ИНСТИТУТ ЗА ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ НА БЪЛГАРСКАТА АКАДЕМИЯ НА НАУКИТЕ

ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ

ECONOMIC STUDIES

Volume 34, Issue 6, 2025

CONTENTS

Publication of this issue 6/2025 of Economic Studies journal is supported by the Bulgarian National Science Fund at Ministry of Education and Science.

ECONOMIC RESEARCH INSTITUTE AT BULGARIAN ACADEMY OF SCIENCES

ECONOMIC STUDIES
Volume 34(6), 2025

To be cited as *Economic Studies (Ikonomicheski Izsledvania), 34(6), 2025.*

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ISSN 0205-3292

ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ
ECONOMIC STUDIES
Volume 34(6), 2025

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STRATEGIES FOR ENHANCING GLOBAL ECONOMIC RESILIENCE: A FOCUS ON INTERNATIONAL FINANCIAL STRUCTURES AND THEIR IMPACT[6]

In the context of increasing global economic volatility, ensuring financial stability and resilience has become crucial. The role of international financial institutions like the International Monetary Fund and the European Central Bank in maintaining economic resilience is more important than ever. This research aims to analyze the mechanisms employed by the IMF and ECB to foster global economic resilience and sustainability, with a focus on their lending systems, financial stability assessments, and cyber resilience initiatives. The study uses a combination of qualitative and quantitative methods, including an analysis of international financial policies, safeguard assessments, lending mechanisms, and cyber resilience frameworks. Data from the IMF, ECB, and various financial indices were examined to assess the effectiveness of these strategies. The research finds that the IMF's lending mechanisms, such as the Extended Credit Facility and the Stand-by Credit Facility, have been instrumental in supporting the economic stability of low- and middle-income countries. The ECB has significantly improved the resilience of European banks, reducing non-performing loans by over 70% between 2015 and 2023. Furthermore, the study identifies the growing importance of cyber resilience in protecting financial systems, with the ECB implementing over 100 cyber resilience stress tests. Achieving global economic resilience requires a comprehensive approach, including enhancing financial structures, addressing inequality, and ensuring strong governance at both national and international levels. Effective international cooperation, particularly in the areas of lending and cyber resilience, is essential for long-term economic stability. The results of this research provide valuable insights for policymakers and international financial institutions. They highlight the importance of strengthening financial regulations,

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[6] This paper should be cited as: *Abdullayev, K., Tkachenko, A., Metreveli, S., Maziashvili, N., Bichai, V. (2025). Strategies for Enhancing Global Economic Resilience: A Focus on International Financial Structures and Their Impact. – Economic Studies (Ikonomicheski Izsledvania), 34(6), pp. 3-20.*

improving national governance frameworks, and expanding efforts in financial system cybersecurity to mitigate emerging risks and ensure sustainable development.
Keywords: external audit; credit mechanism; liquidity; cyber resilience; carbon dependency
JEL: E44; F33; F02; F36; G15

1. Introduction

Economic and financial risks pose one of the most significant challenges to the modern global economy, as the factors influencing the interconnectedness of financial markets and the challenges posed by global economic risks have been magnified in recent years. Economic inequality, particularly in low- and middle-income countries, exacerbates vulnerability to economic crises. Climate change, with its profound impacts on agriculture, infrastructure, and health, further deepens these inequalities. For instance, small island nations in the Pacific face existential risks due to rising sea levels, while sub-Saharan Africa struggles with agricultural productivity losses, further heightening economic disparities.

In the current global context, characterised by economic crises, geopolitical tensions and technological disruptions, the resilience of the global economy is of paramount importance. This paper examines the ways in which international financial institutions, notably the International Monetary Fund (IMF) and the European Central Bank (ECB), have developed in order to reinforce global economic resilience. The research investigates the efficacy of financial mechanisms, such as lending facilities and safeguard assessments, in promoting sustainable economic development and identifies key strategies for enhancing the financial stability of vulnerable economies. By examining the experiences of countries in the post-Soviet region, the study emphasises the importance of cyber resilience and other innovative strategies in enhancing the global financial system. In conclusion, the paper posits that the attainment of global economic resilience necessitates the implementation of comprehensive and coordinated strategies that encompass the involvement of both international financial institutions and national governments.

This research is vital for identifying tools that facilitate international financial flows, particularly for governments and organizations promoting sustainable development. Sustainable development refers to economic growth that meets the needs of the present without compromising the ability of future generations to meet their own needs, integrating environmental, social, and economic considerations. Furthermore, analyzing the functioning of financial structures can help identify the most effective and potentially significant structural changes and tools for financial regulation. This is particularly important in the context of globalized international trade, as all existing financial structures must adapt to new challenges, threats, and opportunities. Secondly, a detailed study of the functioning and methods of ensuring the resilience of modern financial structures can help build trust among both market participants and investors. Global economic resilience is the capacity of the global economy to recover from or adapt to shocks, maintaining stability and fostering growth despite challenges like pandemics, wars, and climate change. Moreover, understanding and systematizing key vulnerabilities aids in predicting and minimizing risks to global financial systems in the future, and contributes to the development of more effective risk management and prevention measures.

International financial structures, such as the IMF and the ECB, play a crucial role in supporting global economic stability. These institutions are responsible for providing financial support, policy advice, and regulation to ensure the continued functioning of the global economy. By strengthening the financial stability of their member countries, they contribute to global economic resilience.

Economic sustainability is also crucial for businesses, as long-term growth is impossible without preserving natural and human resources. It is no longer feasible for businesses to compromise their environmental or community standards in pursuit of uninterrupted economic expansion. Such actions inevitably give rise to circumstances that jeopardise the stability of their operational environment. The integration of environmental and social considerations into business strategies offers dual benefits: it benefits the planet in the long term and offers numerous advantages for businesses. For example, the concept of economic sustainability can assist organisations in evaluating their operations with a view to monitoring energy losses, thereby facilitating the identification of potential cost savings. Companies' implementation of optimal social practices can result in a reduction in employee turnover and an increase in productivity. Furthermore, economic resilience enables businesses to secure contracts from clients and governments, while also enhancing customer loyalty (Prysmian, 2024).

In the existing literature, numerous authors have examined the relationship between economic sustainability and corporate growth. In a recent study, O. Baranovskyi (2024) examined the role of international financial structures in addressing crises, with a particular focus on the response to the global pandemic caused by the SARS-CoV-2 virus. The author emphasised the importance of financial frameworks that integrate sustainability principles. In a similar vein, O. Kuzminska (2022) examined the definitions of "economic security" and "financial security", underscoring the importance of grasping these concepts in order to identify potential threats to sustainable economic development. This is corroborated by the findings of V. Bondaruk's (2024) research, which examined the function of risk management in guaranteeing the financial resilience of businesses. The study emphasised that an integrated approach to risk and sustainability is vital for long-term viability.

Furthermore, literature on the utilisation of cryptocurrencies in international markets, as exemplified by the work of A. Oliinyk and I. Denkova (2023), identify the nascent advantages and threats to financial security. It is observed that cryptocurrencies present considerable challenges to economic stability, yet also offer novel opportunities for sustainable financial models. V. X. Rauf (2024) conducted an analysis of banking operations and strategic planning, positing that a comprehensive approach to risk management and financial resilience in countries such as the USA and Germany is instrumental in maintaining global financial stability, which is a prerequisite for sustainable economic practices. S.Y. Mammadova (2024) emphasised the necessity of aligning the regulatory framework for financial markets, suggesting that a unified approach could markedly enhance global financial sustainability.

In contrast, in analysing the social dimension, V. Papava (2022) explored how geopolitical crises such as the “Oil War” and the “Food War” destabilised the global economy, illustrating that the pursuit of economic growth at the expense of environmental or social stability is unsustainable. A comparable emphasis on institutional financial practices is evident in A. Mzhvanadze’s (2023) investigation of internal financial auditing, particularly within the context of Georgia. The implementation of such practices is regarded as a pivotal step towards aligning financial institutions with the EU’s sustainability objectives.

Based on the preceding, the research aimed to systematize the most effective mechanisms and practices for the sustainability of international monetary organizations, which can be applied at a national level. The research tasks involved an analysis of the implementation of sustainability tools within the IMF and the ECB.

2. Materials and Methods

This research used a mixed-methods approach, integrating both qualitative and quantitative analysis, to assess the effectiveness of international financial structures in promoting global economic resilience. The study focused on the mechanisms implemented by the IMF and the ECB, examining their policies, strategies and impact on financial stability.

To establish the conceptual and categorical framework of the research, the term “global” or “world economy” was analysed using the Cambridge Dictionary (2024), while the importance of trade within the global economy was contextualised using a National Geographic publication (2022). The IMF’s activities, policies and lending mechanisms, such as the Extended Credit Facility, Stand-by Credit Facility and Rapid Credit Facility, were analysed using data and documents from the IMF’s official website. This included a detailed review of the safeguards assessment policies and their impact on financial management. In addition, the IMF’s evolving focus on climate change and sustainability was examined through speeches and reports, in particular by IMF Managing Director Kristalina Georgieva.

Quantitative analysis was used to assess trends in financial stability and credit investment, particularly in Azerbaijan, using data from the Statistical Yearbook of Azerbaijan (2023). Changes in the share of credit investment in the Azerbaijani economy over the past decade were calculated and analysed in the context of the country’s broader economic reforms and sustainable development objectives. The qualitative analysis included a review of the ECB’s financial stability and resilience policies. Information was drawn from ECB publications, regulatory documents and expert speeches. A critical focus was placed on cybersecurity measures, including the ECB’s TIBER-EU framework for red-teaming exercises. These tests simulate cyber-attacks in order to assess the resilience of banking systems. Complementary methods, such as “purple-teaming” for enhanced collaborative training, have also been explored.

Data on international cybersecurity indices, including the International Telecommunication Union’s Global Cybersecurity Index, MixMode Threat Research reports and national cybersecurity indices, were analysed to assess the security posture of critical financial infrastructure in different regions. These indices provided a comparative framework for assessing the resilience of financial systems in countries such as Azerbaijan, Georgia and Ukraine against global leaders such as the US and Germany.

The study also examined legislative developments, such as the EU Regulation 2023/2841, which focuses on inter-institutional cybersecurity coordination. This included an analysis of its provisions to enhance the cyber resilience of financial institutions through cooperation mechanisms involving the Interinstitutional Cybersecurity Board and the Computer Emergency Response Team (CERT-EU).

While the analysis provided comprehensive insights, the study faced limitations, particularly with respect to the availability of recent data on IMF examinations and regional cybersecurity indices. In addition, changes in the geopolitical landscape post-2024 may have influenced the dynamics of financial stability, which future research should address by incorporating longitudinal data and broader geographic analyses.

3. Results

According to the Cambridge Dictionary (2024), the global or world economy refers to the system of industry and trade worldwide that has evolved as a result of globalization, that is, within a unified system. The global economy is closely linked to trade, allowing countries to access resources they do not produce domestically. While the global economy aids financial stability, it also during periods of relative calm on the world stage; on the other hand, during times of geopolitical shifts and even conflicts, it poses a challenge for governments with developing economies (National Geographic, 2022). As a financial institution aimed at achieving sustainable economic growth, the IMF promotes policies that foster higher productivity, job creation, and improved economic well-being for all its member countries. This is achieved through support for economic policies that contribute to greater financial stability and cooperation in the monetary and financial sphere (International Monetary Fund, 2024h).

The safeguards assessments policy is key to financial stability (International Monetary Fund, 2024b), which was introduced in March 2000 to address cases where misleading information is provided to IMF representatives or misuse of the organization's resources is detected. In a 2002 IMF press release announcing the final adoption of this policy as a permanent measure, it was noted that despite improvements in the safeguards of some central banks in recent years, significant vulnerabilities in control mechanisms had still been identified. In particular, many financial reports from some central banks were not subject to external audits according to internationally accepted standards. Some of these central banks exhibited weak control over foreign exchange reserves and had poor reporting to the organization, while others had accounting practices that did not meet requirements within their organizational structures. By 2024, hundreds of governments were included among those requiring security measures assessments (Table 1).

Table 1. Number of IMF member countries to which the safeguard assessment policy was applied

Transition period (2000)	2001-2007	2008-2013	2014-2023	As of July 2024	Total
27	116	114	139	7	403

Source: compiled by the authors based on International Monetary Fund (2024e).

Most of the participating countries, to which the safeguards assessments policy was applied, were transitional economies. Among them, for example, were countries such as Ghana, Nepal, Gambia, Afghanistan, and Bangladesh. Moreover, the mechanism was even applied once in Portugal. The overall trend was characterized by the fact that almost every country underwent a thorough review according to the new policy more than once. In this context, the example of the Central Bank of Azerbaijan, to which the mechanism was applied only once in 2002, is illustrative. It can be emphasized that there has been a positive trend in reducing the proportion of credit investments in the economy, which stood at 28% of the total amount in 2010 but had decreased to just 17.9% by the end of 2022 (State Statistical Committee of the Republic of Azerbaijan, 2023). Overall, the modern Azerbaijani economy is deeply focused on attracting investments in the digital economy, which helps the government to ensure sustainable growth and stimulate technological progress in the most effective way (Abdullayev et al., 2024).

