The transport sector has become crucial since the early years of globalization. Today, this sector contributes economic and social development of countries both at national and international levels. However, the transport sector may also be easily affected by economic, political, and social changes. For example, the Covid-19 pandemic impacted global transport activities starting from the aviation sector in the 2019-2020 period. Global shut-down processes due to the quarantine

precautions adversely affected the transport sector at both domestic and international levels. During the pandemic period, long-term lockdowns, measures, and supply-chain disruptions had devastating effects on all models of transportation. The cargo volumes shrank in the case of air freight by 9.9% YoY in 2020 whereas cargo rates increased by 53.8% in the same year. With the alleviation of pandemic measures, freight volumes recovered and surpassed the pre-pandemic period volume for all transports (Mzhavanadze et al., 2022:3).



**Figure-1.** Number of scheduled passengers boarded by the global airline industry (2007-2022, millions)



Source: [www.statista.com](http://www.statista.com)

2022\*\* estimated

As illustrated in Figure-1, the number of air passengers increased steadily between 2007-2020 pre-Covid period starting from 2,455 million people in 2007 and 4,723 million people in 2020 just before the pandemic. To protect their citizens from the pandemic, countries had taken measures in the early days of 2020. In the EU, in the first quarter of 2020, a decrease of -84% in the number of passengers was recorded (the first restriction was launched in mid-March 2020). During the shutdown period, the global air transport industry was impacted substantially (Eurostat, 2022). In 2020, 95% of global aviation departures were lost and flying hours fell by 56% in North America, and 76% in Asia. Due

to these measures, aircraft were grounded all over the world causing parking challenges. Pandemic restrictions caused great economic and employment problems in the aviation sector. In 2021, an estimated loss of the sector reached \$313-324 billion which might cause bankruptcies or mergers among air transportation companies due to reduced passenger demand. Given the sharp declines in air transportation demand, the fuel usage was also dropped. While fuel consumption was 4.3 million barrels per day in January-February 2020, just in two months it reduced to 1 million barrels per day in April 2020 (De Palma, Vosough, and Liao, 2022:386). The sector showed the first signs of recovery in 2021. Compared to 2020, the total number of

passengers traveling in the EU countries rose by 34.9% in 2021 with 373 million travelers (Eurostat, 2022). Recovery started in the second half of 2020. In 2021, 2,185 million and in 2022, 3,781 million passengers traveled by airlines.

While the transport sector was dealing with the negative effects of the pandemic in the 2021-2022 period, it was hit unexpectedly by the war between Russia and Ukraine that started on February 24<sup>th</sup>, 2022 as a part of the conflict in 2014 which led to a huge refugee crisis and global food shortage (Waller et al., 2023:3).

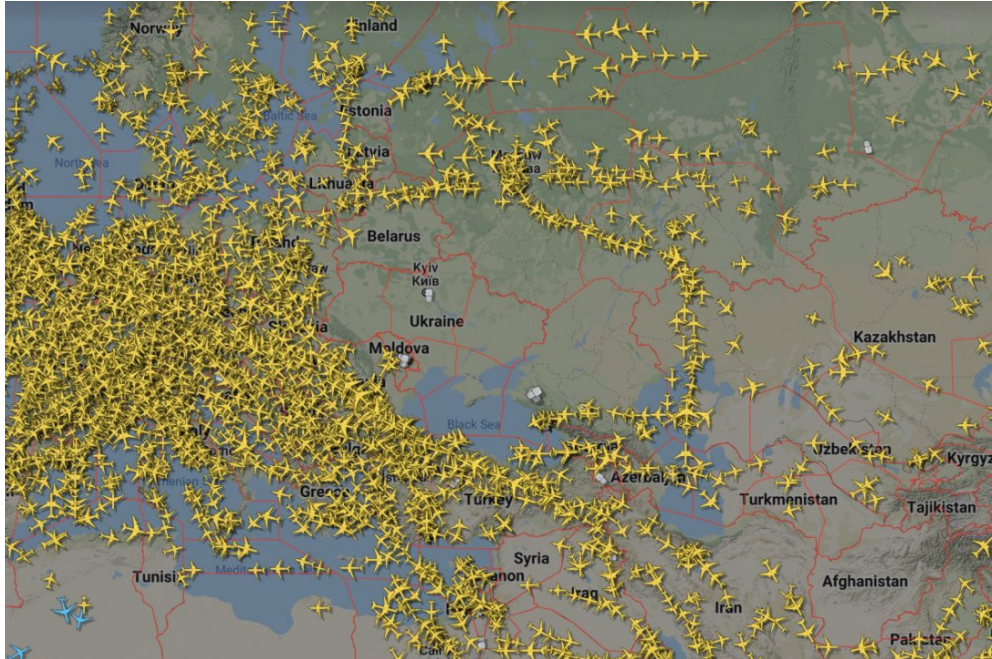
This study aims to analyze the negative impacts of the Covid-19 pandemic and the Ukraine war on the transport sector and tourism industry. While the global negative consequences are investigated, Ukraine and Russia will be analyzed in detail. In the end, some policy recommendations will be provided to alleviate the reverse effects on the air transport and tourism sectors.

## **II. HOW WAS UKRAINE'S AIR TRANSPORT IMPACTED BY THE WAR?**

Once the war started, European air traffic was disrupted and all flights to Ukraine were ceased between February 24 and March 2, 2022. Also, flights to neighboring countries were also canceled. Map-1 represents the live map of global air traffic. As illustrated in Map-1, there is no flight traffic in Ukraine since Ukraine airspace is closed to all civil flights as of 24 February. Similarly, Moldova, one of the

neighbors of Ukraine has also closed its airspace to all civil flights except the essential ones.

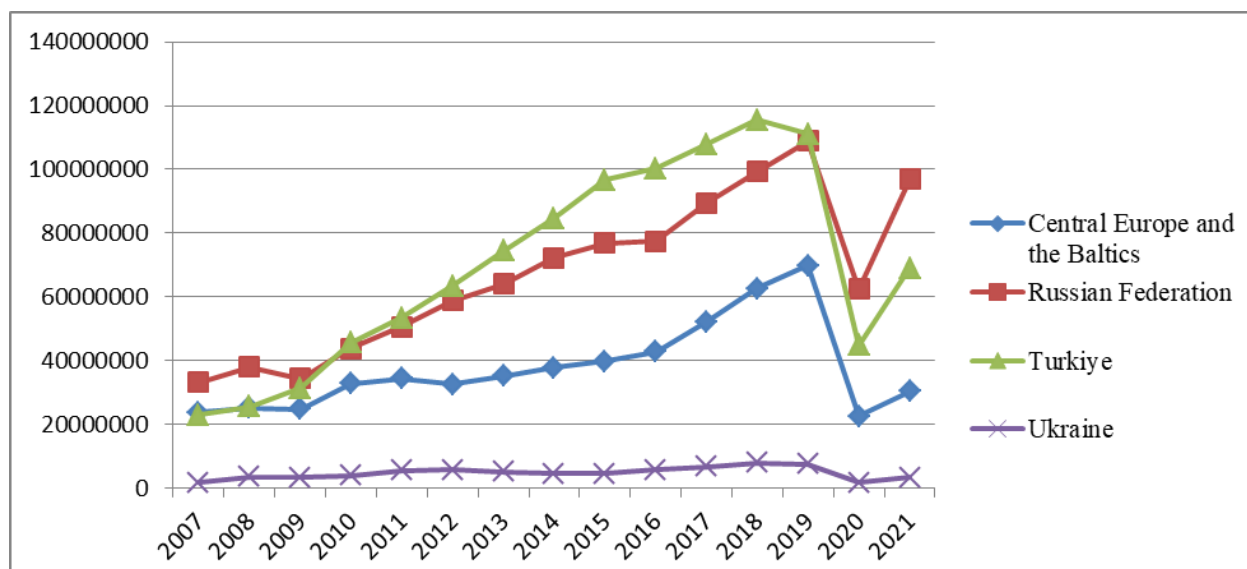
**Map-1.** Live Map of Air Traffic in Ukraine



Source: [www.flightradar24.com](http://www.flightradar24.com)

In Figure-2, a number of air traffic passengers is illustrated for the period 2007-2021. As shown in Figure-2, in all selected countries, air transportation shrunk during the Covid-19 pandemic period. In 2020, a number of air transport passengers was 62.447.448, 44.722.690, and 1.801014 in Russia, Turkiye, and Ukraine respectively. It shows a recovery period in 2021. It increased to 96.851.769 in Russia, 69.065.868 in Turkey, and 3.282.709 in Ukraine. However, the Ukraine war worsened the situation.

**Figure-2.** Number of air transport passengers in Turkiye, Ukraine, and Russia (2007-2021)



Source: World Bank Data (2023)

The Invasion of Ukraine deepened the transportation problems through increased input costs and commodity prices, transportation delays as well as global and regional trade cuts, and limited transit flows (Mzhavanadze et al., 2022:3). Furthermore, there has been a continuing fluctuation in energy prices since 2018. Although there was a slight decline in energy prices during the pandemic, there has been an increasing demand for energy resources during the post-pandemic period to catch the production level prior to the pandemic level. Increasing demand caused rising energy prices. Thus, rising fuel prices directly affected transport costs in aviation, land, and navigation sectors.

Ukraine War impacted all of the airlines having flights to the region differently depending on their base and routes. The fact is

that the large area of Russian airspace as well as Ukraine, has a significant impact on flight duration, fuel consumption, and operation costs. Many airlines needed to adopt alternative routes to avoid Russia and Ukraine causing increasing flight times by 1.5 to 2 hours and more fuel consumption causing increasing costs. Basically, routes from Europe to Asia are negatively impacted. Finland Airlines was impacted the most since its connecting flights to Asia via its Helsinki hub were badly affected due to the airspace closure.

Unlike the other countries, China followed a different strategy during the Ukraine War. China had been implementing the zero-Covid policy until the end of 2022. However, the country changed its strategy and increased aviation activity dramatically. Different from the other countries, China airlines are not

restricted from Russian airspace (Flightworx, 2023).

### III. HOW RUSSIAN AVIATION WAS IMPACTED BY THE UKRAINE WAR?

Right after the war had begun, sanctions against Russia were initiated by most of the Western countries. European Union airspace was closed to Russian planes as a part of sanctions towards Russia. The UK declared a NOTAM<sup>1</sup> on February 24<sup>th</sup> about the banning of Russian airlines and flights from operating in UK airspace or to UK airports except transatlantic overflights. The EU member countries and Canada issued NOTAM to bar flights by Russian aircraft, airlines, or persons associated with Russia. This sanction impacted not only the Russian aviation sector but also other airplane companies from different countries and passengers flying over Russian airspace to save time and energy (www.flightradar24.com; Akbarlı et al., 2022:346-347).

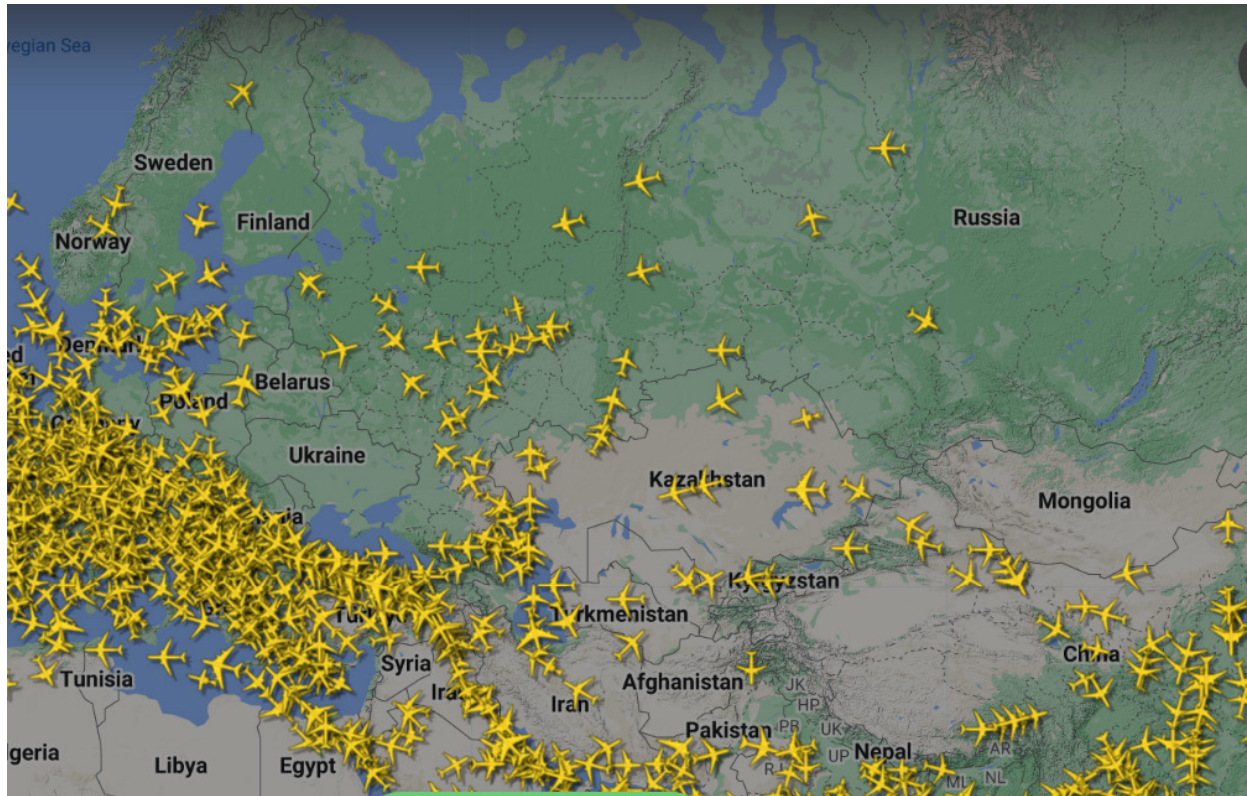
The Ukraine War and the sanctions initiated by the Western countries had major effects on different sectors of the Russian economy in the early months of the invasion. International aviation was not exceptional. Actually, Russian air transportation has been deeply

affected by the pandemic just like the rest of the world. Russian airlines used to carry 125 million passengers before the pandemic, including 57% of domestic travel. Although domestic travel continued after the invasion, particularly Russian international aviation sector has been severely impacted due to the continuing sanctions. Compared to September 2021, the total number of passengers Russian airlines carried fell by 20% in 2022 same period (Flightworks, 2023).

---

<sup>1</sup> **NOTAM** is the abbreviation of Notice to Air Men. It is a notice filed with an aviation authority to alert aircraft personnel of potential hazards or risks along a flight route or at a location that could affect the flight. NOTAM is announced by government authorities or airport operators.

**Map-2.** Live Map of Russia Air Traffic



Source: [www.flightradar24.com](http://www.flightradar24.com)

Map-2 illustrates the live air traffic of the Russian Federation. Since almost all Western countries barred flights from/to Russia, flights to and from Russia have been operated by non-Russian airlines such as Pegasus, a private Turkish flight company, and AirSerbia. Those airlines are allowed to use EU airspace ([www.flightradar24.com](http://www.flightradar24.com)).