The safeguard assessment is conducted based on six key factors. Firstly, a thorough examination is carried out to determine whether appropriate structures and mechanisms for independent oversight of operations have been established within the central bank, the procedure for appointing heads of financial structures and whether these individuals possess the necessary knowledge and skills to perform their duties. Secondly, an assessment is made of whether the central banks publish audits following international standards. If so, what is the process for selecting external, independent auditors and whether these auditors communicate with individuals directly involved in the functioning of the banking system, such as the board of directors? Thirdly, an assessment is made of the transparency mechanisms of the central bank and a check is made to ensure that the central bank is protected from government influence and the reversal of previously adopted decisions in the area. Fourthly, a check is made to ensure that the central bank management adheres to international accounting standards, how timely the necessary reports are published, and whether such data is consistent with the data provided within the framework of the IMF. Fifthly, a check is made to ensure that the internal audit mechanisms comply with international standards and to what extent such an audit can independently assess the quality of financial risk assessment processes within the banking system. The final point relates to a check for the existence of internal control mechanisms for foreign exchange reserves, lending, and currency and banking operations (International Monetary Fund, 2024b).

In the context of the developing global economy, the IMF's decision to ease debt obligations for poor countries demonstrates the organization's commitment to fostering conditions for sustainable growth in the international community, even in the most challenging circumstances. The types of assistance can vary from financial to other forms of support.

The three primary mechanisms for IMF lending to low-income countries differ in purpose and urgency. These are summarized in Table 2.

Table 2. Overview of IMF lending mechanisms for low-income and middle-income countries

Lending Mechanism	Purpose	Eligibility	Characteristics
Extended Credit Facility	Long-term support for balance of payments	Low-income countries	Focuses on sustainable economic reforms
Stand-by Credit Facility	Short-term financial needs	Middle-income nations	Targets temporary balance of payment issues
Rapid Credit Facility	Urgent assistance	All qualifying nations	Disburses funds quickly during emergencies

Source: compiled the authors based on International Monetary Fund (2024a), International Monetary Fund (2024f), and International Monetary Fund (2024c).

For the first time within the organization, an institutional position was adopted in 2012 when many governments were in the process of forming their markets and combating chaotic and unstable capital flows. Its formation was based on the financial crises of the 1990s, as well as on the consequences of the 2008-2009 global crisis, to address issues related to the liberalization of capital flows systematically. The revision of its institutional position in 2022 was linked to the impact of the coronavirus pandemic, which directly impacted the global economy (Rambarran and Khatun, 2023). The current institutional stance of the IMF on capital flows is that governments need greater flexibility to make decisions relating to two main categories of instruments – measures for regulating capital flows and macroprudential measures. As a result, the update to the institutional position involved adaptation and the acquisition of new knowledge within the IMF's expert community, as well as an expansion of the policy toolkit for emerging market economies. Another goal was to empower member countries to use the new toolkit to ensure financial stability, even in cases where capital flows in unstable global economies are highly dependent on global financial conditions.

IMF Managing Director Kristalina Georgieva noted that the 2020s could become either the "Tepid Twenties" or "the Transformational Twenties" (International Monetary Fund, 2024g). One of the main factors reducing the resilience of global financial systems was the pandemic, wars, and overall geopolitical tensions. Of course, some governments may benefit from this geopolitical situation by becoming "linking elements" in supply chains, but over time new difficulties and barriers may arise, as well as additional financial costs. In this regard, the IMF has stepped up its efforts to assist governments that have been most affected by challenges such as climate change and the transition to digital technologies. As of 2024, 18 member countries have used the resources of the Trust Fund to normalize financial operations and achieve sustainable development conditions. Moreover, IMF member countries have supported a 50% increase in the organization's permanent resources to provide loans and other financial support to the poorest member countries.

For countries with developing economies, there is a pressing need for continuous and substantial capital investment. This need is driven by their transition to low-carbon policies, addressing biodiversity loss, and managing cross-border impacts resulting from global climate changes. According to an Independent Expert Group (2023), emerging and developing economies need to invest around 3 trillion USD by 2030 in key areas that will help achieve low-carbon dependency and rapid economic growth. Domestic investments should account for two-thirds of this amount, or about 2 trillion USD, while external investments, i.e., from international creditors, should account for around 1 trillion USD. This is why international cooperation is essential to help developing economies rapidly mobilize the financial resources they need.

To address the challenges outlined above, the IMF created the resilience and sustainability facility (International Monetary Fund, 2024d). Its goal is to provide long-term financing to enhance economic resilience and sustainability by supporting reforms in areas of economic policy related to climate change risks and pandemic preparedness. Eligibility for assistance extends to all governments of low-income countries that meet certain criteria, as well as countries with populations under 1.5 million and a gross national income per capita exceeding the International Development Association's operational cutoff by 25 times (for low-income countries) and 10 times (for middle-income countries). In total, as of 2024, there are 75 countries eligible for International Development Association resources, with the majority located in Africa, East, South, and Central Asia, as well as Latin America, the Caribbean, and the Middle East (World Bank, 2023).

The effectiveness of IMF policies varies considerably depending on regional economic contexts and structural conditions. In Africa, for example, IMF-supported Extended Credit Facilities have shown measurable improvements in economic stability, particularly in countries such as Ghana and Uganda, where improved fiscal discipline and public financial management reforms have been implemented. However, similar programmes in South America, such as in Argentina, have often been criticised for exacerbating socio-economic inequalities through austerity measures imposed as loan conditions.

A cross-regional comparison shows that while African countries have benefited from the technical assistance that accompanies IMF programmes, success in Latin America has been less consistent due to complex socio-political dynamics and greater reliance on external debt markets. This underscores the need to tailor IMF interventions to the specific development and governance challenges of each region.

Moreover, regions with advanced economies, such as the euro area, have different dynamics. Here, IMF engagement often focuses on macroeconomic stabilisation rather than poverty reduction, as seen during the European sovereign debt crisis, when countries such as Greece benefited from Stand-By Arrangements. However, the structural reforms imposed, including tax increases and pension cuts, provoked significant public opposition and prolonged economic hardship.

Countries such as Costa Rica, Barbados, Rwanda, Bangladesh, and Jamaica were among the first to participate in the new financing program, and by March 2024, 18 participants joined, falling short of the IMF's projection of over 30. Capitalized resources under the program amounted to 40 billion USD in 2024, but given the trillions of dollars needed by low-income countries to achieve their climate adaptation goals, there is a need to attract additional funds from reserves and other sources in the most effective way possible (International Monetary Fund, 2022). As a result, the IMF leadership has indeed taken and continues to take decisive actions towards a sustainable global economy, as one of the most important actors in international relations within the globalized economic system of the 21st century. At the same time, the rapid changes in the geopolitical landscape, coupled with natural disasters, signal the need to accelerate all institutional processes within the organization.

Another significant actor on the international stage, responsible for price stability in the eurozone, is the ECB. The European Central Bank (2024a) oversees all banking systems in the eurozone, helping to keep depositors' funds safe and making the banking system more reliable overall. In a speech by C. Buch (2024), Chair of the Supervisory Board of the ECB, characterized the risks and resilience of the European banking sector. A qualitative change has been the increased resilience of European banks over the past decade, driven by several factors. Firstly, the level of non-performing loans has decreased significantly, which previously had a very negative impact on the European banking system. While in 2015 the level was at 7%, by 2023 non-performing loans had fallen to less than 2%. Secondly, resilience has been enhanced through better capitalization. According to the Common Equity Tier 1 ratio, which measures a bank's capital against its assets to assess its ability to withstand economic shocks, this ratio increased by nearly 3% between 2015 and 2023. The third factor contributing to increased resilience was a 20% rise in bank liquidity over the same period. The final factor was an overall improvement in risk management across the European banking system.

However, alongside the undeniable achievements of the European banking structure in terms of resilience to shocks and threats, the risk environment has also evolved and transformed. One such challenge is posed by cyber threats to banking systems. On the one hand, digitalization has helped to reduce costs and increase efficiency in the delivery of services to end customers. On the other hand, the increased use of outsourced services by banks has made them more vulnerable to cyberattacks. In this context, the decisions of the ECB's Banking Supervision regarding stress tests of banking systems in the event of cyberattacks are crucial. The essence of a stress test is to assess how a particular bank would respond to a cyberattack. Failure to respond adequately would mean that the bank would subsequently be unable to provide its services. The aim is also to understand how members of the banking structure would report the incident not only to the ECB's specialist experts but also to their customers (European Central Bank, 2024b).

Another risk and threat assessment and warning system, known as TIBER-EU, was developed in 2018 through a joint effort of experts from the ECB and national central banks across Europe (European Central Bank, 2024d). Essentially, it is a European framework for ethical "red-teaming" based on threat intelligence. "Red-teaming" itself is a process of testing an organization's cyber resilience by simulating the tactics and techniques of real-world adversaries. Depending on the scale and objectives of a TIBER-EU exercise, it may involve:

- a "blue team" – the test subjects within the organization, who are unaware of the testing;
- a "red team" – with the aim specified above;
- a "white team" – a part of the test subject's team that is aware of the testing and assists in its execution; and the TIBER-EU cyber team itself, which ensures the proper conduct of the testing and compliance with all relevant regulatory requirements.

As of January 2023, more than 100 such tests have been carried out (European Central Bank, 2024d; International Business Machines, 2023).

In addition to “red-teaming”, ECB specialists have also developed a “purple-teaming” scenario, which involves collaborative activity between both the “red team” and the “blue team” (European Central Bank, 2022). Such a test is not a replacement for “red-teaming” as the primary cybersecurity resilience testing, during which the testing remains confidential. Instead, this type of testing is intended for preliminary preparation or the general enhancement of knowledge for both the test subjects and the test organizers. Beyond the aforementioned cybersecurity mechanisms, the overall creativity of employees and the level of innovative infrastructure implementation within both the ECB and European central banks can also play a significant role in ensuring the resilience of the banking system (Korsunska et al., 2022).

Equally important, ECB experts and staff actively collaborate with other institutions within the EU. The most significant collaboration for enhancing the central banking institution’s cyber resilience is the joint response to cyberattacks with CERT-EU for the EU institutions, bodies, and agencies) (European Central Bank, 2024c). In the context of security, Bruce Schneier, a renowned cybersecurity expert, has noted that security itself is not a product but a consequence of a process (Computer Emergency Response Team, 2024). This is precisely the foundation of CERT-EU’s activities: responding to cyber incidents, facilitating knowledge sharing, and providing prevention and detection measures to ensure cybersecurity for all EU institutions, including the banking sector.

To enhance interinstitutional coordination, the Regulation of the European Parliament and of the Council No. 2023/2841 (EUR-Lex, 2023) established measures to ensure a high common level of cybersecurity across Union institutions, bodies, offices, and agencies. This Regulation of the European Parliament and of the Council No. 2023/2841 (EUR-Lex, 2023) established the Interinstitutional Cybersecurity Board to more effectively ensure a high level of cybersecurity for European institutions. The new institution's responsibilities include:

- providing recommendations to the CERT-EU management team;
- supporting EU organizations in strengthening their cybersecurity;
- adopting, assessing, and modifying cybersecurity enhancement strategies;
- taking into account information on identified cybersecurity risks and lessons learned provided by CERT-EU;
- monitoring the adequacy of interconnectivity mechanisms between the ICT environments of EU entities;
- monitoring the adoption of cyber crisis management plans by individual EU entities.

The adoption of this Regulation was driven by the overall trend of digital transformation, which is making all institutions within the EU more vulnerable to cyber threats. Consequently, EU Member States have a high cyber resilience ranking (Table 3).

Table 3. Cybersecurity assessment

Country	International Telecommunication Union (1-100)	MixMode Threat Research (1-100)	National Cyber Security Index (1-100)
Ukraine	65.93	65	80.83
Georgia	81.06	76	62.50
Azerbaijan	89.31	73	70.83
Moldova	75.78	-	81.67
Estonia	99.48	-	85.83
Kazakhstan	93.15	69	-
Germany	97.41	85	-
Spain	98.52	85	-
USA	100	89	84.17

Source: compiled the authors based on International Telecommunication Union (2023), MixMode Threat Research (2024), and National Cyber Security Index (2024).

In summary, the governments of Germany, Estonia and Spain, as some of the most technologically advanced countries in the region and the world, are leaders in many international cybersecurity assessment indices. However, given the close ties within the EU, the quality and efficient exchange of information and technology, including within the ECB and other cyber resilience mechanisms, this is not unique. On the contrary, the experience of the Azerbaijani government in ensuring cyber security as one of the most successful in the post-Soviet space, not including EU member states, is extremely valuable. Although there are differences in the results of the different indices, this is a consequence of different research methodologies. Additionally, the index from the International Telecommunication Union is dated 2020, while the others are dated 2024. Based on this, the difference in the presented indices is also acutely dependent on the prevailing geopolitical environment after 2022.

In the context of achieving global economic resilience, four recommendations from the United Nations (2024a) can serve as goals for both international financial institutions and national financial systems. First and foremost is economic diversification, which, depending on the region, can take anywhere from a decade in developed countries to half a century in the poorest regions of the world. This, in turn, requires massive financial investments, where international financial institutions can play a pivotal role. Furthermore, this will halt the growth of inequality, which in the long term will hinder the goals of sustainable societal development. The third step is to transform financing to a more sustainable level, as mentioned earlier, given that approximately 3 trillion USD is needed to achieve carbon neutrality and other sustainable development goals by 2030. This requires a fundamental overhaul and shift in the way businesses operate. Additionally, given that global financial structures operate with assets exceeding 300 trillion USD, there is a need to create or transform existing financial structures into a new paradigm where the available capital can be used not for short-term profits but for long-term investments in infrastructure, improving quality of life, and high-tech research and development. The fourth goal signifies the development trajectory without which all of the aforementioned would be impossible to implement. This is the fundamental improvement of government institutions, as even considering the efforts of international financial organizations, the management of assets remains the prerogative of national governments (Pohorelenko, 2018).

Considering the aforementioned points, the investigated international financial institutions, the IMF and the ECB, have a clear understanding of the importance of timely credit for achieving sustainable development goals, as well as the critical need to ensure the resilience of financial structures in the face of international conflicts and crises. This is evident in the existing and continually evolving credit mechanisms for the poorest countries and in the transformation of the regulatory and institutional framework governing financial systems.

4. Discussion

The study found that IMF lending mechanisms are designed to achieve sustainable growth objectives and assist governments in the poorest and needy countries. Furthermore, B. Reisberg et al. (2021) research highlighted that IMF activities aim to shift political dynamics towards greater program compliance and long-term macro-financial stability. However, IMF lending programs themselves do not restore investor confidence in the government. Rather, it is the government's actions within the framework of an IMF program that can contribute to a positive response from international investors (Shim, 2022).

IMF safeguard policies improved risk assessment and prompted central banks to align with international standards, minimizing vulnerabilities. J. M. Boughton (2024) confirms that changes to the IMF's mandate in the early 2000s were introduced to define a more fluid role for IMF supervisory bodies in an era of exchange rate changes. The author cites assessments of banking supervisory capacity among borrowing member governments as an example. Furthermore, A. Breczko (2024) adds that the process of internal reforms was a consequence of growing criticism of the Fund in the 2000s. The IMF's fulfilment of its commitments is evident in the large number of borrowing member countries that underwent audits. Despite some years with fewer audits, the trend towards increasing the number of audits remained consistent, whether during the transitional period of 2000 and subsequent audits up to 2004, during the economic financial crisis and its aftermath from 2008 to 2013, or during the COVID-19 pandemic and the complex geopolitical situation of 2022 and 2023.

The IMF's lending programs, including 0% interest loans, aim to support global economic balance, particularly in developing nations. In the study by G. Biglaiser and R. J. McGauvran (2022), a more critical approach was employed to define the IMF's lending policy. The authors noted that the IMF's requirements for structural changes create a risk of further increasing poverty levels in borrower countries, depending on whether these requirements were imposed to advance the interests of economically developed member states of the Fund or are unintended consequences of the policies implemented. The study by H. Balima and A. Sy (2021) confirms the importance of lending, as it shows that borrower governments experience a reduction in the likelihood of subsequent sovereign debt crises by as much as 1.3%.

Analyzing the "green" transition, F. Maldonado and K. P. Gallagher (2022) noted that external borrowing could lead to a steady increase in sovereign debt and, in some cases, necessitate urgent budget adjustments to mitigate risks. Meanwhile, K. Georgieva and R. Weeks-Brown (2023) discussed the establishment of a new trust fund at the IMF to support and finance long-term loans for governments undertaking macro-critical reforms for the future balance of payments stability and facing risks, including climate change. The results of the study also highlighted climate change as a priority for the IMF, linking it to a type of financing mechanism aimed at achieving resilience and long-term sustainability, which can help governments implement reforms and reduce balance of payments risks in light of climate-related issues.

From a regional standpoint, the efficacy of IMF policies in achieving sustainable growth varies. In Asia, countries such as Bangladesh have successfully employed the Rapid Credit Facility to alleviate immediate balance of payments crises precipitated by climate-related shocks. This stands in contrast to the Middle East, where the reliance on fossil fuel exports serves to constrain the region's capacity to adapt to IMF-prescribed diversification strategies. These differences illustrate the significance of incorporating regional socio-economic attributes into policy formulation. Furthermore, regional partnerships have the potential to enhance policy efficacy. For instance, in the African context, alignment with the African Continental Free Trade Area could amplify the impact of IMF programs by fostering trade and reducing dependency on external debts. Similarly, in Europe, leveraging EU structural funds in conjunction with IMF programs could facilitate more resilient economic recovery pathways.

Climate change, in addition to its detrimental effects on the environment, also significantly worsens the socio-economic situation in low-income countries with high population density and a focus on agriculture (Maja and Ayano, 2021). The greatest impact of climate change in the future will be felt by low-income groups, people of colour, and indigenous communities (Parsons et al., 2024). In this context, a strong argument for the urgency of investments in transitioning to a low-carbon policy is that more than 70 governments, predominantly from Africa, Asia, and South America, are already eligible for funding as extremely poor. However, a major issue remains that even with adequate financing and loans, it will be extremely challenging for poor governments to achieve sustainable development goals. This is because achieving carbon neutrality by 2030 requires an estimated 3 trillion USD, with two-thirds needing to come from own financing and about one-third from loans. In recent years, a number of measures related to climate change have been implemented in the Republic of Azerbaijan. The process of transition to green energy is considered one of the main priorities. The international event COP29 in the Republic of Azerbaijan in 2024 will be in this direction (United Nations, 2024b).

This study aligns with A. S. Serrano (2021), demonstrating the critical importance of reducing non-performing loans to enhance economic resilience. A. S. Serrano examining a sample of 75 European banks between 2014 and 2018, found that non-performing loans on banks' balance sheets have a highly negative impact on their operations. E. Tölö and M. Virén (2021) also reported this, confirming their detrimental effects in the same way as earlier studies. In this context, the results of the study indicated a qualitative improvement in the functioning of the European banking system. Specifically, due to the ECB's successful policy, the proportion of non-performing loans was significantly reduced from 2015 to 2023 (Vynogradnya and Burdonos, 2021).

The implementation of the "red-teaming" mechanism to enhance resilience against cyber incidents is crucial for both large and small companies. For example, the Chinese technology company Huawei has been using it for employee training since the 1990s (Zhou and Sun, 2020). S. Yulianto et al. (2023) noted that incorporating mandatory "red-teaming" into an organization's operations can significantly strengthen its ability to withstand future attacks and improve its overall cybersecurity architecture. Considering this, the "red-teaming" mechanism incorporated into the ECB's operations for assessing central banks in European countries is an important aspect of financial systems' resilience to cyber threats. Moreover, in addition to "red-teaming", "purple-teaming" is also in operation.

In the study of F. B. Kutlu (2023), the significant role of CERT-EU in protecting all information systems within the EU was confirmed, while N. Van der Meulen (2021) added that it was established to enhance operational resilience to incidents and threats. The above confirms the importance of CERT-EU for the effective functioning of the ECB. Additionally, the results of the conducted study indicated an increased role for CERT-EU in line with the Regulation at the end of 2023.

The study also noted that achieving sustainable development goals, including carbon neutrality, requires financial investments of several trillion dollars for each government, which is virtually an unattainable task for low- and middle-income countries. In its recommendations on these matters, the United Nations highlighted, among other things, the need for an adequate reassessment of the global financial architecture and, most importantly, the improvement of national governance institutions. In their research, M. Ziolo et al. (2020) also highlighted that achieving sustainable development goals requires immense expenditure, as well as another crucial factor – the lack of indicators for measuring progress towards these goals and the absence of accountability. In the context of creating a conducive environment for achieving sustainable development goals in the African region, S. Danladi et al. (2023) noted that USAID projects are already playing a significant role in advancing technology and providing access to it for underserved communities.

The study concludes that IMF lending programmes and ECB resilience measures are of paramount importance in enhancing financial stability, particularly in developing economies. A notable example is the IMF's green lending programme, which has been instrumental in assisting countries such as Bangladesh in their efforts to adapt to the effects of climate change. The IMF's financial assistance has facilitated policy reforms and investments in green technologies, significantly contributing to the country's sustainable development goals. Additionally, the ECB's implementation of TIBER-EU stress tests has proven invaluable. In one instance, a European bank successfully withstood a simulated cyberattack scenario, illustrating the efficacy of the ECB's approach to ensuring resilience against cyber threats. These real-world applications highlight the importance of such frameworks in preventing financial disruptions.

By comparing the results of the obtained research with those of other authors, it has been possible to understand the relationship between changes in the global economic environment from the early 2000s through to the 2020s, as well as the importance of creating new mechanisms for providing financial and other forms of assistance to achieve sustainable development goals for low- and middle-income countries. Additionally, it was examined that achieving global financial stability, even in 2024, faces several unresolved issues, often related to the ineffectiveness of measures taken at national levels.

5. Conclusions

The objective of this research was to examine contemporary strategies for enhancing global economic resilience, with a particular emphasis on the mechanisms employed by international financial institutions, including the IMF and the ECB. The study identified the key strategies for global resilience, particularly in the context of economic shocks, financial instability, and the challenges posed by climate change and digital transformation.

The role of the IMF in maintaining global financial stability through its credit mechanisms, including the Extended Credit Facility, the Stand-by Credit Facility, and the Rapid Credit Facility, was examined. These mechanisms, which are adapted to the particular requirements of low- and middle-income countries, are crucial for maintaining economic resilience and stability. Furthermore, the IMF's Resilience and Sustainability Facility represents a contemporary strategy for promoting long-term economic sustainability, particularly in addressing climate-related balance of payments risks. As of July 2024, 403 central banks worldwide had undergone safeguard assessments, thereby reinforcing the global financial system.

The ECB has made considerable progress in enhancing the resilience of the European banking system. Between 2015 and 2023, the proportion of non-performing loans fell from 7% to below 2%, while the resilience of banks to economic shocks improved by approximately 3%. There was also a notable increase in liquidity, rising by 20%. In response to the increasing prevalence of cyber threats, the ECB implemented the TIBER-EU testing framework, which simulates cyberattacks in order to assess vulnerabilities and enhance defensive capabilities. By 2023, over one hundred such tests had been conducted, with the introduction of "purple-teaming" exercises to enhance staff preparedness.

Furthermore, the UN recommendations underscore the necessity for economic diversification, the reduction of inequality, and the restructuring of the global financial system to prioritise long-term investments in infrastructure, technology, and sustainable development. Nevertheless, the success of these strategies is contingent upon the implementation of comprehensive reforms to national governance systems.

In conclusion, the study emphasises the importance of these modern financial strategies in the construction of a resilient global economy. The implementation of regulatory measures to ensure the stability of financial systems, the enhancement of resilience to digital and climate-related risks, and the promotion of long-term investments are essential strategies for addressing the current and future global challenges.

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ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ
ECONOMIC STUDIES

Volume 34(6), 2025

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THE ROLE OF SUSTAINABILITY DISCLOSURE IN ENHANCING BANK PERFORMANCE: EVIDENCE FROM ASEAN COUNTRIES[4]

This study explores the effect of Sustainability Disclosure on Bank Performance by using Bank Risk as a mediating variable in ASEAN countries. Sustainability disclosure, which includes Environmental, Social, and Governance (ESG) aspects, is increasingly recognized as an important factor in improving transparency, risk management, and financial performance. This study uses Risk Density as an indicator of Bank Risk, which is considered more accurate in assessing the quality of asset portfolios and financial stability of banks than traditional methods such as Altman Z-Score. Using panel regression and Sobel Test, the results show that Sustainability Disclosure has a negative effect on Bank Risk, suggesting that higher disclosure correlates with lower risk. In addition, Bank Risk is shown to mediate the effect of sustainability disclosure on Return on Assets, Return on Equity, and Tobin's Q. However, the direct effect of Sustainability Disclosure on bank performance is not significant. This study contributes to the literature by introducing Risk Density as a more comprehensive tool for measuring banking risk and assessing the impact of ESG disclosure. The results support the Stakeholder Theory, which states that effective risk management and transparent disclosure not only strengthen the relationship between firms and stakeholders but also improve long-term financial stability and performance. The findings provide insights for policymakers and stakeholders on the importance of ESG integration in banking business practices in ASEAN countries.
Keywords: Sustainability Disclosure; Bank Risk; Financial Performance; Market Performance; ASEAN Countries
JEL: M14; G21; G32; Q56; F65

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[4] This paper should be cited as: *Listyawati, R., Kusuma, H., Nustini, Y. (2025). The Role of Sustainability Disclosure in Enhancing Bank Performance: Evidence from ASEAN Countries. – Economic Studies (Ikonomicheski Izsledvania), 34(6), pp. 21-43.*

1. Introduction

Sustainability issues are important in many sectors of the global economy, including banking. Sustainability disclosure assesses a company's ESG performance to demonstrate commitment, compliance and risk management. Scholtens (2009) emphasizes the importance of this aspect. In ASEAN countries, the banking sector plays a crucial role in supporting economic growth, but at the same time, this sector faces increasingly complex risk challenges. According to a report from (ASEAN Capital Markets Forum, 2020), the implementation of ESG and Sustainability Reporting standards in the ASEAN region is still diverse. Some countries such as Singapore and Malaysia have started to require banks to adopt sustainability disclosure practices, while other countries such as Cambodia and Myanmar are still in the early stages. This leads to an imbalance in ESG implementation in the region, potentially creating a gap in banking performance between ASEAN countries.