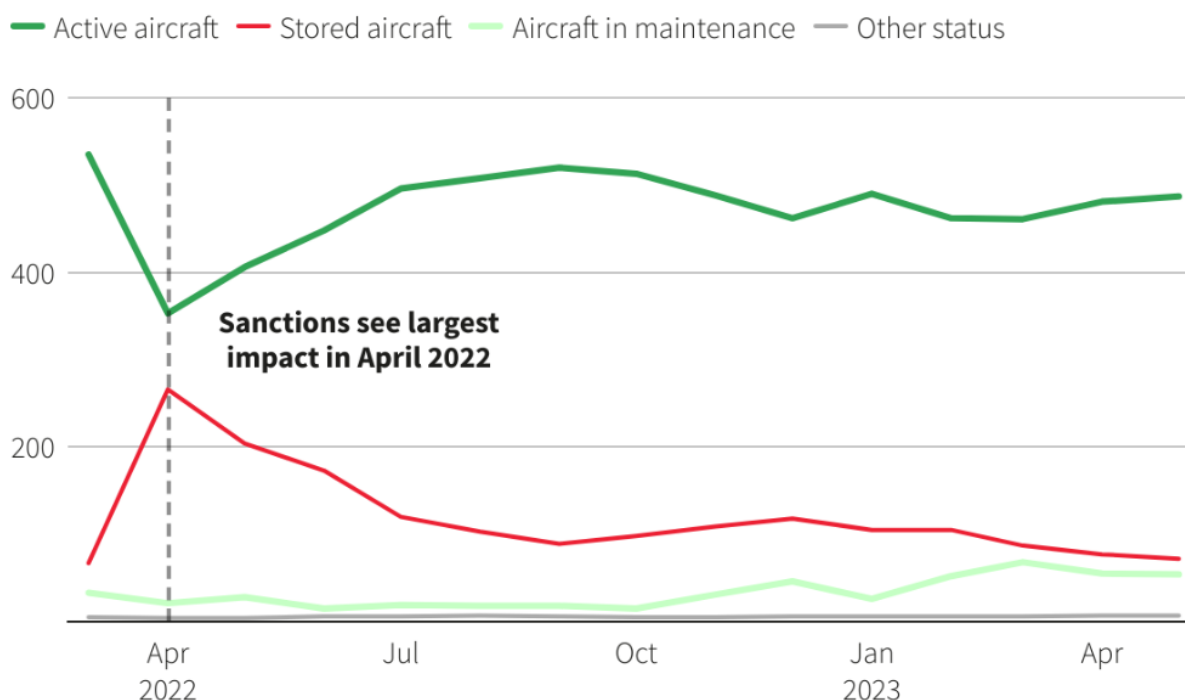
The sanctions initiated by the Western countries also cover spare parts. Despite these sanctions launched to kneel down Russia, at least \$1.2 billion worth of aircraft parts have been imported by Russia between May and

June 2022. Russia could get those spare parts from countries that do not endorse Western sanctions on Russia such as Tajikistan, Kyrgyzstan, the UAE, and China. Thus, USA and EU sanctions to weaken Russian airlines were unsuccessful. After a short decline, Russia could rebound against initial sanctions and continue to fly over Boeing and Airbus aircraft (Gauthier-Villars and Stolyarov, 2023).

Figure-3 shows the effects of sanctions on the Russian aviation sector. In April 2022, there was a sharp decline in active aircraft following the sanctions. Starting in May, the negative

impacts of sanctions were alleviated by getting countries. support from China and some Middle East

**Figure-3.** Effects of sanctions on the Russian aviation sector



Source: Gauthier-Villars and Stolyarov (2023)

#### IV. RISING FUEL PRICES

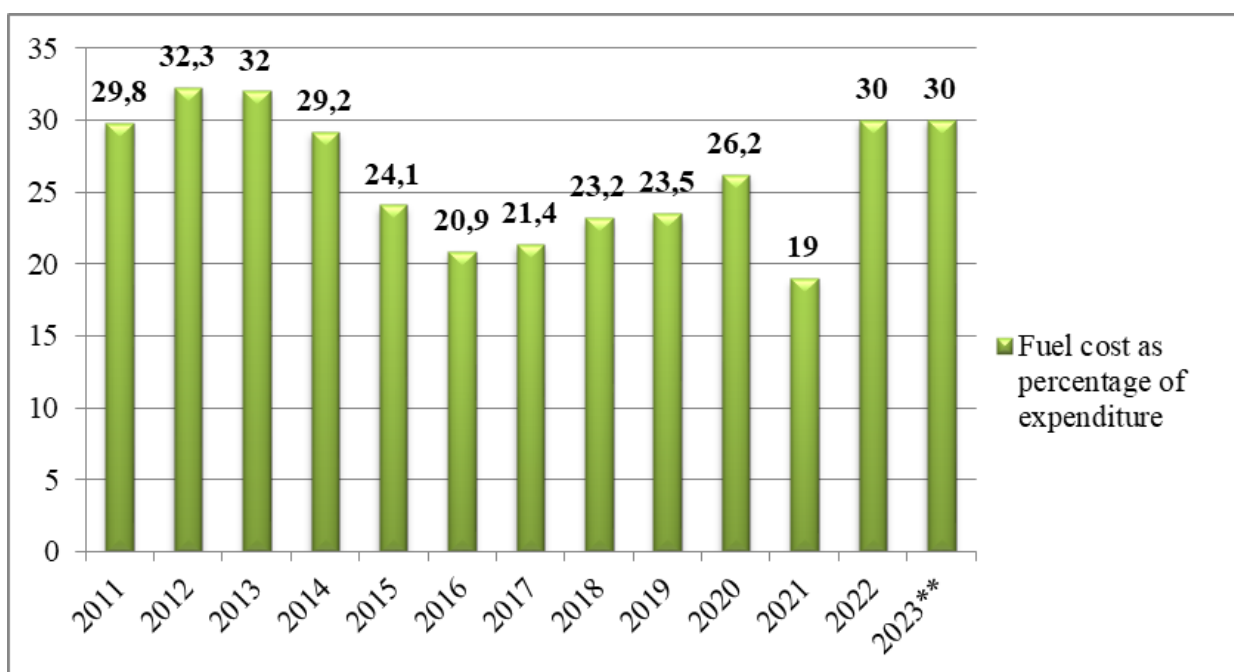
The pandemic period had devastating effects on the aviation sector all over the world. All companies were expecting to improve their economic conditions during the post-pandemic period. On the contrary, during and post-Covid-19 pandemic period, there was very limited demand for jet fuel. Thus, refineries shifted their capacity from jet fuel to produce alternative fuels which had more demand. The Russian invasion of Ukraine also contributed

to the production and export of less fuel especially to Europe. These economic and political improvements led to a sharp rise in crude oil prices and jet fuel. Besides, logistic constraints in meeting the demand of the aviation industry cause price spikes in jet fuel where the price/gallon reached \$8 (McKinsey & Company, 2022). To have reasonable profit in the aviation industry, fuel costs are calculated as 30% of operating expenses (See Figure-4). However, fuel prices increased by 70% in the first half of 2022. In response to the sanctions initiated by Western countries,

Russia increased the prices of energy it exports to Europe in response to the sanctions simply causing an increase in fuel prices and operation costs. Since the beginning of the war, the aviation sector actors have been working to stabilize fuel prices. Still, there are fluctuations in fuel prices which cause extra fragility to the aviation sector (Flightworx, 2023). As

illustrated in Figure-4, fuel prices dropped to 20.9% of total expenditure in 2016 due to the global energy prices decrease. The second drop was recorded during the pandemic in 2021 with 19%. However, in 2022 and 2023, high energy prices pushed the fuel cost in total expenditure up to 30%.

**Figure-4.** Fuel costs of airlines as a percentage of expenditure (2011-2023)



Source: [www.statista.com](http://www.statista.com)

## V. EFFECTS OF COVID-19 AND THE UKRAINE WAR ON THE GLOBAL TOURISM INDUSTRY

In the last decades, tourism has become one of the most powerful economic components, particularly for the developing countries. Until the Covid-19 pandemic, the tourism sector

gained rapid momentum, as a source of accumulating enormous financial flows. The tourism industry became the leading sector of the global economy accounting for 7% of world exports and 19% of world GDP prior to the pandemic (Bielousova et al., 2021:37). Tourism revenue has a high proportion of GDP in some of the developing countries such as Turkiye, Mexico, and Brazil. Unfortunately,



the pandemic had a stunning impact on the tourism industry all over the world. Indeed, the Covid-19 pandemic affected developed and developing countries' transportation and tourism sectors at different levels. Compared to developing countries, developed countries were more significantly impacted by transportation and travel services (Farooq, Bilal, and Bashir, 2022:6879).

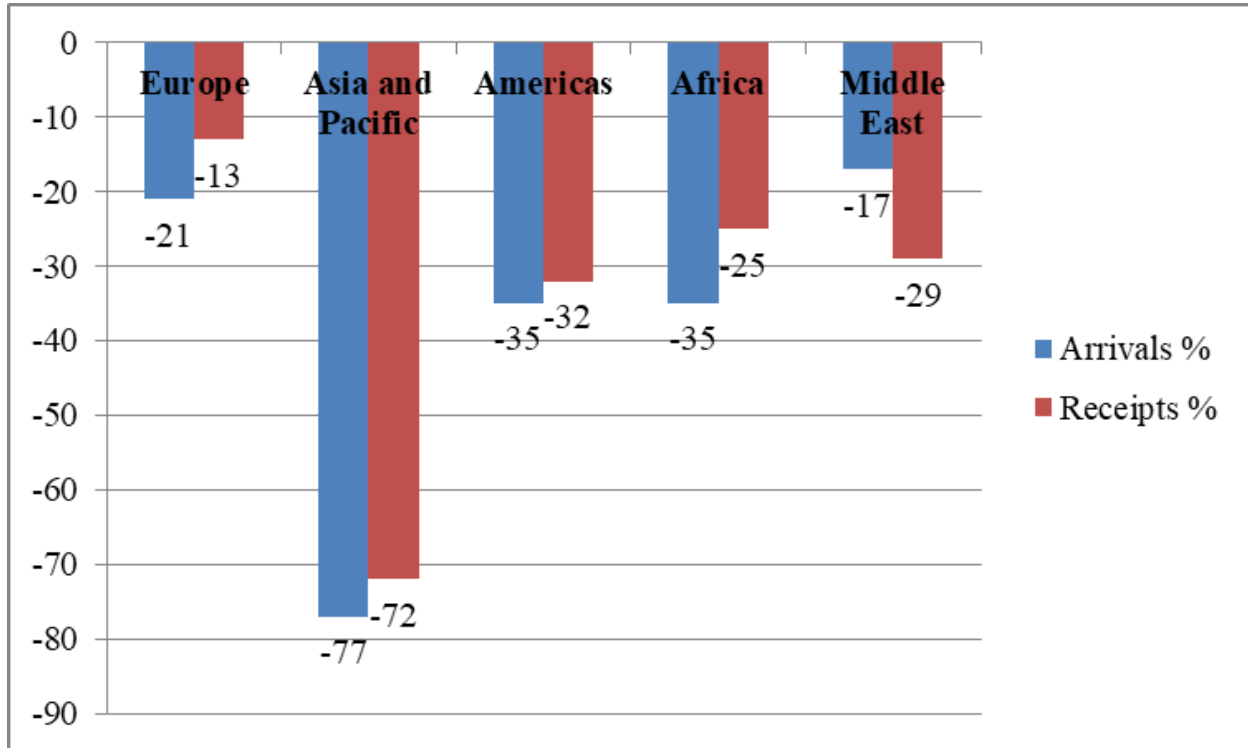
Many researches revealed that the number of Covid-19 cases and deaths are highly correlated with the number of outbound and inbound tourists (Yang, Zhang, and Chen, 2020; de Palma, Vosough, and Liao, 2022; Gössling, Scott, and Hall, 2020). Farzanegan et al. (2021) estimated that a 1% increase in tourism activity led to a 1.2% in cases and a 1.4% increase in deaths. Closing the borders of countries and limiting mobility within each country was one of the basic actions of many countries to stop the spread of the virus. Starting from March 2020, international travel and tourism were highly affected by the restrictions. Namely, 90% of the world's population's mobility and tourism activity ceased (Ait Taleb, Madani and Chella, 2022:755).

Many countries prohibited foreigners from entering their countries and closed their external borders to keep the spread of the pandemic under control. Accordingly, most of the international travel traffic was banned, and local travel was provided very limited. All these measures negatively impacted the tourism industry (Uğur and Akbıyık, 2020;

Huyugüzel Kışla, Türkcan, and İnce Yenilmez, 2023; Dinarto, Wanto, and Sebastian, 2020). Since there was a high Covid-19 infection rate, Americans were not welcome in many countries and the EU members. Likewise, the US government prohibited travelers from China, Ireland, the UK, Iran, and many European countries (Brewbaker, Haas, and Mak, 2020:4).

Due to the Covid-19 pandemic measures, there were 1 billion fewer international tourist arrivals in 2021 which caused a loss of \$1 trillion in 2021 in total export revenues from international tourism activities. Compared to 2021, 2022 was a better year for tourism activities. After the alleviation of the pandemic measures, international tourist arrivals increased by 102% in 2022 with respect to 2021. However, this rate was still 37% below than 2019 performance. International tourism revenue reached \$1 trillion which was 64% of pre-pandemic performance in 2022. International tourism grew 86% in the first quarter of 2023 and increased to 80% of pre-pandemic values in the same quarter (UNWTO, 2023).

**Figure-5.** International tourism activities 2022 (change % over 2019)



Source. UNWTO Tourism Dashboard (2023a)

Figure-5 represents the tourism activities in 2022 as a change percentage over 2019. According to Figure-5, the highest hit was in the Asia-Pacific region.

The Covid-19 pandemic and traveling restrictions changed tourism preferences. In their study, Raina, Nasir, and Qazi (2022) investigated the attitude changes in preferences during the pandemic over 208 tourists. The authors concluded that 76.62% of tourists reduced the duration of their trips. They also preferred to go to less crowded destinations instead of less known places by 51.62%. The

tourists preferred to the destinations which have well-operating health care systems. While they were avoiding group travel, they preferred to travel by private car over railway, road, or airway travel.

2023 was a recovery year for the tourism sector reaching 700 million international tourists. Compared to 2022, the number of tourists traveling internationally rose by 43% in 2023. Worldwide tourism increased to 84% of the pre-Covid-19 level in the January-July 2023 period. The Middle East region has received the highest number of tourists since

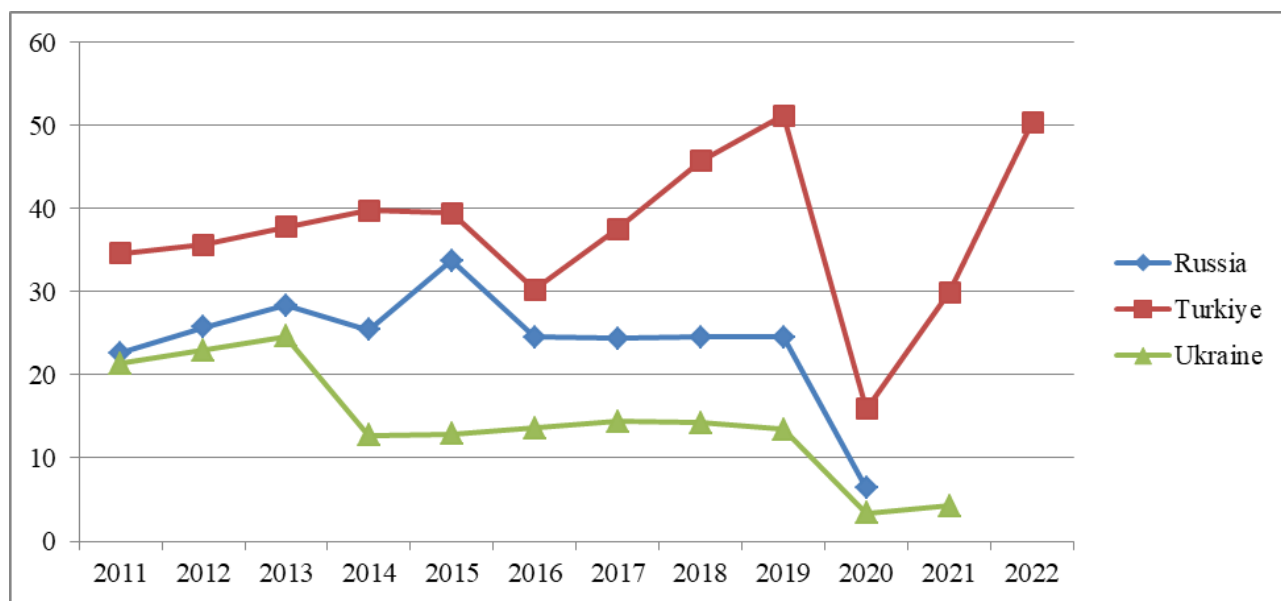
the beginning of 2023. The number of tourists traveling to Middle East countries increased by 20% representing a higher number than pre-Covid-19 levels. Euro region hosted 375 million tourists in the first 7 months of 2023. This number is equivalent to 91% of the total number of tourists visiting Europe in 2019. Asia-Pacific hosted the least number of tourists showing the least recovery after the pandemic period. The contribution of the tourism sector to GDP in the US rose by 16.9% in 2022 and increased to \$2 trillion. This increase pushed up employment in this sector in 2022 and 6.75 million employees were employed. There were 8 million job losses in this sector during the pandemic period. The number of employment

is expected to reach 17.4 million by the end of 2023. It is estimated that by 2033 there will be approximately 21 million people employed in the tourism sector in the US. China is expected to have an outstanding performance in this sector and is estimated to have the largest share of international tourism in 2032 (NTV, 2023).

*A. Tourism sector performance in selected countries*

Figure-6 illustrates the international tourism arrivals of Turkiye, Ukraine, and Russia. Figure-6 shows that while Turkiye showed a remarkable performance after the pandemic period, Russia and Ukraine sank.