Data shows that only about 46% of companies in ASEAN countries consistently report on their ESG practices such as Indonesia 44%, Malaysia 48%, the Philippines 42%, Singapore 48%, Thailand 57% and Vietnam 24%, most of these companies are from the non-financial sector (ASEAN Capital Markets Forum, 2020). Data from the Bank for International Settlements, (2022) shows that banks in emerging ASEAN countries, such as Indonesia, the Philippines and Vietnam, tend to face higher risks, especially in terms of liquidity and credit risks, potentially affecting their financial stability. The low level of sustainability disclosure is also a hindering factor for these banks to attract ESG-conscious investors (ASEAN Capital Markets Forum, 2020).

Good sustainability disclosure can improve banks' financial and market performance by attracting more investors and reducing perceived risk (Mukhibad et al., 2018; Tabash et al., 2017). In addition, ESG (Environmental, Social, and Governance) as an influencing factor is also gaining increasing attention in banking research. Strong implementation of ESG practices can contribute to enhancing a bank's reputation and attracting sustainable investment. Research shows that banks that have high ESG scores tend to have better financial performance and lower risk (Almaqtari et al., 2019)

Research by Gao et al. (2024) shows that banks that consistently implement ESG practices tend to experience reduced credit and operational risks, as they consider social and environmental impacts in business decision-making. Sustainability disclosure can have a positive impact on a bank's reputation and reduce the cost of capital (Dhaliwal et al., 2011), although its effect on bank financial performance is often influenced by other factors, such as the bank's own risk (Kotsantonis et al., 2016). However, previous research often ignores variations in ESG implementation across countries, where differences in regulation, culture, and economic conditions can affect research results (Agnese & Giacomini, 2023; Citterio & King, 2023; Khoury et al., 2021).

The *novelty* of this study is to fill the gap in the literature by taking into account the various weaknesses of previous studies by including *bank risk* variables as mediating variables in the relationship between Sustainability Disclosure and bank performance in ASEAN countries. The novelty that the authors present in this study is the use of *risk density* as an indicator of *bank risk,* which is different from the traditional approach where in general many studies use bankruptcy analysis such as Altman Z-Score and Zmijewski method. Citterio & King (2023), Meles et al., (2023).while *risk density* is able to assess the quality of a bank's asset portfolio and the effectiveness of risk management (Cucinelli et al., 2021; Neitzert & Petras, 2022a; Scholtens & Klooster, 2019) while risk density is able to assess the quality of a bank's asset portfolio and the effectiveness of its risk management as well as more accurately about a bank's financial stability (Li et al., 2020).

Risk density offers deeper insights into how banks handle risk through their asset portfolios, improving risk management in banking and offering a comprehensive view of financial stability. This study highlights the importance of sustainability disclosures in bank performance, with practical implications for government policies in ASEAN, bank management, and investment decisions based on risk management and sustainability disclosures.

2. Literature Review

Sustainability disclosure improves banks' reputation and attracts investors, which has a positive impact on long-term financial performance Eccles & Klimenko (2021). Good disclosure reduces risk and increases stakeholder trust, helping mitigate risks, including risk density, that affect financial performance (Borio et al., 2017). Stakeholder Theory emphasizes that sustainability disclosures strengthen stakeholder trust, reduce reputational and operational risks, and lower the cost of capital, thereby improving bank performance (Buallay, 2019; Harrison et al., 2010; Trung et al., 2024). Other studies show that good ESG practices reduce management and operational risks and improve financial stability (Giese et al., 2019; Nofsinger & Varma, 2014). Recent research corroborates that good ESG enhances reputation, and financial stability, and lowers risk density (Chiaramonte et al., 2022; Menicucci & Paolucci, 2023). During crises, firms with high ESG scores are more resilient to market shocks (Albuquerque et al., 2020; Liang & Renneboog, 2017). Thus, good sustainability disclosure balances the interests of various stakeholders and reduces overall risk, including risk density, by creating stability and better long-term performance for banks.

H_1: Sustainability Disclosure has a negative effect on Bank Risk

Bank risk, as measured by risk density, reflects the bank's exposure to risky assets. High-risk density can increase the potential for losses, so banks tend to increase capital reserves for stability. Although this may reduce short-term profitability, long-term stability and investor and stakeholder confidence may increase (Altunbas et al., 2007; Anginer et al., 2013). According to stakeholder theory, banks that are able to manage risk and optimize the cost of capital will increase trust and support from stakeholders, which in turn improves financial performance (Freeman, 1984). Ghosh & Mondal (2022) found that an increase in risk density significantly reduces the financial performance of banks in India, while Tura (2023) confirmed the significant impact of risk density on ROA and ROE in Ethiopia. Von Tamakloe et al. (2023) also supported these findings, showing the effect of risk management on bank performance in Ghana. Banks that are effective in managing risk and keeping the cost of capital low tend to have higher ROA and ROE. Therefore, bank management should focus on effective risk management and financing strategies to improve profitability and financial stability.

H_{2a}: Bank Risk has a positive effect on Financial performance (ROA)

H_{2b}: Bank Risk has a positive effect on Financial performance (ROE)

Banks that have a high-risk density indicate that the proportion of their high-risk assets is greater (Neitzert & Petras, 2022a). High risk can reduce investor confidence, which has a negative impact on Tobin's Q. Banks that proactively identify, measure, and manage their risks can increase investor confidence by demonstrating good managerial capabilities in the face of uncertainty (Laeven & Levine, 2009; Zhang et al., 2013). Banks that are able to manage risk well are often able to capitalize on risky yet profitable market opportunities, which can ultimately increase their market value. In this context, good risk management can be perceived as a positive indicator by investors, which contributes to an increase in Tobin's Q (Berger et al., 2016; Bitar et al., 2018). A recent study by Maudos & de Guevara (2011) also showed that banks with better risk management tend to have higher market stability, which in turn increases their market value. Research by Alexander. O et al. (2023) found that the implementation of enterprise risk management significantly affects Tobin's Q, suggesting that effective risk management can increase the market value of banks by reducing uncertainty and increasing investor confidence. Banks can show stakeholders they handle uncertainty while maintaining operational stability, boosting trust and market value. Stakeholder involvement, Sakawa & Watanabe (2020), is crucial for decision-making and market success, aligning with Stakeholder Theory.

H_{2c}: Bank Risk has a positive effect on Market Performance

The effect of sustainability disclosure on financial performance is gaining importance in business research. This disclosure includes environmental, social, and governance (ESG) aspects to demonstrate a company's commitment to sustainable practices. Based on stakeholder theory (Freeman, 1984), companies are accountable to all stakeholders. Sustainability disclosure builds a positive reputation, increases trust, and reduces risk. Fulgence et al. (2023) state that governance disclosure improves transparency and corporate performance. J. Lin & Qamruzzaman (2023) emphasize that good governance serves as a mediator in improving transparency and financial performance. Environmental disclosure also plays a role in driving innovation and financial performance (Zhu et al., 2024). ESG pillar disclosures are based on measurement indicators according to Thomson Reuters (Refinitiv, 2022). Environmental metrics, covering carbon emissions, energy use, water management, and waste management. Governance metrics cover board structure, shareholder rights, executive compensation, and internal audit and controls. Human rights, community relations, employee development, and occupational health and safety metrics.

Al Amosh et al. (2023) found that ESG performance can improve financial performance, while Remo-Diez et al. (2023) showed a positive relationship between ESG activities and financial performance, specifically ROA and ROE. Gutiérrez-Ponce & Wibowo (2023) also found that ESG social disclosure has a positive impact on ROA and ROE in Indonesian banks. The integration of sustainability practices in a corporate strategy not only fulfils regulations but also creates value for stakeholders, which contributes to improved financial performance.

H$_{3a}$: Sustainability Disclosure has a positive effect on Financial Performance (ROA)

H$_{3b}$: Sustainability Disclosure has a positive effect on Financial Performance (ROE)

Sustainability disclosure is increasingly important to stakeholders, including investors. Tobin's Q, which compares market value to company assets, is used to assess market performance. Alodat et al. (2024) and Abu-Musa et al. (2023) found that sustainability disclosure has a positive and significant impact on Tobin's Q, suggesting that sustainability transparency improves market performance and investor confidence. Other studies (Buallay et al., 2021; Gutiérrez-Ponce & Wibowo, 2023) support these findings, where sustainability disclosure is shown to improve market performance, specifically Tobin's Q.

H$_{3c}$: Sustainability Disclosure has a positive effect on Market Performance

Sustainability disclosure plays an important role in influencing financial performance such as ROA. Clarkson et al. (2008) propose that good risk management is one of the mechanisms that support this relationship. Banks with a high ESG Score tend to be more efficient in managing environmental, social, and governance risks, which lowers total risk and improves financial stability (Friede et al., 2015). ESG implementation also enhances the bank's reputation in the eyes of investors and stakeholders, which can support an increase in financial performance (Albuquerque et al., 2020; Busch & Friede, 2018). With a decrease in risk, it is expected that the company's financial performance, reflected in ROA, will increase. Banks with a higher ESG Score may experience a decrease in risk that contributes to an increase in their ROA. Based on this, it is hypothesized that Bank Risk mediates the relationship between ESG Score and ROA, where a higher ESG Score reduces bank risk and increases ROA.

H$_{4a}$: Bank Risk mediates the effect of Sustainability Disclosure on Financial Performance (ROA)

Return on Equity measures the efficient use of equity in generating profits. Banks with higher ESG scores tend to have better risk management, which reduces earnings volatility and increases profitability (Aouadi & Marsat, 2018). Comprehensive sustainability disclosure demonstrates a company's responsibility towards sustainability issues, which increases trust and support from stakeholders. In addition, a high ESG Score attracts institutional investors who value sustainable business practices, provide greater financial stability, and reduce risk (Ferrero-Ferrero et al., 2015). This hypothesis is in line with the findings of Berger et al. (2016) which showed that ESG risk management strengthens the relationship between risk and return, particularly in the banking sector.

H$_{4b}$: Bank Risk mediates the effect of Sustainability Disclosure on Financial Performance (ROE)

Companies that have a good reputation in terms of sustainability tend to be valued more positively by the capital market, which is reflected in higher share prices and better market valuations. Tobin's Q, which measures the ratio between a company's market value and its book value, is one of the indicators used to assess market performance (Buallay et al., 2021).

Banks with a high ESG Score tend to enjoy a lower cost of capital, strengthen relationships with stakeholders, and attract quality talent, which contributes to a higher market value (El Ghoul et al., 2011; Ioannou & Serafeim, 2015). Giese et al. (2019) showed that ESG improves market valuation through risk reduction, which is reflected in Tobin's Q ratio. Sharfman & Fernando (2008) also found that environmental risk management contributes to lowering the cost of capital and increasing market value. Thus, companies that conduct transparent and comprehensive sustainability disclosures are expected to have better market performance, as they are perceived as having lower risk and higher growth potential by investors.

H_{4c}: Bank Risk mediates the effect of Sustainability Disclosure on Market Performance

3. Research Method

This study uses an explanatory approach to determine the impact of sustainability disclosure on bank performance mediated by bank risk. Panel data of banks listed on stock exchanges in ASEAN countries including Indonesia, Malaysia, Philippines, Singapore, Thailand, and Vietnam from 2012 to 2023 allows longitudinal analysis of the interaction of these variables. Quantitative research methods with regression models and mediation analysis reveal the relationship between sustainability disclosure, financial performance, and bank risk. The research population consists of 55 banks in ASEAN, with 52 banks selected as the sample. With a total of 624 observations, the research findings are accurately presented using data from Bank Focus and Thomson Reuters. The purposive sampling method was used to ensure that only banks with comprehensive and relevant data were used to present the research findings.

Bank performance includes various indicators used to measure the effectiveness and efficiency of a bank in achieving its financial objectives. Bank performance is often measured using financial performance indicators such as Return on Assets (ROA) and Return on Equity (ROE) and market performance such as Tobin's Q (Buallay et al., 2021; Citterio & King, 2023; Gutiérrez-Ponce & Wibowo, 2023). The indicators together provide a comprehensive picture of a bank's financial performance, enabling in-depth analysis of how the bank manages its resources to achieve long-term sustainability and growth.

Bank risk with Risk Density proxy as a mediating variable in this study is defined on risk density as measured by the ratio between the total amount of risky assets and total bank assets (Borio et al., 2017) which can help banks determine a better risk profile and make more informed strategic decisions (Gandhi et al., 2018). In particular, how the collection of information on environmental, social, and governance issues can reduce the risks faced by banks, and how these risk reductions can improve banks' performance and market share (Giese et al., 2019). For example, an increase in ESG scores can lower credit risk by improving the quality of a bank's portfolio, which in turn can increase the bank's lending rate (Salem et al., 2024).

According to research by Buallay (2019) transparency in sustainability reporting can be related to better financial performance, which is seen through increased ROA, ROE, and Tobin's Q. Other research conducted by Chiaramonte et al. (2022) and Menicucci & Paolucci

(2023) show that good ESG practices can enhance bank reputation and reduce interest rate risk, which in turn has a positive impact on banks' financial and market performance.

Sustainability disclosure, as measured by the ESG Score, evaluates how organizations address environmental, social, and governance issues. Ioannou & Serafeim (2015) and (Kotsantonis & Serafeim, 2020) highlight the importance of sustainability disclosure as a strategic tool to manage business risks and opportunities, as well as to compare companies across different sectors. ESG ratings, such as from Thomson Reuters, assess the quality of disclosures based on environmental, social and governance indicators (Eccles et al., 2014; Ernst & Woithe, 2024).

Table 1. Operational Definition and Measurement of Variables

Variables	Measurement	Source
	DEPENDENT	
A.Bank Performance		
1. Financial Performance	Return on Assets (ROA) Return on Equity (ROE)	Buallay, 2019; Gutiérrez-Ponce, Wibowo, 2023;
2. Market Performance	***Tobin's Q*** (Market value of equity + Book value of short-term liabilities)/ Book value of assets)	Gutiérrez-Ponce, Wibowo, 2023
	INTERVENING	
A. Bank Risk		
1. Portfolio Risk (Risk Density)	$RD_{i,t} = \frac{Risk\ weighted\ assets_{i,t}}{Total\ assets_{i,t}}$	Neitzert, Petras, 2022
	INDEPENDENT	
A. Sustainability Reporting		
1. ESG disclosure	Thomson Reuters Index: Combine ESG Activity disclosure indexes	Buallay, 2019; Citterio, King, 2023
2. Environmental Disclosure	TR index which measures the disclosure of banks' energy use, waste, pollution, natural resource conservation and animal treatment	Buallay, 2019; Citterio, King, 2023
3. Governance Disclosure	TR index which measures the disclosure of corporate governance code	Buallay, 2019; Citterio, King, 2023;
4. Social Disclosure	TR index which measures the disclosure of the banks' business relationships, bank donations, volunteer work, employees' health and safety	Buallay, 2019; Citterio, King, 2023
	CONTROL	
1. ETR	Effective tax rate	Buallay, 2019
2. ETA	the ratio of total equity to total assets	Citterio, King, 2023
3. TLTA	the ratio of total loans to total assets	Citterio, King, 2023
4. Cost to income ratio (CIR)	Operating costs as a percentage of operating income	Citterio, King, 2023
5. NIOR	the ratio of non-interest income to net operating revenues	Citterio, King, 2023
	MACROECONOMIC CONTROL	
1. Growth in gross domestic products	The gross domestic product of the country	Buallay, 2019; Khoury et al., 2021
2. Inflation	Annual inflation rate	Buallay, 2019; Khoury et al., 2021
3. Stock Market Capitalization	MarketCap: growth stability	Scholtens, Klooster, 2019b

Source: Secondary Data, processed (2024).

The study conducts assumption tests on multicollinearity and heteroscedasticity. Regression analysis evaluates the impact of ESG scores on bank performance indicators. Sobel's analysis examines potential mediating factors like bank risk (Sekaran & Roger, 2014; Soleman & Tiffanie Victoria, 2021).

The following is the Sobel value formula, which is a z-test for the significance of the mediation effect:

$$z = \frac{a\ x\ b}{\sqrt{b^2 x\ SE\ (a)^2 +\ a^2 x\ SE\ (b)^2}} \tag{1}$$

Where:

α is the regression coefficient for Path a,

b is the regression coefficient for Path b, and

SE (α) and SE (b) are the standard errors of the coefficients

The study used an online Sobel calculator at https://quantpsy.org/sobel/sobel.htm. htm to calculate the Sobel test. Robustness analysis measures ESG pillars' impact on bank performance through t-tests, mediation analysis with the Sobel test, F-tests, R-squared values, sub-sample comparisons, and regression assumption tests.

4. Results and Discussion

Researchers use the Chow test and Hausman test to select the Fixed Effect Model. Then, test classic assumptions with multicollinearity and heteroscedasticity tests contained in Table 2 and Table 3.

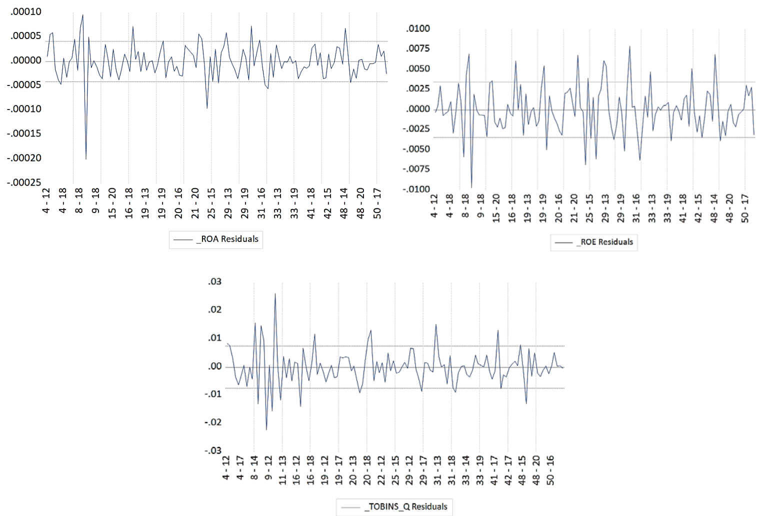
Table 2. Multicollinearity Test Results

	ESG SCORE	RD	ETR	ETOA	TLTA	CIR	NIOR	INFL	GDP	STOCK MARCAP
ESG SCORE	1	-0.399	0.189	0.201	0.189	-0.133	0.079	-0.131	-0.104	-0.155
RD	-0.399	1	0.020	0.139	0.127	0.443	0.000	0.085	0.141	-0.418
ETR	0.189	0.020	1	0.096	0.172	0.287	-0.047	0.134	0.546	-0.469
ETOA	0.201	0.139	0.096	1	-0.074	0.064	0.017	0.259	0.200	-0.406
TLTA	0.189	0.127	0.172	-0.074	1	-0.192	-0.183	-0.059	-0.181	-0.238
CIR	-0.133	0.443	0.287	0.064	-0.192	1	0.068	0.051	0.351	-0.396
NIOR	0.079	0.000	-0.047	0.017	-0.183	0.068	1	-0.026	-0.093	0.184
INFL	-0.131	0.085	0.134	0.259	-0.059	0.051	-0.026	1	0.275	-0.155
GDP	-0.104	0.141	0.546	0.200	-0.181	0.351	-0.093	0.275	1	-0.326
STOCK MARCAP	-0.155	-0.418	-0.469	-0.406	-0.238	-0.396	0.184	-0.155	-0.326	1

Source: Secondary Data, processed (2024).

The correlation matrix (Table 2) shows all coefficients between independent variables are below 0. 85, indicating no multicollinearity issues in the model.

Table 3. Heteroscedasticity Test Results with Residual Test



Source: Secondary Data, processed (2024).

Table 3 displays heteroscedasticity test results. The residual graph does not cross boundaries, indicating constant variance without a pattern, confirming the model passes the test for heteroscedasticity.

Regression Equation 1

The effect of *Sustainability Disclosure* on *Bank Risk* is the result of the analysis contained in Table 4.

Table 4. Regression Equation 1

Variables	RD Coeff.	Sig. (p-value)
Independent Variable		
ESG Score	-4.2994*	(0.0000)
Control Variables Micro:		
ETR	-1.7481***	(0.0831)
ETOA	0.00825	(0.9934)
TLTA	1.4085	(0.1617)
CIR	1.9401***	(0.0548)
NIOR	2.7061	(0.0079)*
Control Variables Macro:		
INFLATION	0.3818	(0.7033)
GDP	0.6457	(0.5198)
STOCK_MARCAP	-3.0444	(0.0029)*
R-Squared	0.2973	
Adj R-Squared	0.2418	
F-Statistic	5.3603	
Prob (F-Statistic)	0.000004	
Observation	124	
Model	Random Effect	

Source: Secondary Data, processed (2024).

Description:

ESG_Score = *ESG Score*; RD = *Risk Density*; ETR = Effective tax rate; ETOA = Total equity to total assets; TLTA = Total loans to total assets; CIR = Cost to income ratio; NIOR = non-interest income to net operating revenues; INFLATION = Annual inflation rate; GDP = The gross domestic product of the country; STOCK_MARCAP = Stock Market Capitalization.

Equation 2

The test results to determine the effect of *Bank Risk* on *Financial Performance* and *Market Performance* are contained in Table 5.

Table 5. Regression Equation 2

Variables	ROA Coeff. (p-value)	ROE Coeff. (p-value)	Tobin's Q Coeff. (p-value)
Independent Variable			
ESG_Score	-2.7114*	-3.1632*	-1.4376
	(0.0080)	(0.0021)	(0.1541)
RD	2.8426*	2.7379*	2.9437*
	(0.0055)	(0.0074)	(0.0041)
Control Variables			
Micro:			
ETR	-1.7346***	-2.0832**	-1.5700
	(0.0861)	(0.0400)	(0.1199)
ETOA	-2.5516**	-9.0872*	0.4080
	(0.0124)	(0.000)	(0.6842)
TLTA	2.8870*	1.7527***	1.1795
	(0.0048)	(0.0829)	(0.2413)
CIR	-4.3351*	-5.0900*	-1.5474
	(0.000)	(0.000)	(0.1253)
NIOR	2.6455*	2.5140**	-1.4736
	(0.0096)	(0.0137)	(0.1441)
Macro:			
INFLATION	3.4267*	3.0280*	0.5174
	(0.0009)	(0.0032)	(0.6061)
GDP	0.2021	1.1153	-1.2099
	(0.8402)	(0.2676)	(0.2295)
STOCK_MARCAP	-1.7971***	-1.7919***	0.8249
	(0.0756)	(0.0764)	(0.4116)
R-Squared	0.8893	0.8340	0.8476
Adj R-Squared	0.8537	0.7805	0.7963
F-Statistic	24.92525	15.5809	16.51036
Prob (F-Statistic)	0.000	0.000	0.000
Observation	124	124	120
Model	Fixed Effect	Fixed Effect	Fixed Effect
Note: Significant at p-value *<1%, **<5%, ***<10%.			

Source: Secondary Data, processed (2024)

Description:

RD = *Risk Density*; ROA = Return on Asset; ROE = Return on Equity; TOBINS_Q = *Tobin's Q*; ETR = Effective tax rate; ETOA = Total equity to total assets; TLTA = Total loans to total assets; CIR = Cost to income ratio; NIOR = non-interest income to net operating revenues; INFLATION = Annual inflation rate; GDP = The gross domestic product of the country; STOCK_MARCAP = Stock Market Capitalization.

The Sobel Test is used to test the significance of the mediating effect, i.e. whether the indirect effect of Sustainability Disclosure through Bank Risk on Bank Performance is statistically significant. Testing the role of mediation with the Sobel Test can be done as shown in Table 6 and Table 7.

Table 6. Direct Effect Calculation Results

Path	Coefficient	Std. Error
ESG -> RD	-4.01E-10	9.33E-11
RD -> ROA	11.21134	3.944009
RD -> ROE	904.9671	330.5299
RD -> TOBINS_Q	2143.884	728.2938

Source: Secondary Data, processed (2024).

Table 7. Results of Indirect Effect Calculation with Sobel Test

Path	Indirect Effect	Z- Sobel	Conclusion
ESG -> RD -> ROA	-4.50E-09	-2.37097	Mediate
ESG -> RD -> ROE	-3.63E-07	-2.30919	Mediate
ESG -> RD -> TOBINS_Q	-8.60E-07	-2.42867	Mediate

Source: Secondary Data, processed (2024).