**Figure-6.** International tourism arrivals (tourism inbound) (2011-2022)



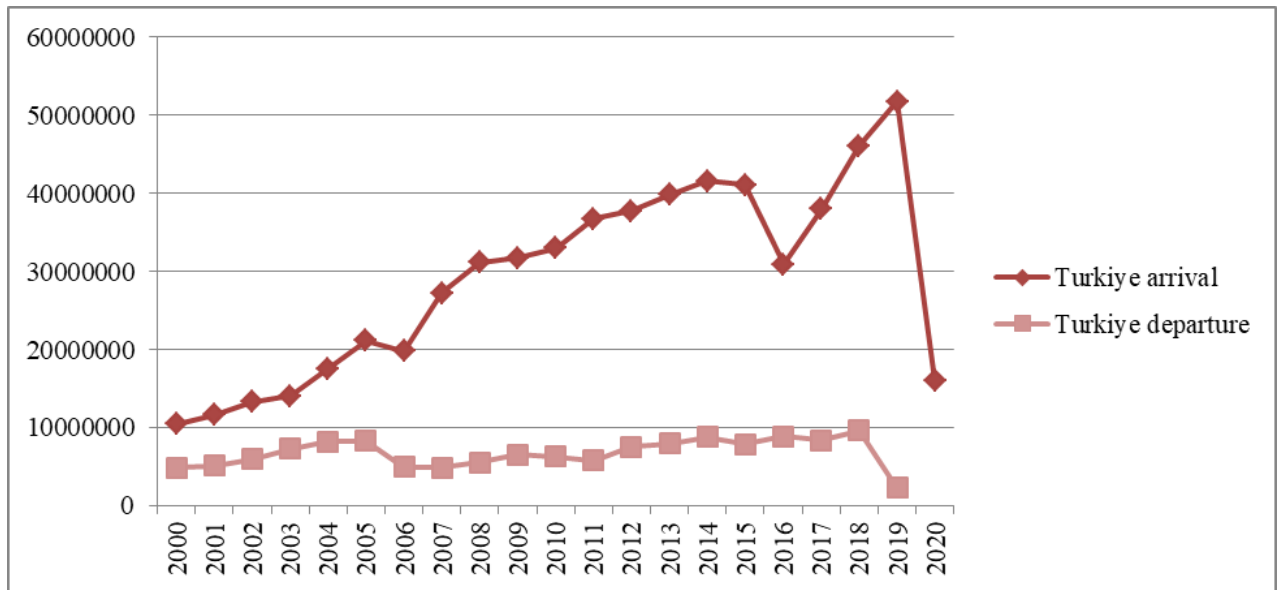
Source: UNWTO Tourism Dashboard (2023b)

Figure-7 represents the total number of arrivals and departures to Turkiye. According to

Figure-6, as a successful tourism country, the number of arrivals was always higher than the

number of departures in Turkiye. On the eve of the pandemic, the total number of tourists visiting Turkiye was more than 50 million people. However, during the pandemic, it declined to 15 million. As shown in Figure-6, it reached 50 million again in 2022.

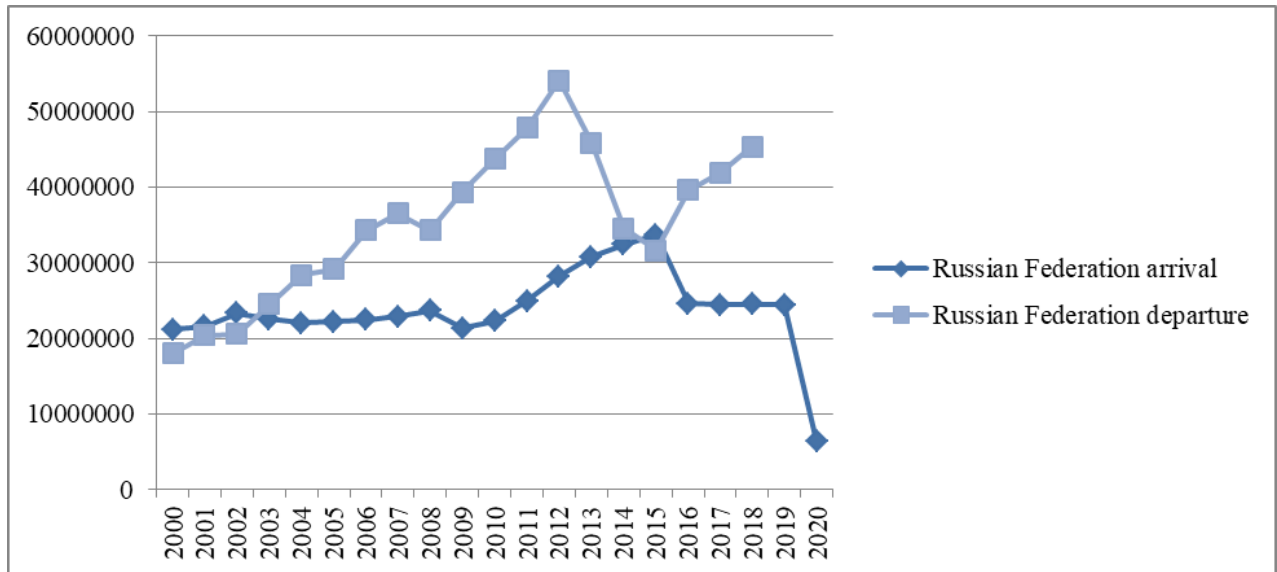
**Figure-7.** Total number of arrivals and departures, Turkiye (2000-2020, million)



Source: The World Bank Data (2023)

In a similar graphic, the total number of arrivals and departures in Russia is illustrated in Figure-8.

**Figure-8.** Total number of arrivals and departures, in Russia (2000-2020, million)



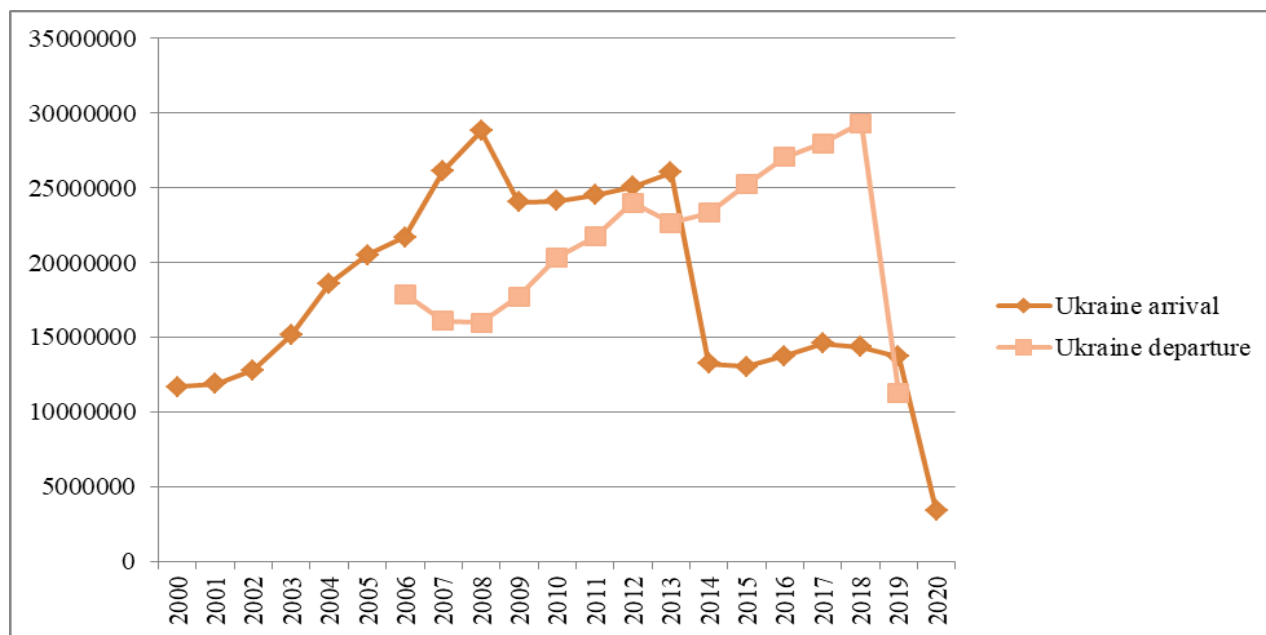
Source: The World Bank Data (2023)

Russian departures are more than arrivals until 2014. The highest number of Russian people visiting other countries was recorded in 2012 with 54 million people. Departures dropped to 31.6 million people in 2015. In the same year, arrivals increased to 33.7 million. Starting

from 2016, the number of departures increased until 2019. While there is no data on departures in 2020, arrivals fell to 6.3 million.

Figure-9 explains the arrivals and departures of Ukraine.

**Figure-9.** International tourism, number of departures and arrivals to Ukraine (2000-2020)



Source: World Bank Data (2023)

Between 2010-2019, the number of passengers preferred Ukraine's civil aviation sector rose from 4 million people to more than 7.5 million. This increase is more than the EU air travel sector. Since 2017, with the improvement in the liberalization of Ukraine's aviation sector, an Open Skies Treaty was signed between Ukraine and the EU as well as the low-cost carriers in Ukraine contributed to a fast-growing aviation industry in Ukraine. Ukraine added new destinations, increased seat capacity, and ended the monopoly of the national carrier Ukraine International Airlines in 2018. With quality services and affordable prices, Ukraine received a boost increase in its aviation sector. Improvement of infrastructure at Dnipro, Odesa, Lviv, Kharkiv, and Zaporizhia airports attracted more international flights both as tourism and business. However,

this rapidly increasing performance stopped dead due to the Covid-19 pandemic and could not return to its prior performance during the 2020-2021 period. With the war that was declared on 24 February 2022, civil aviation activity was stopped and the country closed its airspace. One-way tickets had a sharp increase of 60%, and flight bookings in Hungary, Poland, and Romania increased by 20% in the first month of the war. Ukraine presented \$5 billion damage in to infrastructure in airports and air navigation equipment (International Transport Forum, 2022:2).

Figure-8 and Figure-9 clearly indicate the devastating effects of the war on the state parties. The airspace of Ukraine is closed and Russia has been suffering from great sanctions. The airport infrastructure of Ukraine is also damaged. Russia tries to continue international

flights with the support of Turkiye, UAE, and China. The support of those countries alleviates the negative effects of sanctions. However, Russia is far away from the peace days.

## VI. POLICY RECOMMENDATIONS

Ongoing global economic problems such as inflation and increasing energy prices result in increasing costs in the tourism sector. Rising transportation and accommodation costs are some of the basic problems of the tourism sector. Ukraine war and other geopolitical tensions also negatively affected the tourism activities in the related regions such as East Europe and Baltic countries. Climate change issues and natural disasters also had reverse effects on international tourist activities. Thus, tourists prefer to travel to the closer destinations to the regions they live in (NTV, 2023).

In this vein, intracontinental travel and tourism can be encouraged in recent periods. Traveling to closer regions will be safer and cheaper. There may be some attractive packages having prepayments may be attractive both for sector actors and tourists. Although air transport is very convenient and fast, because of high energy prices, traveling has a greater proportion in operations costs of tourism companies. Hence, other cheaper and more convenient traveling opportunities can be suggested to the tourists such as the railway or cruise.

The fact is that the aviation sector is highly dependent on fossil fuel which is also unpreferable for environmental sustainability. Ending the aviation sector's dependency on fossil fuels will make the industry more resilient to future conflicts and oil price fluctuations. Providing energy security through energy diversification penetrating environment-friendly energy resources such as biofuels that are produced from agricultural waste, away from fossil fuels will lead to less CO<sub>2</sub> emissions. The fact is that technical and economic challenges are substantial and the diversification process needs extra effort and financial support. Besides, optimizing operations, investing in fuel-efficient aircraft can provide less emission and less consumption of fossil fuels. Having fuel efficiency and sustainable aviation fuels may lead to net zero emissions by 2050. Sustainable air fuel can also be provided by different producers instead of limited ones. Decentralizing air-fuel delivery will cause resilience (International Transport Reform, 2022:5). Agricultural producers in African countries can be a good source of global biofuel producers.

Besides, it is still possible for airlines to remain profitable in times of fuel price fluctuations. Having the right capacity deployment is the key solution to it. Flying marginally profitable markets or operating ghost flights are not sustainable strategies. Higher inflation and increasing interest rates also put pressure on the cost of borrowing which may threaten future earnings. In this

vein, airlines can find ways to be more disciplined in capacity deployment and on budget management. Besides, they can focus on different regions to have profitable flights and the carrier has a unique advantage. Airline companies can also consider fuel hedging strategies that can soften the negative effects of sudden fuel price increases (McKinsey & Company, 2022).

## VII. CONCLUSION

The global economy, which has been suffering from the pandemic since 2020, has been hit by turbulence with the Ukraine crisis. With the quarantine measures taken during the pandemic period, the two sectors, air transportation and tourism sectors, were most affected by the epidemic. The volatility in energy prices since 2016 has already caused significant problems in the transportation sector. The prohibition of global transportation due to the pandemic had an enormous impact on the tourism sector, which is among the most important sources of GDP for many developing countries. While both sectors were in the recovery process with the easing of pandemic measures, the Ukraine crisis broke out in the first months of 2022. The problem, which was initially accepted as a political conflict between the two countries, quickly turned into a global problem. Overcoming the long-lasting problem of global energy prices became even more difficult when Russia imposed energy export restrictions and price increases in response to the sanctions initiated by Western countries against Russia. Price

increases in jet fuels have led to new pressure and cost increases on the air transportation sector, which was already severely damaged during the pandemic period. When these cost increases in transportation combined with security problems due to the Ukraine War, global tourism was also heavily damaged. Aside from Russia and Ukraine, tourism in Eastern Europe and the Baltic countries was adversely affected due to security reasons. Despite all these negativities, both the air transportation and tourism sectors showed signs of recovery in 2023. Securing energy supply while reducing costs in jet fuels, especially diversifying energy sources, will be a very important policy to overcome increasing operation costs. In this context, focusing on biofuel energy will both provide environmentally friendly energy production and reduce fossil fuel dependence to a certain extent. This transition process can be effectively overcome by organizing alternative destinations and affordable trips for tourists by offering attractive packages in the tourism sector. In addition, for tourists who do not want to travel to remote areas due to security and cost concerns, more economical transportation models other than air can be offered. Traveling itself can be a touristic activity such as traveling by an authentic train and a cruise can be planned as a tourist activity. In this way, tourists both travel at a cheap price and entertain during the journey.

## REFERENCES



- Ait Taleb, M.; Madani, A.; and Chella, T. (2022). Covid-19 pandemic and tourism: What contribution of transport to the resumption of domestic tourism activity in Algeria? *Review El’Bahith-ENS-Bouzareah-Algiers*, 13(02), 754-770.
- Akbarlı, A.; Öndeş, E.B., Gezer, D.; and Açıklı, B. (2022). The impact of the Ukraine-Russia Conflict on the aviation sector: February-May 2022. *Journal of Aviation*, 6(3), 346-354.
- Bielousova, N.; Lyubitseva, O.; Skorostetska, O.; Boiko, O. (2021). Problems of providing travel services to inclusive aviation tourists: Wold and Ukrainian experience. *International Journal of Aviation Science and Technology*, 2(1), 37-45.
- Brewbaker, P.; Haas, F.; and Mak, J. (2020). The future of travel and tourism after the Covid-19 pandemic and implications for Hawai’i. *UHERO Brief*, October 1, 2020.
- Dinarto, D.; Wanto, A.; and Sebastian, L.C. (2020). Global health security–COVID-19: Impact on Bintan's tourism sector. *RSIS Commentaries*, 2 March 2020, 33.
- De Palma, A.; Vosough, S.; and Liao, F. (2022). An overview of effects of COVID-19 on mobility and lifestyle: 18 months since the outbreak. *Transportation Research Part A Part A: Policy and Practice*, 159, 372-397. <https://doi.org/10.1016/j.tra.2022.03.024>
- Eurostat (2022). Air transport statistics. [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Air\\_transport\\_statistics](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Air_transport_statistics)
- Farooq, U.; Bilal, A.N.; and Bashir, M.F. (2022) The COVID-19 pandemic and stock market performance of transportation and travel services firms: A cross-country study. *Economic Research-Ekonomska Istraživanja*, 35:1, 6867-6883, DOI: 10.1080/1331677X.2022.2053784
- Farzanegan, M.R., Gholipour, H.F., Feizi, M., Nunkoo, R., Andargoli, A.E., 2021. International tourism and outbreak of coronavirus (COVID-19): a cross-country analysis. *Journal of Travel Research*, 60(3), 687-692.
- Flightworks (2023). How the Ukraine war is affecting aviation traffic. March 1, 2023. <https://www.flightworx.aero/blog/ukraine-aviation-traffic/>
- Gauthier-Villars, D. and Stolyarov, G. (2023). How Russia keeps its fleet of Western jets in the air. Reuters, August 23, 2023. <https://www.reuters.com/world/europe/how-russia-keeps-its-fleet-western-jets-air-2023-08-23/>
- Gössling, S.; Scott, D.; Hall, C. M. (2020). Pandemics, tourism and global change: A rapid assessment of COVID-19. *Journal of Sustainable Tourism* 1-20. <https://doi.org/10.1080/09669582.2020.1758708>
- Huyugüzel Kışla, G.Ş. Türkcan, B.; and İnce Yenilmez, M. (2023). How covid-19 has

affected supply and demand within tourism industry? *Journal of Multidisciplinary Academic Tourism*, 8 (1): 39-49. <https://doi.org/10.31822/jomat.2023-8-1-39>

International Transport Forum (2022). Transport policy responses to the war in Ukraine-How the war in Ukraine impact aviation – and what to do about it. No. 3, 22 December 2022. <https://www.itf-oecd.org/sites/default/files/docs/ukraine-impacts-aviation.pdf>

McKinsey & Company (2022). Why rising fuel prices might not be as bad for the airline sector as it seems. July 15, 2022. <https://www.mckinsey.com/industries/travel-logistics-and-infrastructure/our-insights/why-rising-fuel-prices-might-not-be-as-bad-for-the-airline-sector-as-it-seems>

Mzhavanadze, G.; Maisuradze, R., Tvaliashvili, A.; Tsintsabadze, M.; and Kvakhadze, I. (2022). *Transport and logistics sector report*. TBC Capital, November 2022.

NTV (2023). World tourism, which declined during the pandemic, is recovering rapidly. 26.09.2023.

<https://www.ntv.com.tr/ntvpara/pandemide-gerileyen-dunya-turizmi-hizla-toparlaniyor,YBUxT9nTUUG83LNQJ2dALQ>

Raina, D.I.; Nasir, T.; and Qazi, T. (2022). Impact assessment of Covid-19 pandemic on perception and travel behavior of tourists with strategies for resilient recovery of Jammu and Kashmir, India. *Journal of Tourism Insights*,

12(1), Article 5, <https://doi.org/10.9707/2328-0824.1253>

UNWTO Tourism Dashboard (2023a). International tourism and Covid-19. <https://www.unwto.org/tourism-data/unwto-tourism-dashboard>

UNWTO Tourism Dashboard (2023b). Inbound tourism. <https://www.unwto.org/tourism-data/global-and-regional-tourism-performance>

Uğur, N.G. and Akbıyık, A. (2020). Impact of COVID-19 on global tourism industry: A cross-regional comparison. *Tourism Management Perspectives*, 36, 100744.

Waller, S.T.; Qurashi, M.; Chand, S. (2023). Analyzing and modeling network travel patterns during the Ukraine invasion pervasive traffic data. *Journal of Transportation Research Board*, <https://doi.org/10.1177/03611981231161622>

World Bank Data (2023). Air transport passenger carried. <https://data.worldbank.org/indicator/IS.AIR.PS.GR?locations=UA-RU-B8>

Yang, Y.; Zhang, H.; Chen, X. (2020). Coronavirus pandemic and tourism: Dynamic stochastic general equilibrium modeling of infectious disease outbreak. *Annals of Tourism Research*. 2020 July, 83. doi: 10.1016/j.annals.2020.102913

[www.flightradar24.com](http://www.flightradar24.com). Ukraine aviation situation updates. 24 September 2023.  
<https://www.flightradar24.com/38.61,-30.57/3>

[www.statista.com](http://www.statista.com). Number of scheduled passengers boarded by the global airline industry from 2004 to 2022.  
<https://www.statista.com/statistics/564717/airline-industry-passenger-traffic-globally/>

## Is it possible to shorten the process of environmental damage in the initial stage of economic development?

Hasan Yazar\*, M. Mustafa Erdoğan<sup>2</sup>

<sup>1</sup>Public Finance/ Salihli Faculty of Economics and Administrative Sciences, Manisa Celal Bayar University, Türkiye

<sup>2</sup>International Trade and Finance/ Faculty of Economics and Business Sciences, Beykoz University, Türkiye

\*Corresponding Author email: [hasan.yazar@cbu.edu.tr](mailto:hasan.yazar@cbu.edu.tr), ORCID 0000-0002-9290-9566

**Abstract** – The study focuses on the trade-off journey (developmental-environmental indicators) in the initial stage of economic development. Early-developed countries made significant concessions in environmental matters during the initial phase of economic development. However, it is evident that these countries show substantial positive progress in environmental indicators up to the present day. The historical perspective of data regarding carbon emissions in early-developed countries such as the UK and the US highlights this fact. This phenomenon is referred to as the Environmental Kuznets Curve in theory. Nonetheless, this does not alter the reality that the mentioned trade-off process is lengthy and arduous. The study, while emphasizing the duration of the trade-off process in the initial stages of economic development, contains traces of solution proposals that could potentially shorten this process. Especially for developing countries that can embrace green economic transformation in the early stages of today's technology, it is possible to minimize the human and environment-based concessions they face. Countries that are still in the process of development, such as China and India, can take lessons from the historical process and realize development with less environmental harm with lower social costs. The study highlights that green transformation is one of the best alternatives to ensure that the environmental concessions made for economic development do not encompass a painful and prolonged period.

*Keywords* – Sustainability, green transformation, economic development, environmental damage.

### I. INTRODUCTION

In recent years, even though air pollution seriously threatens the lives of all living beings, particularly human health, individuals are not acting as resolutely as necessary in taking measures. It is well known that economic and political concerns lie behind this problem. Especially following globalization, the heightened economic competition has led to the relegation of many environmental issues, such as air pollution, to a secondary position.

Throughout human history, economic activities primarily revolved around small-scale endeavors, particularly centered on agriculture. This circumstance led to an oversight of other environmental pollution issues, such as air pollution, to a dismissible extent. However, in the present day, especially for the attainment of economic progress, development is required across multiple sectors, primarily including industry. Industrialization has, in turn, heightened the density of urban populations, causing the clustering of populations in specific regions. Consequently, the quantity of CO<sub>2</sub> emissions has steadily

increased, reaching levels that are alarming for human health.

In contrast to early industrialized nations, this study focuses on the concessions given by developing countries, particularly countries such as China and India, in their journey toward economic development. This has brought to light significant issues related to economic development, such as the increase in healthcare costs and human fatalities. As a result, the feasibility of minimizing harm to both humans and the environment, as well as the need to expedite this process for economic progress, has been discussed.

The study first explores interrelated topics such as urbanization, industrialization, and development. This is followed by an explanation of the role of air pollution in economic development. Finally, the study provides an assessment of the emerging environmental and health threats caused by these issues.

## II. THE PROCESS OF URBANIZATION, INDUSTRIALIZATION, AND AIR POLLUTION

In order to achieve economic development in today's developing countries, in addition to industrialization, it is necessary to enhance the conditions for technological advancement. It can be argued that there is a consensus regarding the role of cities in fulfilling these two crucial prerequisites. In this regard, it is possible to observe the population and urbanization rates of countries considered as future major economies, such as China and India, along with some previously developed nations in recent years.

Table 1: Population and Urbanization in Selected Countries in 1990-2014

	Change in Urbanization (%)	Change in Population (%)
<b>United Kingdom</b>	16.2	11.2
<b>USA</b>	34.1	27.7
<b>China</b>	77.1	19.6
<b>India</b>	96.3	45.9

Source: (OECD, 2023).

Based on the data provided in Table 1, India experienced the most pronounced population change during the 25-year period, with urbanization transforming significantly by 96.3%.

Comparatively speaking, the level of urbanization change in the United States, which ranks second in population change, and other relatively developed nations, was not as significant as that observed in India. Although China's population change was less than that of the United States, its rate of urbanization change was over twice as high as its counterpart. This trend is a reliable indicator of economic transformation in both India and China during the recorded years.

Urbanization essentially signifies economic change. Urbanization has led agricultural societies to shift towards the industrial sector. Industrialization is a significant factor that boosts economic growth and ultimately development. However, industrialization has a disadvantageous role in triggering various environmental problems, particularly air pollution.

Air pollution is defined as the presence of harmful substances in the air at levels that pose a threat to human health. Efforts related to air pollution date back to the 13th century in London, where using coal was banned because of its harmful impact on public health. By the 19th century, the problem had led to the categorization of major British cities as 'smog' (Hassoun et al., 2019, p. 403). Hence, during times and regions characterized by swift economic advancements, such as industrialization, the threat of air pollution is inescapable. A study conducted in China (Lu et al., 2017) indicates that environmental pollution has risen to concerning levels in the last two decades. The report aims to draw attention to the potential hazards of China's swift economic growth. The study employed data on sulfur dioxide, wastewater, and dust emissions to identify a complex interconnection between China's progress and public health.

Recent years have witnessed an increase in industrialization and urbanization, along with economic expansion, intensifying the contrast between environmental standards and economic growth (Sun et al., 2018). Implementing measures for both economic development and environmental protection simultaneously has become more complicated as a result. Regarding this issue, a study conducted between 2004 and 2015 demonstrated that urbanization has contributed to

economic growth in China while intensifying environmental pollution.

According to Sun et al. (2018), in recent years, along with economic development, industrialization, and urbanization have increased, accentuating the contradiction between environmental quality and economic growth. Consequently, the simultaneous implementation of both economic development and environmental protection measures has become more challenging. In relation to this matter, a study conducted between 2004 and 2015 revealed that urbanization in China has led to economic development while economic growth has also intensified environmental pollution.

### III. THE ADVENTURE OF COMPROMISE IN EARLY DEVELOPED AND DEVELOPING COUNTRIES

Industrialization is particularly significant for economic growth, especially in developing countries. Nevertheless, the inevitable outcome of increased industrial activities is the generation of environmental problems due to the emission of pollutants into the atmosphere (Ahmad et al., 2021, p. 8709).

Carbon dioxide emissions data serve as significant indicators in relation to environmental pollution. It is no coincidence that major economies tend to have the highest CO<sub>2</sub> emission levels worldwide. The following graph shows the levels of carbon dioxide emissions in selected leading countries in terms of development.

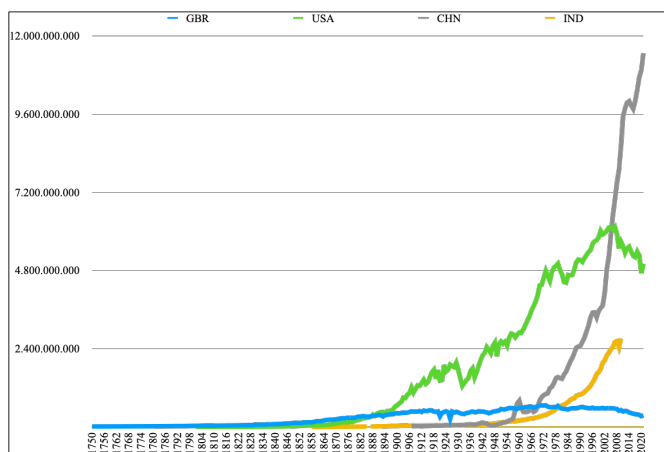


Fig. 1 Quantity of CO<sub>2</sub> emissions in prominent countries  
Source: (Our World in Data, 2020).

The amount of CO<sub>2</sub> emissions initially increased with industrialization, beginning in Britain. Levels of emissions continued to increase until around 1980. This trend of increasing carbon emissions persisted for about two centuries. Likewise, in the United States, CO<sub>2</sub> emissions increased after the industrialization period, following the trend seen in Britain. The United States had already exceeded 1 billion tons of emissions in the early 1900s and crossed the 6 billion tons threshold by the 2000s. Similar to Britain, CO<sub>2</sub> emission levels have decreased in recent years. The rate of carbon emission increase in the US is also significant. The chart also shows recent CO<sub>2</sub> emission levels for two economically influential countries. Firstly, it is worth noting that China's emission levels have risen considerably since the early 2000s, surpassing those of the U.S. and making it the world's largest emitter. China's emission levels have reached a significantly high level of around 10 billion tons of CO<sub>2</sub>. This development is not unexpected. Although not on the same scale, a similar trend is being observed in India, which has now crossed the threshold of 2 billion tons of CO<sub>2</sub> emissions. Based on historical data, it seems improbable that there will be a decline in emission levels for either country soon. Given that the increase in CO<sub>2</sub> emission levels in China and India is a recent occurrence, it is predicted that these levels will continue to rise until the countries reach a state of economic development.

### IV. RELATIONSHIP BETWEEN AIR POLLUTION AND HEALTH

There is virtually no opposition to the adverse effects of air pollution on human health. Many studies conducted on this link, and most of them agree on its harmful effects. Industrialization and economic development are perhaps some of the most significant challenges of our time, with air pollution and its resulting risks to human health being a notable one. This problem has significant consequences for developing countries. In a study spanning from 2010 to 2017 (Ahmad et al., 2021, p. 8709), air pollution and adult mortality rates were analyzed in 72 developing nations, uncovering a positive association between the two variables.

In 2019, air pollution was responsible for causing 1.6 million fatalities in India. This statistic represents 17.8% of the overall fatalities in the country. Most of these fatalities were linked to ambient particulate matter contamination (0.98 million), and household air pollution (0.61 million). From 1990 to 2019, the fatality rate due to indoor air pollution decreased by 64.2%. However, during the same period, the mortality rate from ambient particulate matter pollution increased by 115.3%, and mortality due to ozone pollution increased by 139.2% (Pandey et al., 2021, p. 25).

Table 2: 2019 Death rates from air pollution

per 100,000 people, in both sexes aged age-standardized	GBR	USA	CHN	IND
Deaths by household air pollution from solid fuels	0,008777	0,026754	20,72933	59,58832
Deaths by ambient particulate matter pollution	10,79058	8,487157	81,28263	95,63995
Deaths by air pollution	11,19264	10,55164	105,9224	164,0787
Deaths by ambient ozone pollution	0,418012	2,119358	5,913065	18,30452

Source: (Our World in Data, 2017).

Table 2 presents the number of deaths attributed to air pollution in early developed countries for the year 2019, as well as in China and India, which are progressing towards becoming major future economies. The data indicate that in countries that have achieved development across the three categories of air pollution, the number of deaths per 100,000 individuals is relatively much lower. However, China and India exhibit notably high mortality rates. Assuming the validity of the Environmental Kuznets Curve (EKC), it can be postulated that as these countries attain a period of prosperity in the future, environmental pollution will decrease, leading to a reduction in associated mortality rates.

The impact of air pollution on healthcare expenses should not be underestimated, in addition to its effects on human mortality. Research indicates that the healthcare costs resulting from air pollution are often underestimated, emphasizing the importance of not overlooking this aspect (Birnbbaum et al., 2020, p. 2113). When assessing the benefits and costs of air pollution, the

consideration of social welfare loss is crucial. Therefore, reducing air pollution could potentially contribute to improving long-term social welfare (Liao et al., 2021, p. 1).

The impact of air pollution on healthcare services and the usage of medical supplies in China was measured, revealing that it significantly increases medical care costs, hospitalization expenses, and personal costs (Liao et al., 2021, p. 1). In another study, it concluded that air pollution in China affects income distribution. However, it emphasized that alongside decreased labor productivity, the increased healthcare expenditures contribute to changes in income distribution (Zhou & Li, 2021, p. 8392).

## V. REDUCING DAMAGE: GREEN TRANSFORMATION

In the first quarter of the 21st century, the concept of the trade-off between economic development and the environment gained even greater significance. However, scientific studies on this topic emerged primarily in the late 20th century. Simon Kuznets (1955) illustrated in his work that at the onset of economic development, income inequality tends to increase and subsequently decrease. The inverted U-shaped curve derived from this hypothesis is known as the Kuznets Curve in economic literature. On the other hand, the Environmental Kuznets Curve, introduced by Grossman & Krueger (1991), represents another inverted U-shaped curve used to explain the relationship between pollution and economic development. In the initial stages of industrialization, individuals tend to prioritize jobs and income over clean air and water, leading to a rapid rise in pollution. However, as income increases, the situation reverses, and industrial sectors become cleaner. In regions where income has risen, pollution is expected to decrease in the long term, returning to levels comparable to those before industrialization (Dasgupta et al., 2002).

Several empirical analyses also tested the Environmental Kuznets Curve. For instance, different types of air emissions were examined across various U.S. states, and the study's outcomes indicated that emissions decrease along with a rise in per capita income (Carson et al., 1997). In recent years, another study explored the

relationship between mismanaged plastic waste and personal income in 151 countries, yielding results that support the Environmental Kuznets Curve. Furthermore, it was advocated that scientific and technological investments are necessary to reduce plastic pollution (Barnes, 2019).