Based on the results of the hypothesis testing above, the results of hypothesis testing can be summarized as follows (Table 8):

Table 8. Summary of Hypothesis Testing Results

No.	Hypothesis	Results
1.	H_1: *Sustainability Disclosure* has a negative effect on *Bank* Risk	Supported
2.	H_{2a}: *Bank Risk* has a positive effect on *Financial Performance* (ROA)	Supported
3.	H_{2b}: *Bank Risk* has a positive effect on *Financial Performance* (ROE)	Supported
4.	H_{2c}: *Bank Risk* has a positive effect on *Market Performance*	Supported
5.	H_{3a}: *Sustainability Disclosure* has a positive effect on *Financial Performance* (ROA).	Not Supported
6.	H_{3b}: *Sustainability Disclosure* has a positive effect on *Financial Performance* (ROE).	Not Supported
7.	H_{3c}: *Sustainability Disclosure* has a positive effect on *Market Performance*	Not Supported
8.	H_{4a}: *Bank Risk* mediates the effect of *Sustainability Disclosure* on *Financial Performance* (ROA).	Supported
9.	H_{4b}: *Bank Risk* mediates the effect of *Sustainability Disclosure* on *Financial Performance* (ROE).	Supported
10.	H_{4c}: Bank Risk mediates the effect of *Sustainability Disclosure* on *Market Performance.*	Supported

Source: Processed by researchers, 2024.

To enrich the research results and provide deeper insights. Robustness analysis was conducted in this study. The following results of robustness analysis with panel data regression in this study are presented in Table 9.

Table 9. Regression Results ESG Pilars (Environmental, Social and Governance)

Variables	**(1) RD Coeff. (p-value)**	**(2) ROA Coeff. (p-value)**	**(3) ROE Coeff. (p-value)**	**(4) Tobin's Q Coeff. (p-value)**
Independent Variable				
ENV	2.9408*	0.3848	0.4462	0.5537
	(0.0039)	(0.7009)	(0.6561)	(0.5806)
SOC	-5.0756*	3.73877*	-3.9233*	0.6516
	(0.000)	(0.0003)	(0.0001)	(0.5157)
GOV	-1.7729***	-1.3511	-1.8412***	-1.0663
	(0.0788)	(0.1788)	(0.0676)	(0.2881)
Control Variables				
Micro:				
ETR	-1.0595	1.4446	-2.1036**	-0.6266
	(0.2915)	(0.1507)	(0.0371)	(0.5319)
ETOA	0.9427	-11.3603*	-10.7154*	-2.0204**
	(0.3477)	(0.000)	(0.000)	(0.0452)
TLTA	0.8851	1.0688	-0.1823	2.1536**
	(0.3779)	(0.2869)	(0.8556)	(0.033)
CIR	2.2019**	1.5896	-3.3761*	-1.1162
	(0.0296)	(0.1141)	(0.0009)	(0.2662)
NIOR	2.8101*	0.4005	3.1551*	-0.4844
	(0.0058)	(0.6894)	(0.002)	(0.6289)
Macro:				
INFLATION	0.07405	1.0695	2.0359**	-0.0613
	(0.9411)	(0.2866)	(0.0436)	(0.9512)
GDP	0.1726	-0.3602	0.7422	-0.7554
	(0.8633)	(0.7193)	(0.4592)	(0.4513)
STOCK_MARCAP	-2.4313*	0.8439	-0.9635	0.8826
	(0.0165)	(0.4001)	(0.3369)	(0.3789)
R-Squared	0.3654	0.9603	0.9179	0.9561
Adj R-Squared	0.3067	0.9494	0.8953	0.9439
F-Statistic	6.2293*	87.707*	40.544*	77.4961*
Prob (F-Statistic)	(0.000)	(0.000)	(0.000)	(0.000)
Observation	131	186	186	183
Model	Random Effect	Fixed Effect	Fixed Effect	Fixed Effect
Note: Significant at p-value *<1%, **<5%, ***<10%.				

Source: secondary data, processed (2024)

Description:

ENV = Environmental Disclosure; SOC = Social Disclosure; GOV = Governance Disclosure; RD = *Risk Density*; ROA = Return on Assetn; ROE = Return on Equity; TOBINS_Q = Tobin's Q; ETR = Effective tax rate; ETOA = Total equity to total assets; TLTA = Total loans to total assets; CIR = Cost to income ratio; NIOR = non-Interest income to net operating revenues; INFLATION = Annual inflation rate; GDP = The gross domestic product of the country; STOCK_MARCAP = Stock Market Capitalization

The robustness test results in Table 9 show that each ESG pillar has a varying influence on Bank Risk and performance. The Environmental pillar increases bank risk, while the Social pillar reduces risk and increases ROA. Good social practices help build relationships with stakeholders. However, allocating resources to social initiatives may decrease ROE in the short term. The Governance pillar slightly lowers risk but negatively affects ROE, potentially due to increased governance costs. ESG impact on bank performance is variable.

The Effect of Sustainability Disclosure on Bank Risk

Sustainability disclosure has a negative effect on Risk Density in banks, with a probability value of <0. 05, t-statistic -4. 2994. The decrease in bank risk associated with an increase in sustainability disclosure shows a statistically significant relationship. This finding supports stakeholder theory, which emphasizes the importance of considering the interests of all parties in corporate activities. Banks with high sustainability disclosure demonstrate a commitment to sustainable and responsible business practices, enhancing trust and reputation in the eyes of stakeholders (Freeman, 1984). Good risk management and regulatory compliance can reduce operational and reputational risks. Support from sustainability-minded investors also strengthens the bank's financial position, which can reduce the bank's risk density Eccles & Klimenko, 2021; Fatemi et al., 2018). Recent research also shows that the integration of ESG factors in banks' business strategies reduces financial risk and increases stability (Arayssi et al., 2016; Velte, 2019). Similar results were found by Gupta & Aggarwal (2024), and Meles et al. (2023), which suggest that higher ESG scores are associated with lower risk. The negative effect of sustainability disclosure on bank risk may be

strengthened by an independent and gender-diverse executive board but may be weakened by a large board size. These findings emphasize the importance of sustainability disclosure as a risk management tool in the banking industry.

The Effect of Bank Risk on Financial Performance (ROA)

This study shows that Risk Density significantly affects Return on Assets with a probability of 0.0055 and a t-statistic of 2.8426, supporting hypothesis 2a. An increase in risk as measured by Risk Density increases a bank's ability to generate profit from its assets, highlighting the importance of effective risk management in the banking sector. This finding is in line with Stakeholder Theory, which states that good risk management increases the confidence of stakeholders, such as creditors, investors, and regulators, in the financial stability of banks (Freeman et al., 2007; Neitzert & Petras, 2022). Effective risk management also lowers the cost of capital and improves employee productivity as well as the bank's reputation with customers and communities (Clark et al., 2015; Flammer, 2021). Previous research supports these findings. Nguyen (2023) in Vietnam found that high risk tends to lower ROA, while X. Li et al. (2020) also confirmed that banks with a high-risk profile experienced a decline in financial performance. (J. Kim et al. 2020) added that transparency in risk management improves stakeholder trust and financial performance.

The Effect of Bank Risk on Financial Performance (ROE)

This study shows that bank risk as measured by Risk Density has a significant effect on Return on Equity at a 1% significance level, with a probability of 0.0074 and a t-statistic of 2.7379. This confirms that an increase in bank risk has a significant impact on return on equity, supporting hypothesis 2b. Risk Density, as an indicator of bank risk, shows the bank's exposure to various risks such as credit, market, and operational. The higher the Risk Density, the greater the potential losses that may affect the financial stability of the bank (Neitzert & Petras, 2022). Research shows that Risk Density is effective in measuring the impact of risk on a bank's financial performance (Laeven & Levine, 2009; Rastogi et al., 2022). Rastogi et al (2022) emphasized that an increase in risk density is often followed by an increase in potential losses if risks are not managed properly. Laeven & Levine (2009) also found that banks with high-risk density tend to experience greater financial performance volatility. According to Stakeholder Theory, it is important to take into account the interests of all parties in corporate decision-making. The finding of a significant relationship between Risk and ROE emphasizes risk management in fulfilling responsibilities.

The Effect of Bank Risk on Market Performance

The study shows that risk density has a significant effect on Tobin's Q at a 1% significance level (probability 0.0041, t-statistic 2.9437), supporting hypothesis 2c. An increase in Risk Density has a positive impact on the bank's market valuation, reflecting good risk management capabilities and the potential for increased shareholder value (Saunders et al., 2021). According to Stakeholder Theory, good risk management not only increases firm value in the eyes of shareholders, but also provides certainty to creditors, employees, and communities that the bank can fulfil its financial obligations (Freeman, 1984; Hillman & Klein, 2001). The study by Syazwani & Anis (2019) also found a significant relationship between Risk Density and Tobin's Q at the 1% significance level, reinforcing these findings.

In addition, research shows that factors such as governance, innovation, and risk management affect a firm's financial performance significantly depending on the industry sector and macroeconomic conditions (Flammer, 2015; Gillan et al., 2021).

The Effect of Sustainability Disclosure on Financial Performance (ROA)

Sustainability Disclosure impacts Return on Assets significantly, with a negative relationship revealed in the study, contradicting the hypothesis that ESG disclosure enhances financial performance. The results suggest that improving corporate environmental and social practices can entail significant costs, such as investments in green technology and CSR initiatives, which may reduce ROA in the short term. The market may not yet fully appreciate these sustainability efforts, especially in regions with less mature financial markets. This finding is in line with research showing that the impact of ESG on financial performance varies depending on the market and industry context (Friede et al., 2015).

Stakeholder Theory study found that Sustainability Disclosure negatively impacts Return on Assets. ESG Score increase suggests responsible practices to meet stakeholder expectations, despite potentially lowering short-term financial performance, highlighting the dilemma between stakeholders and financial goals. Some research suggests that higher ESG disclosure may negatively impact short-term financial performance due to the cost of implementing sustainability practices (Kim et al., 2014). However, other studies found that investment in ESG practices can improve ROA in the long run Arayssi et al. (2016) and Velte (2019) add that good ESG risk management can improve operational efficiency and reduce long-term costs, supporting an increase in ROA. Other studies have also found that ESG disclosure has a positive effect on financial performance, including ROA, as it is valued by consumers (Buallay, 2019; Pulino et al., 2022).

The relationship between sustainability disclosure and financial performance in the ASEAN banking sector suggests that there is a need for the role of Bank Risk as a mediating variable. Theoretically, in accordance with stakeholder theory, sustainability disclosure aims to meet the needs of stakeholders, but its impact on financial performance is often long-term and indirect (Friede et al., 2015). Sustainability disclosure can help banks improve market perceptions of stability and risk management, for example by reducing credit risk through assessing the environmental impact of loan portfolios or increasing investor confidence in the sustainability of bank operations (Gangi et al., 2018). The complexity of sustainability regulations in ASEAN and the varying levels of ESG adoption are also factors that influence this relationship.

Bank Risk acts as a mediating channel that allows Sustainability disclosure to contribute to ROA through risk reduction, which in turn creates operational efficiency and increased profitability. These findings support the literature showing that the impact of sustainability on financial performance is often mediated by risk management and investor perceptions (Garcia et al., 2017), providing new insights into how sustainability disclosure can support bank performance in ASEAN through risk management.

The Effect of Sustainability Disclosure on Financial Performance (ROE)

This study found that Sustainability Disclosure negatively impacts Return on Equity with a probability of 0. 0021 and a t-statistic of -3. 1632, refuting the hypothesis. Banks with higher ESG Scores see decreased financial performance, but adopting sustainable practices can enhance long-term trust and reputation with stakeholders (Eccles & Klimenko, 2021; Freeman, 1984). A study by Arayssi et al., (2016) shows that the impact of ESG on ROE varies depending on the industry sector and corporate practices. Velte, (2019) found that companies with good ESG performance tend to have higher ROE in the long run. Several other studies support that ESG Score has a significant negative effect on ROE. Mititean & Sărmaș, (2023) found a significant negative impact on the energy sector in Europe, especially on governance. Buallay et al., (2020) also found a significant negative impact on the banking sector in the Middle East and North Africa (MENA). However, Buallay & Al Marri (2022) found that ESG had no significant effect on ROE in the telecommunications and information technology sectors, although there was a significant negative impact on Tobin's Q.

Sustainability disclosure does not directly affect financial performance in the ASEAN banking sector, reflecting that sustainability impacts are often indirect and take longer to be reflected in profitability, as explained by stakeholder theory (Freeman, 1984; Friede et al., 2015). Sustainability disclosure serves more as a tool to build trust and long-term reputation than to have a direct impact on financial performance, especially in the ASEAN region with varying levels of sustainability awareness and regulation.