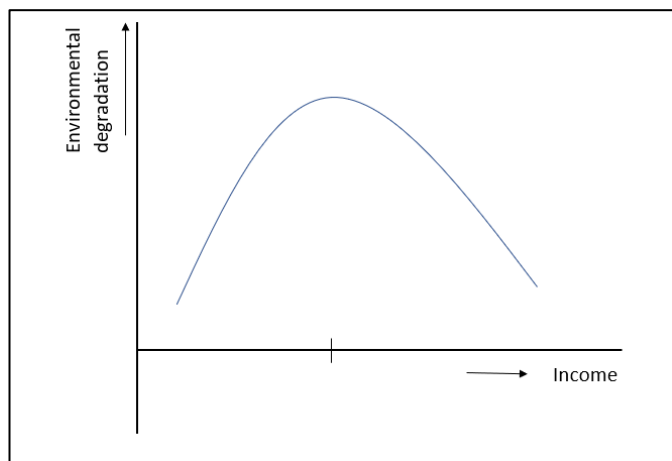


Fig. 2 Environmental Kuznets Curve

Source: (Dinda, 2004)

The dilemma between economic growth and the environment is considered merely an assumption by some researchers, while for others, it is seen as a significant conflict that requires thoughtful consideration. Munasinghe also engaged with the conflict between the environment and economic growth, and in his study in 1999, he emphasized that developing countries could learn from the experiences of industrialized nations. He claimed that they could potentially create a tunnel within the Environmental Kuznets Curve, suggesting a path to navigate this conflict (Munasinghe, 1999).

Multiple studies support the notion that green transformation can reduce environmental degradation. Hussain & Shahid (2021), through their study focused on China, concluded that the use of green energy is inversely related to environmental degradation. The fact that environmental technologies offer a robust alternative against environmental degradation renders every step taken in these areas valuable (Chu, 2022, p. 23788). Hou et al. (2018) emphasize that green transformation in China's industry, coupled with environmental regulations, can reduce emissions and carbon intensity. Similarly, green finance leads to a reduction in carbon

emissions by fostering environmental technological innovations (Chen & Chen, 2021).

## VI. CONCLUSION

Especially in the early stages of economic development, the increase in urbanization and consequently industrialization brings to the forefront the issue of releasing various environmental pollutants into the environment. This issue has highlighted in the study, shedding light on the trade-off between economic development and environmental pollution, specifically air pollution. The study reveals that these problems have significant negative effects on human health, healthcare expenditures, and even income distribution, supported by international data and research.

Using the example of countries like China and India, the study underscores that if these countries do not address the problem of environmental pollution in their development processes, that will pose a threat to the health of people living in these countries and potentially all people worldwide. In fact, data supports that the number of deaths attributed to air pollution is higher in these countries compared to others. In other words, the study emphasizes that these countries, considered to be the future major economies, are facing a trade-off between "economic development" and "air pollution".

Every step taken towards reducing air pollution and other pollutants affecting the environment holds significant value. However, the extent of effectiveness of the currently employed fiscal instruments in mitigating these issues has been subject to debate. The matter of internalizing the externalities arising from these negative impacts should not be relegated to the background in pursuit of economic development; rather, a notion of "humane development" with reduced negative externalities should be targeted. In this regard, green transformation is evidently one of the prime alternatives, particularly for developing nations such as China and India.

## REFERENCES

Ahmad, N. A., Ismail, N. W., Ahmad Sidique, S.



- F., & Mazlan, N. S. (2021). Air pollution effects on adult mortality rate in developing countries. *Environmental Science and Pollution Research*, 28(7), 8709–8721. <https://doi.org/10.1007/s11356-020-11191-3>
- Air pollution effects on adult mortality rate in developing countries* | SpringerLink. (n.d.). Retrieved August 19, 2023, from <https://link.springer.com/article/10.1007/s11356-020-11191-3>
- Barnes, S. J. (2019). Understanding plastics pollution: The role of economic development and technological research. *Environmental Pollution*, 249, 812–821. <https://doi.org/10.1016/j.envpol.2019.03.108>
- Birnbaum, H. G., Carley, C. D., Desai, U., Ou, S., & Zuckerman, P. R. (2020). Measuring the Impact of Air Pollution on Health Care Costs. *Health Affairs*, 39(12), 2113–2119. <https://doi.org/10.1377/hlthaff.2020.00081>
- Carson, Richar. T., Jeon, Y., & McCUBBIN, D. R. (1997). The relationship between air pollution emissions and income: US Data. *Environment and Development Economics*, 2(4), 433–450. <https://doi.org/10.1017/S1355770X97000235>
- Chen, X., & Chen, Z. (2021). Can Green Finance Development Reduce Carbon Emissions? Empirical Evidence from 30 Chinese Provinces. *Sustainability*, 13(21), Article 21. <https://doi.org/10.3390/su132112137>
- Chu, L. K. (2022). Determinants of ecological footprint in OCED countries: Do environmental-related technologies reduce environmental degradation? *Environmental Science and Pollution Research*, 29(16), 23779–23793.
- Dasgupta, S., Laplante, B., Wang, H., & Wheeler, D. (2002). Confronting the Environmental Kuznets Curve. *Journal of Economic Perspectives*, 16(1), 147–168. <https://doi.org/10.1257/0895330027157>
- Dinda, S. (2004). Environmental Kuznets Curve Hypothesis: A Survey. *Ecological Economics*, 49(4), 431–455. <https://doi.org/10.1016/j.ecolecon.2004.02.011>
- Grossman, G. M., & Krueger, A. B. (1991). *Environmental Impacts of a North American Free Trade Agreement* (Working Paper 3914). National Bureau of Economic Research. <https://doi.org/10.3386/w3914>
- Hassoun, Y., James, C., & Bernstein, D. I. (2019). The Effects of Air Pollution on the Development of Atopic Disease. *Clinical Reviews in Allergy & Immunology*, 57(3), 403–414. <https://doi.org/10.1007/s12016-019-08730-3>
- Hou, J., Teo, T. S., Zhou, F., Lim, M. K., & Chen, H. (2018). Does industrial green transformation successfully facilitate a decrease in carbon intensity in China? An environmental regulation perspective. *Journal of Cleaner Production*, 184, 1060–1071.
- Hussain, M. S., & Shahid, S. (2021). Green Energy and Economic Growth Influence on Reducing Environmental Degradation: Empirical Evidences from China. *IRASD Journal of Energy & Environment*, 2(1), 40–46.
- Kuznets, S. (1955). Economic Growth and Income Inequality. *The American Economic Review*, 45(1), 1–28.
- Liao, L., Du, M., & Chen, Z. (2021). Air pollution, health care use and medical costs: Evidence from China. *Energy Economics*, 95, 105132. <https://doi.org/10.1016/j.eneco.2021.105132>
- Lu, Z.-N., Chen, H., Hao, Y., Wang, J., Song, X., & Mok, T. M. (2017). The dynamic relationship between environmental pollution, economic development and public health: Evidence from China. *Journal of Cleaner Production*, 166, 134–147. <https://doi.org/10.1016/j.jclepro.2017.08.010>
- Munasinghe, M. (1999). Is environmental degradation an inevitable consequence of economic growth: Tunneling through the environmental Kuznets curve. *Ecological Economics*, 29(1), 89–109. [https://doi.org/10.1016/S0921-8009\(98\)00062-7](https://doi.org/10.1016/S0921-8009(98)00062-7)
- OECD. (2023). *Green Growth Indicators | Compare your country*. <http://www.compareyourcountry.org/green->

growth-  
indicators/en/2/284+285/default/all/IND+C  
HN+GBR+USA+FRA+ITA+DEU

Our World in Data (2017). Air Pollution. *Our World in Data*.

<https://ourworldindata.org/air-pollution>

Our World in Data (2020). CO<sub>2</sub> and Greenhouse Gas Emissions. *Our World in Data*.

<https://ourworldindata.org/co2-emissions>

Pandey, A., Brauer, M., Cropper, M. L., Balakrishnan, K., Mathur, P., Dey, S., Turkgulu, B., Kumar, G. A., Khare, M., Beig, G., Gupta, T., Krishnankutty, R. P., Causey, K., Cohen, A. J., Bhargava, S., Aggarwal, A. N., Agrawal, A., Awasthi, S., Bennitt, F., ... Dandona, L. (2021). Health and economic impact of air pollution in the states of India: The Global Burden of Disease Study 2019. *The Lancet Planetary Health*, 5(1), e25–e38.

[https://doi.org/10.1016/S2542-](https://doi.org/10.1016/S2542-5196(20)30298-9)

[5196\(20\)30298-9](https://doi.org/10.1016/S2542-5196(20)30298-9)

Sun, J., Wang, J., Wang, T., & Zhang, T. (2018).

Urbanization, economic growth, and environmental pollution: Partial differential analysis based on the spatial Durbin model.

*Management of Environmental Quality: An International Journal*, 30(2), 483–494.

<https://doi.org/10.1108/MEQ-05-2018-0101>

Zhou, A., & Li, J. (2021). Air pollution and income distribution: Evidence from Chinese provincial panel data. *Environmental Science and Pollution Research*, 28(7), 8392–8406.

[https://doi.org/10.1007/s11356-020-11224-](https://doi.org/10.1007/s11356-020-11224-x)

x

## The Effect of Brain Drain on Developing Countries in Terms of Loss of Skilled Labor, the Case of Turkiye

Ali Suat Piskin\*

<sup>1</sup>Faculty of Law, International Balkan University, North Macedonia

\*[piskin.ali@ibu.edu.mk](mailto:piskin.ali@ibu.edu.mk), 0009-0007-2328-5036

**Abstract** – Brain drain is the situation in which professions (such as Medical Doctors and engineers) that require great resources and effort to train migrate to a more developed country due to financial anxiety, impossibility and fear of the future. This has always been a problem that developing countries such as Turkiye face. This immigration situation not only creates a huge deficit in terms of the country's economy but also makes it difficult to find employees in areas that require a qualified labor force, therefore it creates problems in various variations, up to an unbearable increase in the workload of the remaining employees. Brain drain, which is a problem that many countries face, has been prevented by some countries and not prevented by some countries, causing the country to slow down considerably in terms of development.

By looking at such countries, the development and position of Turkiye in this regard can be better understood. Information about the past, present, and future of this migration situation will be collected and we will try to find the answer to the question of whether this situation can be prevented by presenting solutions for the future. This research will focus on the problem of brain drain in Turkiye, especially after 2010, explaining the situation statistically and presenting a solution proposal to this situation, and will make a detailed examination of the subject.

*Keywords – Brain Drain, Migration, Development*

### I. INTRODUCTION

Migration, as an expression of people reaching a safe and good quality of life, is a phenomenon that causes political tensions between countries around the world and necessitates the international division of labor. There are global estimates that approximately 272 million people are migrating worldwide as of 2019, and this number is equal to approximately 3.5% of the world's population (IOM, 2020: 19).

Brain drain is the name given to people migrating from environments where economic and social living conditions cannot be provided as they desire, to reach a better standard of living. While brain drain can be permanent and temporary, in

examples such as Turkiye, the brain drain of qualified workforce has been on the rise in recent years. A visible increase in the "good conduct certificate" applications received by medical doctors from TTB between 2012 and 2023 (Turkish Medical Association, 2023) proves that Turkiye is experiencing an exponential brain drain in the field of medicine. If we look at Turkiye's GDP per capita ratio, we can say that it is a developing country (The World Bank, 2022). The fact that this rate is below other developed countries can inevitably push the qualified workforce to emigrate. The reason for this may be economic, as well as the lack of scientific and academic opportunities (EUL Journal of Social Sciences, 2019, p. 226).

The first thing we need to look at here is the opportunities that the country of origin and target country provide to their employees and qualified workforce. Countries such as the USA and Canada are leading the way in bringing bright minds to business life and production in the world. Factors such as multinational companies such as Google and Facebook in the USA paying salaries up to 50% higher than those in Europe cause the qualified workforce in Europe to migrate to the USA.

Although brain drain is not a situation that only affects Türkiye, it can be a problem in developed countries. However, the earlier migration decision of the qualified workforce of developing countries such as Türkiye carries the risk of causing a decrease in Türkiye's development index.

To understand this situation, we need to look at Turkey's migration history. After reviewing the migration history of Turkey, the reasons for this should be examined and inferences from the studies should be made. Because these reasons will be a light to prevent this situation. Although the negative effect of brain drain on the economy of the country is obvious, propositions, to prevent the gaps in the number of qualified workers in the future, can be opened in the future.

## **II. Brain Drain in Türkiye from Past to Present**

Although brain drain seems like a new concept, it is actually a situation that we can trace since the existence of science and advanced civilizations. Ancient Greeks migrated to Alexandria, which became a science center in the 300s BC, and they continued their research using the facilities in Alexandria. Aristotle's student Demostrios, who

was among the directors of the Alexandria library, and the physicist Straton can be cited as examples of the brain drain from Ancient Greece to Alexandria (Aslanoğlu, 1987, p.40-43). This changed throughout history and became Damascus and Baghdad in the 8th and 9th centuries, and modern science institutes began to appear in history as universities replaced the monasteries and church schools that provided education in the Middle Ages in the 15th century. In the mid-18th century, western scientists immigrated to Türkiye,

but as is the case today, the intense demand for immigration was to the USA (Kurtuluş, 1996, pp. 173-175).

In terms of modern immigration, the Republic of Türkiye's migration movements do not date back very long. Immigration from Türkiye, where we have been following a migration movement since the 1960s, has been so integrated into the socio-cultural structure that the term "almancı" has entered the literature. The reason for this is that the increase in production and capital in Europe, which started in the 1950s after the Second World War, brought with it the necessity of meeting the labor force needs.

## **III. Definition of Brain Drain**

Brain Drain; It refers to the international transfer of resources in the form of human capital, that is, the migration of relatively highly educated individuals from developing countries to developed countries. Although definitions are not always uniform, the term "highly educated" generally refers to individuals who have obtained at least one degree in higher education. Brain drain reduces the depletion of the source country's human capital assets, as well as uninvested investments in education and economic growth. This term gained wide use in the late 1960s, especially in 1963 (Panescu, 2004: 114).

The term Brain Drain was first used to describe the migration of scientists from Europe to the United States. In the early 1970s, it was noticed that the brain drain in developing countries was much higher than in Europe, and studies continued accordingly (Breinbauer, 2007: 2). Brain drain in the International Dictionary of Migration Terms; It is defined as "the migration of educated and skilled people from their country of origin to another country, resulting in a decrease in the human resources of the country of origin" (IOM, 2013: 14). According to the Turkish Language Association; It is defined as "the departure of advanced professionals, scientists and experts from their own country in order to work in another developed country" (TDK, 2021). Brain drain generally occurs in the form of permanent migration from poor countries to rich countries,

and while it produces positive results for the receiving countries, it negatively affects the sending countries. Therefore, it is of great importance to carry out studies to prevent brain drain.

The person who carries out the brain drain is exposed to some differences in the target country. Factors such as language, religion and change in habits affect the person. Despite this, it is possible that people have constantly migrated from past to present and adopted the countries they went to as their homeland. Brain drain, like other migrations, is as old as human history (Kurtuluş, 1996: 171). The diversity of channels used by immigrants also affects country economies during the globalization process.

Internationalization of education systems offers many advantages to host countries. For example; It may reduce the potential need for qualified workers arising from the presence of foreign students (OECD, 1997: 21).

The reasons for brain drain can generally be listed as better laboratory and internship opportunities abroad, more job opportunities after graduation, the opportunity to work freely and a healthy environment, marriages with citizens of other countries, and ethnic and political situations.

#### **IV. Brain Drain in Turkiye**

Population movements in Turkiye and the distribution of citizens to their provinces, districts and villages have been obtained from the Address-Based Population Registration System since 2006. The registration system, which started to be used with the Population Services Law No. 5490, which came into force on 29.04.2006, is a project that ensures that the residence information of Turkish citizens and foreign individuals is kept in the central registration system in an electronic structure. Thanks to this project, city information systems have been created in a healthier and more effective manner, and address data has begun to be stored effectively from a single center (NVI, 2020).

Turkish Statistical Institute has listed the number of individuals entering and exiting Turkiye for the first time in 2017, in the light of the

increasing immigration problem and the developments in this address registration system. In light of these data, 253 thousand 640 individuals migrated abroad from Turkiye in 2017. Among these migrating individuals, the highest proportion is individuals between the ages of 25-29, with 12.3%. This age group is followed by individuals between the ages of 30-34 with 11.6% (TUIK, 2018).

When we look at 2018, migration abroad increased by 27.7% and reached 323 thousand 918. This increase rate has generally caused Turkiye's loss of qualified workforce. The majority of this number consists of the 25-29 age group, with 15.7%. (TUIK, 2019)

What we understand from this age range is that young people in Turkiye prefer to go abroad after university graduation due to the economic and working conditions in business life or because they cannot find a job.

#### **V. Reasons to Loss of Skilled Labor**

The main reason for the migration of qualified workforce is the economic situation in the country of origin and the difficulty of making a living. For this reason, people with qualified labor aim to migrate to countries where the income situation is better. We can say that this is the main reason for this situation in Turkiye. In the research conducted with 60 students (30 female, 30 male) from Bayburt University Vocational School of Health Services, the parties were asked about their tendencies towards such a brain drain.

Demographic Specifications	Groups	f	%
Gender	Female	30	50
	Male	30	50
Age	18-19	7	11,6
	20-21	24	40
	22-23	21	35
	24 and above	8	13,3
Family Income	Nuclear Family	46	76,6
	Big Family	12	20
	Family with one parent	2	3,3
Total		60	100

Table 1 by İ. Karaca, S. Yurttaş 2020, p. 1775

The results of the research conducted between October 2018 and April 2019 show that 11.6% of the students think that we definitely cannot get along, and 48.6% think that we cannot get along. 54 out of 60 of these students stated that they wanted to immigrate abroad, and only 6 people (4 women, 2 men) stated that they did not want to immigrate to Germany.

The situation that emerged as a result of this research is that many university students in Türkiye are not satisfied with the current economic situation and they think that their professional skills will not be sufficient for them to establish a life after graduation, resulting in their desire to establish a life abroad.

### V.1. Unemployment

The results of the research conducted between October 2018 and April 2019 show that 11.6% of the students think that we definitely cannot get along, and 48.6% think that we cannot get along. 54 out of 60 of these students stated that they wanted to immigrate abroad, and only 6 people (4 women, 2 men) stated that they did not want to immigrate to Germany.

The situation that emerged as a result of this research is that many university students in Türkiye are not satisfied with the current economic situation and they think that their professional skills will not be sufficient for them to establish a

life after graduation, resulting in their desire to establish a life abroad.

### V.2. Low Salary Expectation

One of the reasons for Türkiye's brain drain is the high number of people working on minimum wage and unregistered. It has been the subject of various studies that the number of minimum wage earners increased significantly between 2003 and 2017. While 9% of individuals working for a wage were on minimum wage in 2003, this rate increased to 22% in 2017 and 36.2% in 2018. According to Eurostat data, the average minimum wage rate of European countries is 7% (Aslan, 2019:156). When January-October 2020 is examined, there are an average of 27 thousand unregistered individuals in Türkiye (TUIK, 2021). Basic indicators such as low wages, workplace security, and working conditions are important factors in individuals' decision to brain drain. There are studies stating that individuals working in jobs with low wages and no investment opportunities are more likely to migrate (Oğuzkan, 1971; Kurtulmuş, 1992).

### V.3. Lack of Scientific and Academic Opportunities

Access to research tools in a country is proportional to economic resources. Each stage, from purchasing books to field/experimental

studies, progresses within the scope of financial resources. However, the main problem experienced by both Turkish students and international students within the country is financial deficiency. In the research conducted, a large portion of the students state that they suffer from financial difficulties (Donat, Bilgiç, Eskiocak, & Koşar, 2019, p. 455), (Şahin, Fırat, & Yunus Remzi Zoraloğlu, 2009: 1442).

#### **V.4. Concern for the Future**

When the practices of countries with international brain drain are examined, it is seen that restrictive measures are taken (Kapur & McHale, 2005:177). It is clear that such restrictions will increase brain drain rather than reduce it. As a matter of fact, restricting migration movements except in extraordinary circumstances is a violation of human rights. In this regard, rather than taking harsh measures, push factors should be reduced and pull factors should be increased (Cansız, 2006).

#### **VI. Main Motivations Playing a Role in Brain Drain**

It is generally seen that international brain drain is from poor countries to richer countries, from countries with low education levels to countries with high education levels, and from countries with high levels of civil unrest to countries with higher levels of peace. It has been observed that in countries with high levels of welfare, education level and peace of mind, migration is towards countries that have more of these three variables. For example, it has been observed that nurses working in England (including nurses who came with a brain drain) tend to migrate to America, which has better working conditions (GHW, 2005).

In a study examining the motivations of Medical Faculty students, who constitute a qualified workforce contributing to Brain Drain by leaving Turkey, the primary reasons identified include the perception of a subpar healthcare system in Turkey and societal attitudes towards doctors. This research also showed that older students are more prone to brain drain than

beginner students and that students with better foreign language skills are more likely to migrate after graduation.

In the study, it was observed that the students who thought that the Turkish healthcare system was very bad had higher attitude scores towards brain drain than the students who thought it was very good, and the students who stated that the society's perspective on physicians was very bad compared to the students who stated that the society's perspective was very good. It has been determined that the most effective factor in students studying abroad staying abroad is the economic and political instability in Türkiye. It is known that instability causes many problems such as economic problems, decrease in investments, increase in social events, and the creation of an environment of insecurity, and plays an important role in qualified individuals going to other countries.

Unless improvements are made in their personal rights by synthesizing the ongoing problems in the country, medical faculty students who are considering emigrating will be able to stay in the country if their concerns are resolved.

#### **VII. Future Implications**

Brain drain is not a simple migration movement like other types of migration. The emigration of well-educated and good workforce from the country may cause much greater problems than the emigration of unskilled workforce. Such migration situations can cause visible problems, especially in the medium and long term. When we look at the opposite side of this, it can be a positive feedback for the receiving country. Immigrants who come with brain drain generally receive lower wages, which increases the marginal benefit in the production process. In addition to being beneficial for the development of the country, the productivity of immigrants can also close the gap in the labor market. Cultural diversity, a situation whose positive and negative aspect are mentioned in studies, is increasing.

In countries sending immigrants, the biggest loss is the loss of trained and costly skilled labor,

and therefore the country's development rate slows down. Human capital is slowing down and the deprivation of a qualified workforce that produces technology has a negative impact on future periods.

## VIII. Conclusion

Türkiye is a country that both receives and sends immigrants. This also applies to brain drain. Türkiye, which has been in a position to give more brain drain in the past, has recently been developing policies and strategies to receive brain drain. The geographical location of the country, its historical and cultural ties with many countries, kinship relations, the country's economy and the attractive incentives offered have an impact on the country's brain drain.

With the inferences we make from the research, the most common reason for brain drain by students and qualified workers is economic inadequacies. The deficiencies in personal rights and scientific and academic impossibility come after. The steps taken by Turkey are the first to provide more job opportunities for citizens who have qualified jobs or students at the University to prevent their migration. The fact that the salaries of qualified workers are increased equivalent to the world average will eliminate the economic dilemma. However, for qualified immigrants from countries that give brain drain, Turkey can be aimed to be an attractive route. For this, Turkey must offer good opportunities for people looking for a country that will make brain drain.

Supporting high-skilled labor migration was included in the Tenth Development Plan (2014-2018) and the Eleventh Development Plan (2019-2023). In the plans, it is stated that the increasing demand for qualified labor around the world and the freer movement of the workforce offer various opportunities for Türkiye. It has been stated that encouraging brain drain to Türkiye, especially from regional countries, in the areas of need will increase the qualified manpower resources in the country and make a positive contribution to the growth potential. It has been determined as a target for Türkiye to become a center in the fields of education and health and to benefit from international mobility to the maximum extent. Likewise, it is stated that the reasons for the brain drain abroad will be analyzed and within the framework of these analyses, studies will be carried out to ensure that the qualified workforce remains in the country and increases the returns (Ministry of Development 2013; Strategy and Budget Directorate 2019; Nakhoul 2014: 107)

Brain drain is a problem that Türkiye faces today, and its solution can be prevented by improving the rights and income status of professions with the right policies. Since Türkiye is a country with a high production and education capacity, it currently seems possible for Türkiye to prevent brain drain waves that may occur in the future with the right policies.

## REFERENCES

- Demirci, K. (2022). Türkiye'de Yaşayan Gençlerin Yurtdışına Beyin Göçü: 2017-2019 Yıllarına İlişkin Bir Analiz. *Sosyal, Beşeri ve İdari Bilimler Temel Alanında Akademik Çalışmalar - 1* (pp. 71-90). İstanbul: Karadeniz Kitap.
- Doğan, H. F. (1995). *Tarihsel Süre İçinde Türkiye'den Almanya'ya İşgücü Hareketleri ve Sosyo-ekonomik Etkileri*. İstanbul: Marmara Üniversitesi.
- Filiz, M., Karagöz, M. B., & Karagöz, N. (2022, December 12). Tıp Fakültesi Öğrencilerinin Beyin Göçüne Yönelik Tutumlarının Değerlendirilmesi. *Karadeniz Sosyal Bilimler Dergisi*, pp. 679-692.
- Karaca, İ., & Yurttaş, S. (2020, June 08). Motivation and Potentials of Healthcare Professionals to Migrate to Germany within the German Framework of the Skilled Immigration Act. *Journal of Human and Social Sciences*, pp. 1760-1788.



- Karaduman, H. A., & Çoban, E. (2019, Nisan 28). Brain Drain in Turkey: An Investigation on the Leading Motives of Skilled Migration. *Eurasian Journal of Researches in Social and Economics (EJRSE)*, pp. 323-339.
- Oliinyk, O., Bilan, Y., Mishchuk, H., Akimov, O., & Vasa, L. (2021, March 25). The Impact of Migration of Highly Skilled Workers on The Country's Competitiveness and Economic Growth. *Montenegrin Journal of Economics*, pp. 7-19.
- Öneri, İ. (2019). *Türkiye'den Beyin Göçü (2007-2017)*. Denizli: T.C. Pamukkale Üniversitesi.
- Taşdemir, D. Ö. (2023, June 26). Uluslararası Nitelikli İş Gücü Temini Üzerine Politika Yapma Kapasitesinin Geliştirilmesi Projesinde Yönetimsel Faaliyetler. *Milli Kültür Araştırmaları Dergisi*, pp. 116-133.
- Yılmaz, E. A. (2019, Kasım 26). Uluslararası Beyin Göçü Hareketleri Bağlamında Türkiye'deki Beyin Göçünün Durumu. *LAÜ Sosyal Bilimler Dergisi*, pp. 220-232.

## Trade, Technological Change, and Economic Development: A Study of Knowledge Transfer and Innovation Diffusion

Rengin Ak\*, Ceneta Telak Durmushi<sup>2</sup>

<sup>1</sup>Faculty of Economics and Administrative Sciences/International Balkan University, Republic of North Macedonia

<sup>2</sup>Faculty of Economics and Administrative Sciences/International Balkan University, Republic of North Macedonia

\*(aaa@xxxx.com) Email of the corresponding author, ORCID number

**Abstract** – This research aims to delve into the complex relationship between trade and technological innovation, focusing on how international trade channels influence the transfer of knowledge, drive technology adoption, and ultimately foster economic growth.

The primary objective of this study is to uncover the mechanisms through which trade facilitates the dissemination of technological knowledge across borders. By analyzing trade flows, patterns, and their correlation with technology adoption rates, the research seeks to identify the extent to which international trade serves as a conduit for the transfer of innovative ideas and practices. Moreover, the study will investigate the role of multinational corporations, cross-border collaborations, and intellectual property rights in facilitating or hindering this knowledge transfer process.

The research will also investigate the impact of technological diffusion through trade on economic development. Utilizing both quantitative and qualitative methodologies, the study will assess how technology-driven growth is influenced by factors such as institutional frameworks, education systems, and domestic innovation capabilities. By examining a diverse set of countries at different stages of development, the research aims to provide a nuanced understanding of the relationship between trade-driven technological change and varying economic outcomes.

In conclusion, this research seeks to contribute to the existing literature on international economics by shedding light on the intricate dynamics between trade, technological innovation, and economic development. By exploring the mechanisms of knowledge transfer, technology adoption, and their consequences, the study aspires to offer valuable insights for policymakers, businesses, and researchers seeking to harness the benefits of global trade in an increasingly interconnected world.

*Keywords* – International Economics, Trade, Technological Change, Knowledge Transfer, Innovation Diffusion, Economic Development

### 1. Introduction

In the current epoch marked by the relentless forces of globalization and the relentless march of technological progress, the intersection of international trade and technological innovation stands as a pivotal terrain for scholarly exploration. The profound impact of this intersection on global economic dynamics has captured the attention of

researchers and policymakers alike. Against this backdrop, this research embarks on a journey to unravel the intricate interplay between international trade and the diffusion of technological knowledge, accentuating the profound implications of these dynamics for fostering economic growth.

The contours of the contemporary global landscape underscore the imperative for a nuanced understanding of the mechanisms through which international trade acts as a catalyst for the transmission of innovative ideas and practices across national boundaries. The complex web of relationships that emerges in this interplay is central to shaping the trajectory of economies worldwide. As nations become increasingly interconnected, the study at hand seeks to provide a comprehensive exploration of how trade channels function as vital conduits for the transfer of transformative technological knowledge, thereby influencing the economic destinies of nations.

In navigating the complexities of this relationship, the research places a deliberate emphasis on uncovering the multifaceted nature of these interactions. From the dynamics of trade flows to the intricate processes of technology dissemination, this study delves into the various facets that contribute to the symbiotic relationship between international trade and technological innovation. Recognizing that these dynamics are integral to the very fabric of global economic evolution, the research aims to contribute to the academic discourse by shedding light on the underlying mechanisms that drive progress in an interconnected and technologically driven world.

## 2. Literature Review

The intersection of international trade and technological innovation has been a subject of sustained scholarly attention in the context of the contemporary globalized world. Researchers and economists have explored the multifaceted relationship between these two phenomena, recognizing the pivotal role they play in shaping the trajectories of nations and the interconnectedness of their economies.

### Trade as a Catalyst for Technological Diffusion:

A substantial body of literature underscores the role of international trade as a potent catalyst for the diffusion of technological knowledge across borders. Economists such as Romer (1990) and

Helpman and Krugman (1985) have advanced theoretical models highlighting how trade encourages the exchange of ideas and technologies between nations, fostering a dynamic environment for innovation and economic growth.

### Multinational Corporations and Cross-Border Collaborations:

The influence of multinational corporations (MNCs) and cross-border collaborations on the nexus between trade and technological innovation has garnered significant scholarly attention. Dunning's (1993) eclectic paradigm and the work of Caves (1996) emphasize the pivotal role of MNCs in transferring technology across borders, shaping global innovation networks.

### Intellectual Property Rights (IPR) and Knowledge Transfer:

Intellectual Property Rights (IPR) serve as a crucial dimension in the relationship between trade and technological innovation. The works of Maskus (2000) and Eaton and Kortum (1996) highlight the complex interplay of IPR in influencing the flow of knowledge across borders, providing insights into how legal frameworks either facilitate or hinder the transfer of innovative ideas.

### Institutional Frameworks and Economic Development:

The literature also delves into the impact of technological diffusion through trade on economic development. Acemoglu and Robinson's (2012) institutional theory, coupled with insights from Rodrik (2004) and Hall and Jones (1999), explores how the quality of institutional frameworks within a nation influences the effectiveness of technology-driven growth.

### Education Systems and Domestic Innovation Capabilities:

The nexus between education systems, domestic innovation capabilities, and technology-driven growth is another key theme in the literature. Building on the works of Lucas (1988) and Aghion and Howitt (1998), researchers have examined how investments in education and human capital

contribute to a nation's capacity for technological adoption and innovation.

In synthesizing these strands of literature, it becomes evident that the relationship between international trade and technological innovation is intricate and multi-dimensional. The research at hand seeks to build upon this rich body of knowledge by providing a nuanced understanding of how trade channels function as conduits for the transfer of innovative ideas and practices, thereby contributing to the broader discourse on the intricate dynamics that underpin global economic evolution.

### **3. Research Methodology**

#### **Research Methodology:**

This research employs a comprehensive and multi-method approach to delve into the intricate relationship between international trade and technological innovation, with a specific focus on their contributions to economic growth. The methodology is designed to investigate the mechanisms through which trade facilitates the dissemination of technological knowledge, explore the role of various factors in shaping this knowledge transfer, and assess the impact of technological diffusion through trade on economic development.

#### **Quantitative Analysis of Trade Flows and Technology Adoption:**

The study initiates with a quantitative analysis of international trade flows and patterns. Utilizing trade data from diverse nations, statistical models will be employed to identify trends and correlations with technology adoption rates. This phase aims to quantify the extent to which trade acts as a conduit for the transfer of innovative ideas and practices.

#### **Qualitative Examination of Multinational Corporations and Cross-Border Collaborations:**

To understand the role of multinational corporations (MNCs) and cross-border

collaborations in the knowledge transfer process, qualitative methodologies will be employed. Case studies of select MNCs engaged in technology transfer and cross-border collaborations will be conducted. In-depth interviews with key stakeholders will provide insights into the strategies and challenges associated with these mechanisms.