Bank Risk is an important mediating variable, as effective sustainability disclosure can help banks better manage credit and market risk, increase financial stability, and improve the efficiency of equity utilization, which ultimately has a positive impact on ROE (Gangi et al., 2018). In addition, optimal risk management allows banks to better deal with the uncertainty of the business environment, strengthening profitability through efficient capital management (Wang et al., 2020). Therefore, this study confirms the importance of the mediating role of Bank Risk in maximizing the benefits of sustainability disclosure on ROE, in line with the literature highlighting the indirect relationship of sustainability to financial performance (Garcia et al., 2017; Liang & Renneboog, 2017).

The Effect of Sustainability Disclosure on Market Performance

The study shows that Sustainability Disclosure does not have a significant influence on Market Performance as measured by Tobin's Q, with a probability of 0.1541 and a t-statistic of -1.4376. This suggests that changes in ESG Score do not significantly affect the market valuation of banks. According to Stakeholder Theory, many factors such as market sentiment, regulation, and economic conditions affect market perception, so the impact of ESG on market value is not always visible. Arayssi et al. (2016) emphasize that the relationship between ESG and Tobin's Q varies depending on the market context and company strategy. Velte (2019) and Schramade (2016) add that although ESG enhances reputation, its effect on market valuation may not be immediately apparent. Some studies, such as Giannopoulos et al. (2022) and Buallay (2019), have also found mixed results, with ESG Score not always consistently affecting Tobin's Q, especially in the European banking sector and in volatile market conditions (Pasupuleti et al., 2024).

Sustainability disclosure does not directly affect market performance in the ASEAN banking sector, reflecting that the market has not fully translated sustainability disclosure into increased firm value, especially in the context of variable ESG adoption in the region. Stakeholder theory states that sustainability disclosure aims to create value for stakeholders, but market value, reflected in Tobin's Q, is more often influenced by short-term perceptions and sentiments of investors who may not fully appreciate the benefits of sustainability (Freeman, 1984; Friede et al., 2015).

Bank Risk acts as an important mediating variable, where a good SD indicates the bank's ability to manage risks such as credit and operational risks, which in turn creates financial stability and increases market confidence. Lower risk strengthens the market perception of the competitiveness and sustainability of bank operations, which has a positive impact on Tobin's Q (Gangi et al., 2018). Effective risk management enables optimization of capital utilization and improves growth expectations, which is particularly relevant in ASEAN markets with high levels of uncertainty (Wang et al., 2020). This study supports the literature highlighting that the impact of sustainability on market performance tends to be indirect and mediated by risk management (Garcia et al., 2017; Liang & Renneboog, 2017), making an important contribution to understanding the role of Bank Risk in enhancing market value through sustainability disclosure.

Mediation of Bank Risk on the Effect of Sustainability Disclosure on Financial Performance (ROA)

Sobel test results with a Z-Sobel value of -2.37097 indicate that Bank Risk mediates the relationship between Sustainability Disclosure and Financial Performance. An increase in ESG Score is associated with a decrease in bank risk, which increases asset efficiency and profit. Banks with good ESG performance are usually more efficient and financially stable. This research is in line with Eccles et al. (2014) and Khan et al. (2016), who found that ESG investments improve operational efficiency and ROA. Citterio (2021) and Orazalin et al. (2019) also show that ESG performance reduces financial risk and increases stability.

Mediation of Bank Risk on the Effect of Sustainability Disclosure (ESG Score) on Financial Performance (ROE)

Sobel test results show that Bank Risk significantly mediates the relationship between Sustainability Disclosure and Financial Performance with a Z-Sobel value of -2.30919. This suggests that companies with good ESG practices tend to experience decreased risk, which in turn increases return on equity. Better risk management increases company stability, attracts more investors, and increases equity value. This study supports the findings of Aouadi & Marsat (2018) that companies with strong ESG practices have higher ROE, as investors place a premium on companies that are considered stable and less risky. Friede et al. (2015) also showed that ESG and financial performance are influenced by a company's ability to manage operational and reputational risks. Chandra (Verina & Rohman (2024) and Buallay (2019) support these findings, showing that good ESG risk management improves the stability and financial performance of banks. Schramade (2016) adds that improved sustainability performance reduces risk and improves financial stability.

Mediation of Bank Risk on the Effect of Sustainability Disclosure on Market Performance

Sobel test analysis shows that Bank Risk can mediate the relationship between Sustainability Disclosure and Market Performance, with a Z-Sobel value of -2. 42867. The implementation of good ESG practices increases the market value of the company. Tobin's Q reflects market valuation. Effective sustainability disclosure policies reduce risk and increase investor confidence, and Tobin's Q. Indicates the market values proactive risk management through ESG policies. This research is in line with Giese et al., (2019) who found that companies with high ESG scores have higher Tobin's Q, reflecting a more positive market valuation. Clark et al. (2015) also found that capital markets tend to give higher valuations to companies with good ESG practices, due to superior risk management. Garcia-Appendini et al (2023) showed that ESG disclosure can improve financial stability and operational performance. Bui et al. (2023) found that good ESG risk management can improve the operational efficiency and financial performance of banks. Hantoko et al (2021) support these findings by showing that improved sustainability performance can reduce risk and improve the financial stability of the firm.

5. Conclusion

The results show that Sustainability Disclosure has a negative effect on Bank Risk, suggesting a relationship between higher sustainability disclosure and lower risk. Banks that are transparent in disclosing ESG tend to be better at managing risk, which supports improved financial performance. Bank Risk acts as a mediator between ESG Score and financial performance, linking to Return on Assets, Return on Equity, and Tobin's Q. Banks that effectively manage risk experience an increase in financial performance. Efficiency in managing risk allows banks to generate higher returns on their assets and equity and increases investor confidence. In addition, good risk management has a positive impact on Tobin's Q, reflecting higher market value for banks. However, the direct effect of Sustainability Disclosure on ROA, ROE, and Tobin's Q is not proven in this study. This study has a positive impact on stakeholders, policymakers, and the academic community in understanding the relationship between sustainability reporting and bank financial performance. Limitations of this study include limited ESG disclosure data from banks in ASEAN and contextual variables that were not considered, such as local regulations and cultural differences. Future research should use longitudinal analysis to understand the long-term impact of Sustainability Disclosure on financial performance, incorporating qualitative case studies from ASEAN banks, and a broader stakeholder perspective to understand the dynamics and challenges of implementing ESG principles.

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ИНСТИТУТ ЗА ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ НА БЪЛГАРСКАТА АКАДЕМИЯ НА НАУКИТЕ
ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ
ECONOMIC STUDIES

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Volume 34(6), 2025

SOCIO-ECONOMIC DIMENSIONS OF ACTIVE AGING IN BULGARIA[2]

The article examines the dynamics of active ageing and its impact on the quality of life of persons aged 65+. The main objective is to analyse some socio-economic aspects of the active life of the elderly with an emphasis on social integration, economic contribution, healthy lifestyle and maintenance of independence for this age group. The concept of "active adult life" is fundamental and is related to the concept of "active ageing" – presented by the European Commission in 1999. In the context of demographic changes in Bulgaria and the ageing population, the article emphasizes the importance of active life for improving the quality of life of the elderly. Recommendations are given for creating favourable conditions for social integration, learning and participation in economic activities for the elderly, as well as for supporting digital literacy. Emphasis is placed on the need for a more holistic and integrated approach to promoting healthy lifestyles and active ageing.
Keywords: active ageing; health; well-being; social integration; labor activity
JEL: I12; I39; J14

1. Introduction

Population ageing is one of the key demographic trends facing modern society and represents a significant challenge for social and economic systems. In Bulgaria, this process is particularly pronounced, with an increase in the share of persons aged 65+ and a corresponding decrease in the relative share of the working population. This demographic change gives rise to the need to rethink traditional approaches to ageing and requires the development of new strategies and policies aimed at promoting the active life and social integration of older people.

The concept of "active ageing" takes on increasing importance in the context of these changes. It implies promoting opportunities for older people to participate in various aspects of public life, including economic activity, social engagement and a healthy lifestyle. Active ageing is about maintaining self-reliance and independence, participating in voluntary activities and being able to learn throughout life. This concept aims not only to improve the

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[2] This paper should be cited as: *Vazova, T. (2025). Socio-Economic Dimensions of Active Aging in Bulgaria. – Economic Studies (Ikonomicheski Izsledvania), 34(6), pp. 44-65.*

quality of life of the elderly but also to effectively use their potential for the benefit of the whole society.

Despite the growing attention to the issues of active ageing, there are still a number of challenges that limit the opportunities of people aged 65+ to lead active and fulfilling lives. Among them are social isolation, insufficient access to health and social services, limited opportunities for economic activity and insufficient support for continuing training and development. In this context, the present study seeks to analyse the complex dynamics of active ageing and its impact on the quality of life of the elderly in Bulgaria.

The purpose of the study is to examine the various aspects of active living among persons aged 65+, emphasizing the importance of social integration, economic contribution, healthy lifestyle and maintaining independence for this age group.

From the goal thus formulated, several main tasks arise: to specify the theoretical aspects of basic concepts such as "active ageing" and "active life"; to examine the dynamics of demographic changes in Bulgaria and how they affect the social and economic systems; to analyze the existing policies to promote the active life of the elderly; to analyse the main challenges such as social isolation, limitations in access to health services, limited economic opportunities and the need for digital literacy; to give recommendations for improving the conditions for an active life.

2. Methodology

The methodology involves the use of a holistic approach to analyse the active life of the elderly. Quantitative and qualitative methods are combined to present the various aspects of active ageing and its impact on quality of life.

Quantitative data from national and European statistical sources such as the National Statistical Institute (NSI) and Eurostat were used to analyse the demographic trends and socio-economic characteristics of the 65+ population. Indicators such as the share of the elderly population, the age dependency ratio and life expectancy were also used.

To complement the quantitative analysis and for a deeper understanding of the dynamics of active ageing, qualitative methods have been applied. Analyses of existing policies, strategies and programs aimed at promoting the active life and social integration of people aged 65+ have been carried out.

The methodology includes a secondary analysis of data from existing studies and reports at a national and European level that provide information on socio-economic aspects of ageing, health status, education level and labour market participation of people aged 65+.

The research period covers the years from 2013 to 2023, and the choice of this ten-year time interval is conditioned by the need to follow the dynamics of active ageing in the context of the significant socio-economic transformations that have occurred in Bulgaria in the last decade. The study covers the age group of persons aged 65+, as this age limit marks the transition from active professional participation to retirement. This transition is associated with significant changes in the social status, physical activity and health status of the target group, which necessitates the study of the factors affecting the quality of life and opportunities for social and economic integration in this period.

The collected data is analysed and interpreted in order to determine the key factors influencing the active life of older people and to evaluate existing practices and policies. The results are used to formulate recommendations for improving the conditions for an active life and social integration of the elderly in Bulgaria.

3. Theoretical Aspects of the Concepts of “Old People” and “Active Life”

The current study covers individuals aged 65+. The choice of this age group is based on the fact that it is associated with the transition from active professional participation to retirement, which often leads to significant changes in social status, physical activity and mental well-being. This period of life is often accompanied by an increase in health problems and the need for more care, which further emphasizes the importance of an active life in maintaining the quality of life of this population group.

Most developed countries accept the chronological age of 65 years as the criterion for determining the concept of an "old" person. This definition is based on the age at which pension benefits normally start. Although this age limit is somewhat arbitrary, it is widespread and adapted to the Bulgarian reality. In Bulgaria, the retirement age is currently lower than 65 and varies for men and women, but according to the Social Security Code, it will gradually reach 65 for everyone after 2037.

"Elderly" refers to individuals who are advanced in age and often face physical or health limitations resulting from the natural ageing process. These limitations may include reduced mobility, chronic illnesses, and other conditions that affect their daily activities and quality of life (Arnett, 2000).

The concept of "active senior living" is a core element of the quality of life of the older population and is closely related to the idea of "active ageing". This concept, introduced by the European Commission in 1999, covers multiple aspects of active living, including economic and social contribution, healthy lifestyle and maintaining independence. The active life of the elderly includes participation in a variety of activities – economic, social, cultural, spiritual and civic, which contribute to the preservation and improvement of their health and general well-being. This concept promotes flexibility in lifestyle choices through opportunities to study, work, volunteer, care for others and maintain healthy habits. The purpose of active living is to extend the period of activity and independence of older people by promoting their social integration and recognizing their ability to contribute to society. This not only supports their physical and mental health but also improves social connectedness and a sense of meaning in life. Active ageing emphasizes a holistic and life-course approach, including quality of life, physical and mental well-being, and social participation, leading to a "win-win" situation, where individuals (micro level), organizations (meso level), and society (macro level) benefit from the adoption and implementation of active ageing policies, strategies, and initiatives (Socci et al., 2020).