#### **Analysis of Intellectual Property Rights (IPR):**

The research will scrutinize the impact of intellectual property rights (IPR) on the relationship between trade and technological innovation. This involves a qualitative assessment of the legal frameworks governing IPR in select countries, complemented by a quantitative analysis of IPR-related indicators. The goal is to discern how IPR influences the flow of knowledge and technology across borders.

#### **Assessment of Economic Development Factors:**

The study assesses the impact of technological diffusion through trade on economic development through a combination of quantitative and qualitative analyses. Institutional frameworks, education systems, and domestic innovation capabilities will be evaluated. Indicators such as the World Bank's Governance Index and education spending data will be utilized to quantify the influence of these factors on technology-driven growth.

#### **Cross-Country Comparative Analysis:**

To capture the diverse dynamics at play, a cross-country comparative analysis will be conducted. This involves examining a varied set of countries at different stages of development. The comparative approach enables the identification of patterns and variations in the relationship between trade, technological innovation, and economic outcomes across different contexts.

#### **Integration of Quantitative and Qualitative Data:**

The findings from quantitative analyses, qualitative investigations, and cross-country comparisons will be integrated to provide a holistic understanding of the complex relationship under study. This

triangulation of data sources enhances the robustness of the research and allows for a nuanced interpretation of the mechanisms driving the interplay between international trade, technological innovation, and economic growth.

This comprehensive research methodology aims to uncover the intricate dynamics at the heart of the relationship between trade and technological innovation, offering a holistic perspective that combines quantitative rigor with qualitative insights. Through this approach, the research seeks to contribute valuable insights to the broader discourse on the evolving landscape of global economics.

#### **4. Results**

**Trade as a Facilitator of Technological Knowledge Transfer:**

The quantitative analysis of international trade flows and technology adoption rates revealed a robust correlation, providing empirical evidence that trade serves as a significant facilitator for the transfer of technological knowledge across borders. Nations with higher levels of international trade demonstrated a correspondingly higher rate of technology adoption, suggesting a tangible link between trade dynamics and the dissemination of innovative ideas.

**Role of Multinational Corporations and Cross-Border Collaborations:**

Case studies of multinational corporations engaged in cross-border collaborations substantiated their pivotal role in the knowledge transfer process. The empirical findings highlighted that MNCs act as influential conduits for the exchange of technological know-how, leveraging their global presence to facilitate the spread of innovation. The qualitative data underscored the importance of strategic alliances and collaborative ventures in enhancing the efficiency of technology transfer.

**Impact of Intellectual Property Rights (IPR) on Knowledge Flow:**

The analysis of intellectual property rights (IPR) revealed nuanced insights into their impact on the

relationship between trade and technological innovation. Countries with well-defined and enforced IPR frameworks exhibited a more structured and secure environment for knowledge transfer. However, the empirical findings also indicated potential challenges related to restrictive IPR regimes, which could hinder the free flow of technology across borders.

**Assessment of Economic Development Factors:**

The comprehensive assessment of economic development factors demonstrated that institutional frameworks, education systems, and domestic innovation capabilities significantly influence the outcomes of technology-driven growth. Countries with robust institutions, a focus on education, and strong domestic innovation ecosystems exhibited more sustainable and impactful economic development through technology adoption.

**Cross-Country Comparative Analysis:**

The cross-country comparative analysis unveiled variations in the relationship between trade, technological innovation, and economic outcomes across different developmental contexts. While technology-driven growth was evident in various nations, the empirical findings highlighted the importance of considering country-specific factors in shaping the effectiveness of trade as a driver for economic development.

**Integration of Quantitative and Qualitative Data:**

The integration of quantitative and qualitative data enriched the understanding of the complex interplay between international trade and technological innovation. The triangulation of findings reinforced the overarching conclusion that successful knowledge transfer relies on a combination of trade dynamics, the strategic involvement of multinational corporations, and supportive institutional frameworks.

In conclusion, the empirical findings of this research contribute valuable insights to the literature on international economics by substantiating the intricate dynamics between trade, technological innovation, and economic development. The evidence-based conclusions

emphasize the multifaceted nature of this relationship, providing policymakers, businesses, and researchers with concrete information to navigate the challenges and leverage the opportunities presented by an increasingly interconnected global economy.

## 5. Conclusion

In a world characterized by globalization and rapid technological advancement, this research has undertaken a comprehensive exploration of the intricate relationship between international trade, technological innovation, and economic growth. The empirical findings presented herein contribute valuable insights that deepen our understanding of the complex dynamics at play in this multifaceted landscape.

The research commenced with the recognition of international trade as a significant catalyst for the transfer of technological knowledge across borders. The empirical evidence derived from quantitative analyses of trade flows and technology adoption rates underscores the tangible link between the volume of international trade and the dissemination of innovative ideas. This substantiates the pivotal role of trade channels as conduits for the global exchange of transformative knowledge.

Multinational corporations and cross-border collaborations emerged as central actors in the empirical narrative, with case studies providing real-world evidence of their instrumental role in facilitating the transfer of technology. The findings highlight the strategic alliances and collaborative ventures that enable these entities to act as influential agents in the global diffusion of technological innovation.

The examination of intellectual property rights (IPR) added a nuanced layer to our understanding, revealing that while well-defined IPR frameworks contribute to a secure environment for knowledge transfer, overly restrictive regimes may pose challenges. This empirical insight emphasizes the delicate balance required in fostering an environment that encourages innovation while protecting intellectual property.

Assessing the impact of technological diffusion through trade on economic development, the research underlines the significance of institutional frameworks, education systems, and domestic innovation capabilities. The empirical findings emphasize that sustainable and impactful economic development is contingent on robust institutions, a focus on education, and the cultivation of strong domestic innovation ecosystems.

The cross-country comparative analysis further accentuates the contextual nature of the relationship between trade, technological innovation, and economic outcomes. The empirical diversity across nations underscores the need to consider country-specific factors in formulating effective policies and strategies to harness the benefits of trade-driven technological change.

The integration of quantitative and qualitative data has allowed for a holistic interpretation of the research findings, reinforcing the conclusion that the intricate interplay between trade and technological innovation is pivotal to shaping global economic evolution. As we navigate an increasingly interconnected world, these empirical insights provide valuable guidance for policymakers, businesses, and researchers seeking to harness the transformative potential of international trade in fostering sustainable economic growth.

In essence, this research contributes substantively to the existing literature on international economics by unraveling the complexities of the relationship between trade, technological innovation, and economic development. By shedding light on the mechanisms of knowledge transfer, technology adoption, and their consequences, the study aspires to be a valuable resource for stakeholders in an interconnected world, offering insights that transcend disciplinary boundaries and inform decision-making in a rapidly changing global

landscape

## References

- Acemoglu, D., & Robinson, J. A. (2012). *Why Nations Fail: The Origins of Power, Prosperity, and Poverty*. Crown Business.
- Aghion, P., & Howitt, P. (1998). *Endogenous Growth Theory*. MIT Press.
- Caves, R. E. (1996). *Multinational Enterprise and Economic Analysis*. Cambridge University Press.
- Dunning, J. H. (1993). *Multinational Enterprises and the Global Economy*. Addison-Wesley.
- Eaton, J., & Kortum, S. (1996). Trade in ideas: Patenting and productivity in the OECD. *Journal of International Economics*, 40(3-4), 251-278.
- Hall, R. E., & Jones, C. I. (1999). Why do some countries produce so much more output per worker than others? *The Quarterly Journal of Economics*, 114(1), 83-116.
- Helpman, E., & Krugman, P. R. (1985). *Market Structure and Foreign Trade: Increasing Returns, Imperfect Competition, and the International Economy*. MIT Press.
- Lucas, R. E. (1988). On the mechanics of economic development. *Journal of Monetary Economics*, 22(1), 3-42.
- Maskus, K. E. (2000). *Intellectual property rights in the global economy*. Institute for International Economics.
- Romer, P. M. (1990). Endogenous Technological Change. *Journal of Political Economy*, 98(5, Part 2), S71-S102.
- Rodrik, D. (2004). Institutions Rule: The Primacy of Institutions Over Geography and Integration in Economic Development. *Journal of Economic Growth*, 9(2), 131-165.

## THE EFFECT OF STRATEGIC HUMAN RESOURCE MANAGEMENT ON EMPLOYEES' MOTIVATION IN THE PUBLIC SECTOR” (ERBIL OF IRAQ AS A CASE STUDY)

Emdad khaleel Mahmood \*, Abdullah OĞRAK <sup>1</sup>

<sup>1</sup> Business Administration, Bursa Technical University, Turkey

<sup>2</sup> Business Administration, Soran University, Iraq

\*[emdad.khaleel@soran.edu.iq](mailto:emdad.khaleel@soran.edu.iq), 0009-0007-2246-4139

**Abstract** – Strategic Human Resource Management (SHRM) entails forward-looking planning for the development and implementation of HR initiatives that not only address organizational challenges but also significantly contribute to the achievement of enduring business objectives. To fulfill this objective, the researcher conducted a survey by administering questionnaires to employees across diverse organizations. The study focused on a randomly selected sample of 390 participants in Erbil, Iraq, specifically within the public sector. A meticulously designed survey comprising 40 questions, utilizing a Likert scale (five scores), probed into employee characteristics and motivational factors. Data analysis was executed using the SPSS program, employing descriptive statistics and binary logistic regression techniques. The findings underscored the influential factors that drive employee motivation, aligning with the multidimensional framework of psychological and sociological aspects. Recognizing and mastering these tasks, proposing solutions, and handling managerial responsibilities become more challenging. The study identified "Commitment," "Involvement," "HRMS Support," "Education," and "Income" as pivotal elements significantly impacting employee motivation within organizations. This research illuminates the intricate dynamics of motivating employees, emphasizing the importance of addressing multifaceted psychological and sociological dimensions in organizational management.

*Keywords* – Human resource management, Employee motivation, Human resource management strategy, Binary logistic regression, Erbil, Iraq.

### I. INTRODUCTION

In organizational management, Strategic Human Resource Management (SHRM) stands out as a holistic approach aimed at forming an optimal workforce to drive business growth. While many organizations focus on basic HR functions like recruitment and onboarding, SHRM emphasizes the strategic alignment of human resources with overall corporate goals. To successfully implement SHRM, it is essential to build upon foundational everyday HR practices, ensuring the systematic recruitment, hiring, and onboarding of the best-suited employees for organizational success (Mahajan and Mehta, 2012).

Motivation encompasses internal factors like needs and desires, influencing individual behavior. It is the driving force behind human actions, driven by both conscious and unconscious needs. In the context of employees, motivation is described as meeting their fundamental work-related needs. Fulfilling these needs leads to increased productivity, quality, and service. Employee motivation is further defined as the psychological forces shaping behavior direction, effort level, and persistence within an organization. Individual behavior is characterized by a range of possible actions, while effort signifies the degree of hard work invested (Hansson, 2007).



In the realm of work, determination refers to the employees' resilience in facing challenges and obstacles—whether they persist or give up. High motivation ensues when individuals choose effective and productive approaches, exert significant effort, and demonstrate diligence (Maslow, 1943) sets cash at the least pecking order level, and appears that others need to work as superior sparks to staff based on Maslow's pyramid underpins that cash tends to have a persuading impact on agents that endures as it were a brief period (two-factor demonstration of motivation).

## II. SUBJECT AND METHOD

To procure essential data for our research in 2021, we designed and disseminated a tailored questionnaire survey among employees situated in Erbil, Iraq. Our sample comprised 390 public sector employees. The gathered survey data underwent scrutiny in alignment with research inquiries and hypotheses. Descriptive statistics, including frequencies and percentages, were employed to tackle research questions, while binary logistic regression was applied for hypothesis analysis. All analyses for this study were carried out using the statistical software SPSS.

### *Binary logistic regression*

Binary logistic regression is a statistical technique employed to depict the association between a binary dependent variable and one or more independent variables. It gauges the likelihood of an event, such as success or failure, by considering the values of the independent variables.

The equation for binary logistic regression can be expressed as:

$$\log(p/(1-p)) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n$$

Where:

$\log(p/(1-p))$  represents the log odds ratio, which is the natural logarithm of the probability of the event occurring divided by the probability of the event not occurring.

$\beta_0, \beta_1, \beta_2, \dots, \beta_n$ : are the regression coefficients, which represent the effect of each independent variable on the log odds ratio.

$X_1, X_2, \dots, X_n$  are the values of the independent variables.

The logistic regression equation estimates the values of the regression coefficients ( $\beta_0, \beta_1, \beta_2, \dots, \beta_n$ ): based on the provided data, and these coefficients are used to predict the log odds ratio for new observations. By applying the inverse of the logistic function to the log odds ratio, we can obtain the predicted probability of the event occurring.

### *Odds ratio (OR)*

The odds ratio (OR) serves as a statistical measure to express the strength and direction of the association between two categorical variables. It gauges the likelihood of an event happening in one group in comparison to another. In binary logistic regression, the formula for determining the odds ratio (OR) for a particular independent variable (X) is:

$$OR = \exp(\beta * \Delta_X)$$

Where:

OR: represents the odds ratio.

$\exp()$ : denotes the exponential function.

$\beta$ : is the estimated regression coefficient for the independent variable X.

$\Delta_X$ : represents the change in the value of the independent variable.

The odds ratio (OR) reveals how the odds of an event change multiplicatively with a one-unit shift in the independent variable X, while keeping other variables constant. Calculating the odds ratio involves exponentiating the regression coefficient  $\beta$ . It's crucial to highlight that the odds ratio can be computed for each independent variable in a logistic regression model to evaluate their specific impact on the likelihood of the event taking place (Mokhtarimousavi, 2019).

## III. RESULTS AND DISCUSSION

### *Gender of Respondents*

According to the findings of the respondents' classification based on sexual orientation, 59% of respondents were male and the remaining 41% were female. This means that male staff is larger than female staff (Figure 3.1). One of the major benefits of progressed sex uniformity within the working environment may be a more cohesive and more profitable workforce. A College of Greenwich considers proposes that

giving more child care and senior care would free more talented ladies to return to work, which is nice for efficiency (Lauby, 2005).

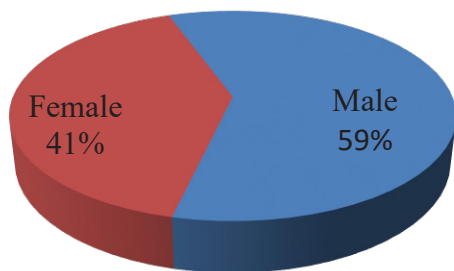


Figure 1 Gender of Respondents

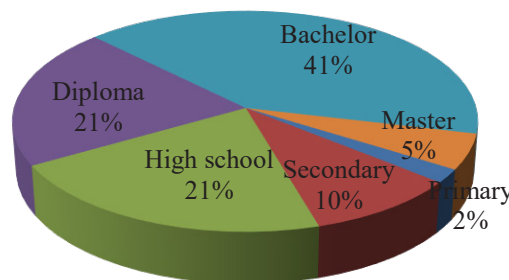


Figure 3 Education of Respondents

### Marital Status of Respondents

The results of the marital status showed that about 62% of the staff are married and 38% are single. Married employees have higher salaries and benefits than single employees (Figure 2.3). Inquiring about an employee's conjugal status after the contract isn't in itself prohibited. However, whereas there's no government law that disallows bosses from inquiring about an employee's conjugal status, a few states have made conjugal status a secured course. (Atkinson, 1964).

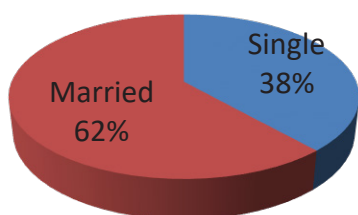


Figure 2 Marital Status of Respondents

### Education Background of the Respondents

Upon analyzing the findings, it is observed that 33% of the participants possess a lower level of diagnosis, whereas the remaining 67% hold an approval level. This discrepancy can be attributed to the educational requirements associated with

various positions, where certain roles necessitate a recognition degree, others demand a bachelor's degree, and top management positions typically require a postgraduate certificate. Furthermore, this outcome enhances the reliability of the data, as the majority of respondents are well-educated and exhibit a high level of awareness regarding the survey statements (Figure 3.3) (Fuhrmann, 2006).

### Income Group of Respondents

(Table 3.1) shows that A specialist is more likely to perform to his potential in the event that he's cheerful with the compensation he is winning. An individual winning a tall compensation feels persuaded to do great work; since he needs to if you don't mind his boss to hold his position. The monetary proportion salary per representative may be a degree of administration proficiency. The wage per representative takes the organization's working salary from the wage articulation and partitions it by the number of representatives required to create that income (Doyle, 2005).

### Income of Respondents

Table 1 Income of Respondents

Variables		Frequency	Percentage (%)
Income Group	less than 500	61	15.6
	500-800	121	31.0
	More than 800	208	53.4
<b>Total</b>		390	100.00

### Age of Respondents

(Table 3.2) illustrates that 60.8% of respondents are under 30 years old, while 39.2% are over 30. This data reflects the age distribution considered in the recruitment process for prospective employees. The organization, with its extensive history, tends to consistently hire individuals for specialized roles. Furthermore, the table indicates a significant portion of

the workforce falls within the 25 to 30 age range, suggesting a favorable environment for young individuals in Erbil's staff organization. This is attributed to the perception that younger employees bring enthusiasm, proficiency in mechanical training, multitasking abilities, and a greater openness to change, contributing to positive outcomes for the organization (Thomas, 1996). Also, the normal age of the respondents is 30-66.

Table 2 Age of Respondents

Age group	Frequency	Percentage (%)
< 25	56	14.4
25-30	153	39.2
> 30	181	46.4
Total	390	100.0

### *The Effect of Strategic Human Resource Management on Employees Motivation*

The strategic management of human resources has significantly transformed organizational performance, facilitated the attainment of performance objectives and enhancing competitiveness. Strategic Human Resource Management (SHRM) emerges as a vital tool ensuring organizational continuity. Individuals who exhibit high levels of motivation demonstrate notable adaptability, especially in the face of change, coupled with a positive work demeanor. Their contributions extend to enhancing the organizational reputation, mitigating absenteeism rates, and augmenting overall performance and profitability. Motivated individuals exhibit diligence in pursuing their objectives and approach their work with a heightened sense of urgency compared to their less motivated counterparts (Banfield, et.al, 2018).

### *SHRM Support in an Organization*

Concurring to the result of (Table 3.3), 21.8 % of the agents chosen to oppose this idea and expanded to 17.4 % concur almost "My organizational arranges some programs". In framework organization, coordination is the robotized setup, coordination, and administration of computer frameworks and computer programs. Other than that 26.7 % of the employees chosen to oppose this idea and diminished to 24.9 % concur on the term of "My organizational arranges trainings in order to increase my job quality".

In all circumstances, preparing increments benefits by upgrading employee fulfillment, diminishing stretch, and diminishing turnover. Encourage, 9.7 % of the agents chosen to oppose this idea and diminished to 20.5 % concur almost "My organizational has some rewards in order to". Programs are set up by an organization to remunerate execution and spur employees on the person and/or bunch levels. They are

ordinarily considered partitioned from compensation but may be financial in nature or something else have taken a toll on the company. By looking at the comes about of "My organizational managers recognize my efforts" it was found that 16.2% of respondents oppose this idea, 22.6% to some degree concur, Casual or formal affirmation of a person's behavior, exertion, or trade result that bolsters the organization's objectives and values, and surpasses his superior's typical desires (Daneshfard and Rad, 2017).

Table 3 Summary Statistics of SHRM Support Dimension

Variables		Frequency	Percentage (%)
<b>My organizational arranges some programs</b>	Strong disagree	82	21.0
	Disagree	85	21.8
	Somewhat agree	64	16.4
	Agree	68	17.4
	Strong agree	91	23.4
Total		390	100.0
<b>My organizational arranges trainings in order to increase my job quality</b>	Strong disagree	61	15.6
	Disagree	104	26.7
	Somewhat agree	67	17.2
	Agree	97	24.9
	Strong agree	61	15.6
Total		390	100.0
<b>My organizational has some rewards in order to</b>	Strong disagree	104	26.7
	Disagree	38	9.7
	Somewhat agree	72	18.5
	Agree	80	20.5
	Strong agree	96	24.6
Total		390	100.0
<b>My organizational managers recognize my efforts</b>	Strong disagree	101	25.8
	Disagree	63	16.2
	Somewhat agree	64	16.4
	Agree	88	22.6
	Strong agree	74	19.0
Total		390	100.0

Concurring to (Table 3.4), 15.1% of the employees chosen to oppose this idea and expanded to 26.2% concur approximately "I cannot stop myself thinking the benefits of my organization in every task". The benefits of employees' basic considering incorporate: finding numerous arrangements to issues. Viable communication between groups and personal employees. Creating special points of view on circumstances and challenges at work. Moreover, 21.0% of the employees chosen oppose this idea and expanded to 19.5% concur with the term "The benefits of my organization come first compared to mine". So, can realize that agents know what their directors anticipate from them for satisfying errands. Advertising benefits to your organization is imperative since it appears they you're contributed in not as it were there in general wellbeing, but their future. A strong organization benefits bundle can offer assistance to stability. Benefits can assist you to separate your execution from the organization.

Table 4 Summary Statistics of Commitment Dimension

Variables		Frequency	Percentage (%)
<b>I cannot stop myself thinking the benefits of my organization in every task</b>	Strong disagree	59	15.1
	Disagree	59	15.1
	Somewhat agree	87	22.3
	Agree	102	26.2
	Strong agree	83	21.3
Total		390	100.0
<b>The benefits of my organization come first compared to mine</b>	Strong disagree	77	19.7
	Disagree	82	21.0
	Somewhat agree	91	23.4
	Agree	76	19.5
	Strong agree	64	16.4
Total		390	100.0

### *Involvement of Employee in Organization*

Within the term of "I will be happy when I involved the overall" 19.2% of employees oppose this idea, 9.0% to some degree concur (Table 2.12). Locks in agents are basic for holding profitable ability and is a vital piece of the agent fulfillment perplex; as separated employees are more likely to take off their occupations. Concurring to Forbes, employees who are locked in in their work are more likely to be persuaded and stay committed to their boss. According to comes about remunerate features a positive and noteworthy impact on employee motivation. In expansion, 25.6% of the employees chosen oppose this idea and expanded to 22.1% concur approximately "I try to be in every part of the job". Contribute viably towards the fruitful working of an organization. They

endeavor difficult to convey their level best and accomplish the relegated targets inside the stipulated time outline. The agents play a critical part in choosing the culture of the working environment. Additionally, 27.2% of the respondents chosen oppose this idea and expanded to 5.6% concur approximately "I feel worse if I am not in the tasks to be". The significance of work determination is how it gives basic markers for candidates, who'll get it on the off chance that they have a significant encounter. Then again, your work portrayal incorporates data around a part to capture the consideration of candidates. Encourage, the result of "When I see my organization's success, I will be happy" is conceivable reflected 12.3% of the agents chosen to oppose this idea and diminished to 26.9% concur. Bliss is infectious and, when empowered, can spread all through a complete organization. Agents who take delight in their work make great part models for their individual specialists and energize them to take bliss in their work. Employees who really appreciate their work are more beneficial, more joyful, and more fruitful.

Table 5 Summary Statistics of Involvement Dimension

Variables		Frequency	Percentage (%)
<b>I will be happy when I involved the overall</b>	Strong disagree	84	21.5
	Disagree	75	19.2
	Somewhat agree	180	46.2
	Agree	35	9.0
	Strong agree	16	4.1
Total		390	100.0
<b>I try to be in every part of the job</b>	Strong disagree	36	9.2
	Disagree	100	25.6
	Somewhat agree	146	37.4
	Agree	86	22.1
	Strong agree	22	5.7
Total		390	100.0
<b>I feel worse if I am not in the tasks to be</b>	Strong disagree	36	9.2
	Disagree	106	27.2
	Somewhat agree	138	35.4
	Agree	22	5.6
	Strong agree	88	22.6
Total		390	100.0
<b>When I see my organization's success, I will be happy</b>	Strong disagree	56	14.4
	Disagree	48	12.3
	Somewhat agree	143	36.7
	Agree	105	26.9
	Strong agree	38	9.7

Total	390	100.0
-------	-----	-------

## Summary Statistics of Binary Logit Model for Social Demographic Characteristics of Employee

### Binary Logit Model for Employee Characteristics

The logit binary model was employed to assess the impact of staff characteristics on motivation within HR management systems (HRMS). Model statistics and prediction coefficients are presented in Table 2.21. The Nagelkerke R<sup>2</sup> coefficient, a robust metric indicating the strength of relationships (ranging from 0 to 1), is 0.35, signifying a substantial 35% association between predictors and the prediction Table (3.6).

The H-L goodness-of-fit test, evaluating the model's fit, yields a non-significant 0.960, surpassing the threshold of 0.05 for well-fitting models. This result suggests that the null hypothesis of no disparity between observed and model-predicted values is not rejected, indicating a reasonable alignment of our model with the data.

Beyond goodness-of-fit statistics, it is crucial to consider the accuracy of correctly classified cases. Our study demonstrates commendable accuracy rates of 91.3% in the take offer group and 51.9% in the decline offer group, resulting in an overall accuracy rate of 79.2%.

Noteworthy is the impact of "Education" on "Motivation," where a statistically significant coefficient reflects a positive effect. Conversely, the odds ratio of "Education" for motivation is 0.705, indicating a 29.5% lower likelihood of involvement in motivation.

Additionally, the statistically significant coefficient for "Income group" reveals a positive effect on "workplace inspiration for motivation and job satisfaction." The odds ratio of "Income" is 1.349, suggesting a 34.9% higher likelihood of involvement in motivation and job satisfaction..

Table 6 Summary Statistics of Binary Logit Model for Social Demographic Characteristics of Employee

Variables	Coefficient	Standard Error	P-value	Odds Ratio
Constant	0.098	1.413	0.945	1.103
Education	***0.350	0.243	0.019	0.705
Income	***0.300	0.150	0.046	1.349
-2 log likelihood	495.155			
Nagelkerke R <sup>2</sup>	0.35			
χ <sup>2</sup> (p: value)	30.78 (0.000)			
Correctly predicted	74.9%			

### Binary Logit Model for Employee Characteristics

The Nagelkerke R<sup>2</sup>, ranging from 0 to 1, serves as a robust indicator of the relationship strength. In our study, it stands at 0.40, denoting a robust 40% association between predictors and predictions (refer to Table 3.7). To ensure well-fitting models, a H-L goodness-of-fit test statistic below 0.05 is ideal. In our case, the statistic is 0.960, signifying non-statistical significance and affirming the model's commendable conformity to the data. Rather than solely relying on goodness-of-fit statistics, the emphasis should be on the accurate classification of cases. In our research, the take offer group achieved a 93.3% correct classification, whereas the decline offer group reached 62.3%, culminating in an overall accuracy of 85.1%. When the impact of independents is non-significant by the Wald statistic, it is prudent for analysts to consider their exclusion from the model. This adjustment is notable, elevating the correct arrangement to 40% beyond the constant model, underscoring the superiority of the indicator-inclusive model.

The findings from the binary logit model revealed a statistically significant association between organizational motivation and the factors of "Commitment," "Involvement," and "HRMS Support." Specifically, the analysis of the statistically significant coefficients demonstrated a positive impact of "Commitment" on "Motivation," with an odds ratio

of (5.681), indicating a 5.681 times higher likelihood of motivation with increased commitment.

Similarly, "Involvement" exhibited a positive influence on "Motivation," but the odds ratio for "Involvement" suggested a 0.40 times lower likelihood of participation in motivational organizations.

Examining the impact of "HRMS Support" on workplace motivation and job satisfaction, the statistically significant coefficient indicated a positive effect. The odds ratio for "HRMS Support" was (5.245), highlighting a 5.245 times higher likelihood of engagement in motivation and job satisfaction.

To further investigate the influence of employee characteristics on motivation and satisfaction, a binary logit model was employed. The descriptive statistics of variables within the model are presented in Table 3.7 for comprehensive analysis.

### Summary of the Binary Logit Model for Employees Characteristics

Table 7 Binary Logit Model for Employees Characteristics

Variables	Coefficient	Standard Error	P-value	Odd Ratio
Constant	***1.245	0.288	0.006	0.228
Commitment	***1.737	0.398	0.010	5.681
Involvement	***3.225	0.553	0.030	0.40
HRMS support	***1.657	0.385	0.002	5.245
-2 log likelihood	388.462			
Nagelkerke R <sup>2</sup>	0.40			
χ <sup>2</sup> (p-value)	83.314 (0.000)			
Correctly predicted	84.1%			

## IX. CONCLUSION

The level of organizational efficiency in the public sector was in line with the point of view of scientific

management. The public sector focuses on the standards required for the quality of work and daily practice. The application of SHRM adjustment techniques leads to increased ability, specialization, and polishing skills among the staff. SHRM compensation techniques also reduce the time required to complete the task at hand. SHRM adjustment techniques help the government to encourage strategies to help work speed up decision-making. The public sector relies on a variety of human resources to gather available opportunities and to collect information and data related to candidates for use in registration.

The frequency with which human resources are prepared for the future of their work. The government department considers the competencies and talents of human assets in the performance of operators and also the staff is often studied through executive criteria. This reward has an impact on human resources, which has helped to increase the efficiency of the public sector in the pursuit of the goals of the organization. The strong connection between SHRM methodologies and organizational implementation. Also, there is a strong relationship between the five human resource management practices that are evaluated in this dissertation (registration and appointment, preparation and promotion, human resource retention, punishment, and reward) and organizational efficiency.

The income technique had the highest positive relationship with organizational performance. At the same time, punitive testing has the weakest relationship with organizational performance. Apart from the methodology of the rewards, it had the most significant real effect on the performance of the public sector. On the other hand, registration and selection have the weakest influence on organizational performance. Staff's motivation for keeping staff happy and not looking for other jobs makes a difference. Managers should not overlook the importance of motivation. Unmotivated motives that are frustrating can lead to ongoing job complaints from Staff.

## REFERENCES

Mahajan, G. and Mehta, V., 2012. Hrms: Is The Role Changing From Being Administrative To Strategic? International Journal of Computers & Technology, 3(1b),

Hansson, B. (2007). Company Based Determinants of Training and the Impact of Training on Company Performance: Results from an International HRM Survey. Personnel Review, 36(2), 311-331

Maslow, A.H., 1943. A Theory of Human Motivation. Psychological review, 50(4), p.370.

Mokhtarimousavi, S., 2019. A time of day analysis of pedestrian-involved crashes in California: Investigation of injury severity, a logistic regression and machine learning approach using HSIS data. Institute of Transportation Engineers. ITE Journal, pp.25-33.

Lauby, S.J., 2005. Motivating employees (Vol. 510). American Society for Training and Development.

Atkinson, J.W., 1964. An introduction to motivation.

Fuhrmann, T.D., 2006. Motivating employees. *Advances in Diary Technology*, 18(2), pp.93-101.

Doyle, S., 2005. *The Manager's Pocket Guide to Motivating Employees*. Human Resource Development.

Thomas, A.S. and Ramaswamy, K., 1996. Matching Managers to Strategy: Further Tests of The Miles and Snow Typology. *British Journal of Management*, 7(3), pp.247-261.

Banfield, P., Kay, R. and Royles, D, 2018.. *Introduction to Human Resource Management*. Oxford University Press.



# ICOFESP

INTERNATIONAL CONGRESS ON FINANCE, ECONOMY AND SUSTAINABLE POLICIES

**04-06 SEPTEMBER 2023, SKOPJE**

REF: Akademik Teşvik

23.11.2023

## İLGİLİ MAKAMA

I. INTERNATIONAL CONGRESS ON FINANCE, ECONOMY AND SUSTAINABLE POLICIES 04-06 Eylül 2023, Üsküp / Kuzey Makedonya'da 12 farklı ülkenin (Türkiye 21, Diğer Ülkeler 29) akademisyen / araştırmacılarının katılımıyla gerçekleşmiştir. Kongre 16 Ocak 2020 Akademik Teşvik Ödeneği Yönetmeliğine getirilen "Tebliğlerin sunulduğu yurt içinde veya yurt dışındaki etkinliğin uluslararası olarak nitelendirilebilmesi için Türkiye dışında en az beş farklı ülkeden sözlü tebliğ sunan konuşmacının katılım sağlaması ve tebliğlerin yaridan fazlasının Türkiye dışından katılımcılar tarafından sunulması esastır." değişikliğine uygun düzenlenmiştir.

Bilgilerinize arz edilir,  
Saygılarımla

**Prof. Dr. Rengin AK**

Chair of Organizing Committee

[www.icofesp.com](http://www.icofesp.com)

[info@icofesp.com](mailto:info@icofesp.com)







9 786250 017043

# ICOFESP

INTERNATIONAL CONGRESS ON FINANCE, ECONOMY AND SUSTAINABLE POLICIES

**04-06 SEPTEMBER 2023, SKOPJE**

[www.icofesp.com](http://www.icofesp.com)