The Active Aging Index (AAI)[3] is a tool that measures the untapped potential of the older population for active and healthy ageing at the national and regional levels. It assesses the extent to which older people live independently, participate in paid employment and social activities, and have the opportunity to age actively. The index consists of 22 indicators grouped into four areas: employment, participation in society, independent and secure living in good health, and creating capacity and an enabling environment for active living. Developed during the 2012 European Year of Active Older Living and Intergenerational Solidarity, this index is used to assess the extent to which older people's potential is used and they are encouraged to participate in the economy and public life. The maximum value of the index is 100 points, which represents an "ideal" score difficult to achieve in practice, as it implies a higher life expectancy and active participation of all older people in the labour market and society.

4. Active Aging in the Context of Demographic Development in Bulgaria

The demographic development of our populations will inevitably take us not just into an era of super-ageing but also into a new demography of death as we move deeper into the 21st century (Leeson, 2014). According to Eurostat's demographic forecast, Bulgaria's population will decrease to 5.3 million people in 2070. Although the total fertility rate is expected to increase from 1.57 in 2023 to 1.69 in 2070, it remains below the natural replacement level of 2.1. At the same time, average life expectancy, which in 2023 was 71.1 years for men and 78.2 years for women, is expected to increase to 82.8 years for men and 87.7 years for women in 2070.

Table 1. The age structure of the population of Bulgaria, 2023-2070

Year	Age groups as a percentage of the total study			Population 65+, as a percentage of the population aged 15-64	Average life expectancy in years	
	0-14	15-64	65+		Men	women
2023	14,8	63,6	21,6	33,9	71,1	78,2
2030	13,7	63,1	23,2	36,8	73,4	80,1
2040	13,1	60,4	26,5	43,9	76	82,3
2050	13,6	56,2	30,2	53,8	78,5	84,2
2060	13,3	54,3	32,4	59,6	80,7	86
2070	13,3	55,9	30,8	55,1	82,8	87,7

Source: National Social Security Institute (NSSI), www.noi.bg/wp-content/uploads/ActuarialReport_2024.PDF, p.29.

In the coming decades, significant changes in the age structure of the Bulgarian population are expected, caused by the dynamics of the birth rate, life expectancy and migration flows. Forecasts indicate (Table 1) that the share of people of working age (15-64 years) will decrease significantly. If in 2023 they make up 63.6% of the population, by 2070 this

[3] Information about the index can be found on the website of the Ministry of Labor and Social Policy [online]. Available at: https://mlsp.government.bg/uploads/1/active-ageing-index1.pdf [Accessed 15 September 2024].

percentage will drop to 56%. At the same time, the number of persons aged 65+ will increase, with their share from around 21% in 2023 expected to reach 31% by 2070. This change will lead to an increase in the old-age dependency ratio, which will rise from 34% in 2023 to 60% in 2058, reaching its highest value. Then, in the last decade of the forecast period, the ratio is expected to drop slightly to 55%.

Population ageing leads to a number of social and economic challenges. The main ones are related to increasing costs for social and health services, a decrease in the economically active population and potential deficits in pension funds.

In this context, promoting an active and healthy lifestyle for people aged 65+ is gaining more and more importance. Active living can help extend working life, improve quality of life and reduce healthcare costs. Providing opportunities for learning, social engagement and physical activity for older people will be key to addressing these demographic changes and achieving sustainable societal development.

5. Strategic Framework and Policies for Active Aging of People Aged 65+

The strategic framework and policies for active ageing of people aged 65+ are based on an integrated approach, considering the multiple aspects of older people's lives. This framework has been developed in accordance with European legislation and European Union guidelines, which emphasize the importance of active and healthy ageing as a key element in enhancing the quality of life and social inclusion of older people. The main focus is on improving health care and disease prevention, social security and employment, social services and support, as well as financial literacy and economic security.

In the field of health care, the Health Act guarantees access to health services and promotes the prevention of diseases, especially chronic and non-communicable diseases that are more common among the elderly. The National Health Strategy (2030) and The National Programme for Prevention and Control of Non-Communicable Diseases (NP-NCD) (2021-2025) emphasize the need to improve health care and create services oriented to the needs of the elderly population, promoting a healthy lifestyle, physical activity and healthy nutrition as key factors in preventing diseases and maintaining good health.

Social insurance and employment are regulated through the Code of Social Insurance, which provides financial support and protection through the pension system, ensuring security and stability of income after retirement. The Labour Code promotes flexible forms of employment and the continuation of labour activity after retirement, including measures to increase the qualification and retraining of older workers, which contributes to prolonging their working life and reducing the risk of social isolation. The National Strategy for Active Life of the Elderly in Bulgaria (2019-2030) focuses on creating opportunities for people aged 65+ to participate in community life, including through employment, volunteering and education programmes, emphasizing the importance of social inclusion and the role of older people as active members of society.

Social services and support are guaranteed through the Social Services Act, which provides access to services supporting people in their daily lives, including care at home, rehabilitation, psychological support and social integration services. The National Strategy for the Development of Physical Education and Sport (2012-2022) promotes the participation of older people in sports and physical activities as a means of maintaining good physical and mental health, emphasizing the importance of an active lifestyle in preventing functional limitations and improving general well-being.

Financial literacy and economic security are covered by the National Strategy for Financial Literacy (2021-2025), which creates a framework to increase financial literacy among older people, providing them with the knowledge and skills to manage their personal finances, understand financial products and services, and protect themselves from financial frauds. This is key to their financial independence and security.

The impact of European legislation is significant, with European policies on active ageing focusing on promoting healthy and active ageing through integrated approaches in health care, social services and the labour market. The European Union supports initiatives to prolong professional activity, improve health care and promote social inclusion, and these principles are reflected in the national strategic framework, which seeks to provide comprehensive support for older people and provide them with opportunities for an active and fulfilling life.

The strategic framework and policies for the active ageing of people aged 65+ in Bulgaria seek to create conditions for improving the quality of life of the elderly population while promoting a healthy lifestyle, social activity and financial security. This is achieved through coordinated action in the areas of health, social security, employment, social services and financial literacy.

6. Financial Security, Social Integration and Health Behaviour in the Context of Active Aging

6.1. Prevention and promotion of healthy behaviour and environment among persons aged 65+

According to the current definition of the World Health Organization (WHO), health is "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity".

Good health is shaped by the interaction of many factors, including individual characteristics, heredity, lifestyle and behaviour, socioeconomic and cultural influences, environment, and the health system.

A concept of health risk factors was formulated.[4], which is still the basis of the prevention of chronic non-communicable diseases today. There are different classifications of risk factors. According to one of them, they are divided into modifiable (preventable), non-modifiable (sex, age, heredity) and others. Factors related to the social environment and people's

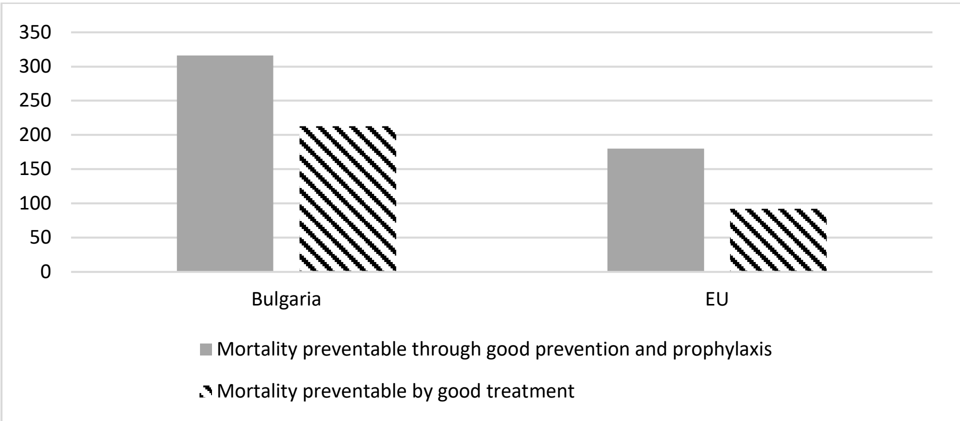
[4] The concept of health risk factors remains central to contemporary public health strategies. This is reflected in the National Program for the prevention of chronic non-communicable diseases 2021-2025 [online]. Available at: https://www.strategy.bg [Accessed 2 September 2024].

behaviour are preventable. When interacting with genetic and other factors, they lead to the emergence of biological risk factors, through which their participation in the development of chronic non-communicable diseases is realized.

Preventable mortality rates remain very high (Figure 1), indicating substantial deficiencies in prevention and treatment programs, as well as limited financial resources and insufficient political efforts to improve diagnosis and treatment. In 2020, preventable mortality through effective prevention and prophylaxis is increasing as deaths due to COVID-19 are classified as preventable. Unlike the trend in the European Union, Bulgaria has seen an increase in mortality since 2018, which could be prevented through better treatment.[5]

In Bulgaria, preventable mortality is significantly higher than in the European Union, which signals inefficiency in the health system. The data show (Figure 1) that both preventable mortality and treatment-preventable mortality are at much higher levels in Bulgaria than in the EU. This not only highlights structural flaws in disease prevention programs but also demonstrates the need for significant healthcare reforms.

Figure 1. Standardized mortality rate per 100,000 people (2020)



Source: Bulgaria: Health profile of the country, https://www.oecd.org/en/publications/bulgaria-country-health-profile-2023_8d90f882-en.html.

Shortcomings in prevention are due to a number of factors related to the lack of adequate education campaigns about healthy lifestyles and the prevention of chronic diseases, such as cardiovascular disease, diabetes and cancer, which can lead to increased mortality. Many people are not informed about the risks of unhealthy habits such as smoking, poor diet and physical inactivity. Insufficient access to preventive medical examinations and screening programs limits the possibility of early detection and treatment of diseases. Many Bulgarian citizens do not receive the necessary medical services due to financial constraints or insufficient availability of specialized services in certain regions. The high preventable

[5] According to the Bulgaria: Health Profile of of the Country 2023, a significant share of deaths could be avoided through timely and effective medical care.

mortality in Bulgaria in the context of the comparison with the EU, clearly shows the need for significant changes in the health system (Dimitrov, Vazov, 2020). Investments in prevention, access to medical care and quality treatments are key to addressing this problem and improving the overall health of the population.

A large proportion of deaths in Bulgaria are due to behavioural risk factors or environmental risk factors (Table 2).

Table 2. Deaths attributable everything to behaviourally risky factors (%)

	Risks related to the diet	Smoking	Alcohol	Low physical activity	Air pollution
Bulgaria	29	18	7	2	9
Europe	17	17	6	3	4

Source: OECD/European Observatory on Health Systems and Policies (2024), https://www.oecd.org/en/publications/bulgaria-country-health-profile-2023_8d90f882-en.html.

The low consumption of fruits and vegetables, combined with the high consumption of sugar and salt, is responsible for 29% of all deaths in Bulgaria, which is significantly above the average for the European Union, where the share is 17%. This highlights the problems in the eating habits of the Bulgarian population, which are particularly worrying in the context of the health consequences resulting from unhealthy eating. Inadequate intake of fruits and vegetables leads to a lack of important vitamins, minerals and antioxidants. Overweight and obesity seem to be largely responsible for the occurrence of chronic diseases, reduce the change of life and worsen its quality (Dimitrov, 2014). At the same time, excessive intake of sugar and salt contributes to problems such as high blood pressure, obesity and metabolic disorders. The level of obesity among persons aged 65+ in Bulgaria is 17.1%, and the overweight is 50.1%. The WHO is a key player in defining the content of obesity policies and adopts a number of documents that define individual and general goals related to physical activity and nutrition.[6] In 2015, at the national level, the government tried to introduce a tax on food and drinks with a high content of salt, trans-fatty acids, sugar or caffeine, but the parliament did not support this bill.

Smoking is another significant cause of health problems in Bulgaria, contributing to approximately 18% of all deaths. The adult smoking rate in Bulgaria is the highest in the EU, with almost one in three adults (29%) smoking daily in 2019. Male smokers are almost twice as many (38%) as female smokers (21%). The harmful effects of smoking are a major risk factor for the development of lung disease, cancer (especially of the lung, throat and oral cavity) and cardiovascular disease. The high rate of deaths related to smoking indicates the need for stricter measures to control the use of tobacco products, as well as the promotion of smoking cessation campaigns. The National Programme for Prevention and Control of Non-Communicable Diseases (NP-NCD) includes measures to limit smoking by banning smoking

[6] World Health Organization (Geneva, 2004): Global Strategy on Diet, Physical Activity and Health. – World Health Organization (WHO Regional Office for Europe, Copenhagen (2006): Steps towards health. A European framework for promoting physical activity. – WHO Europe Ministerial Conference on Combating Obesity (Istanbul, 2006): European Charter to Combat Obesity – World Health Organization (Geneva, 2007): Handbook of Population-Based Approaches to Increasing Physical Activity Levels Implementing the WHO Global Strategy on Diet, Physical Activity and Health.

in public places, placing restrictions on the sale of tobacco products to minors, limiting tobacco product advertising, and placing warning images on cigarette packages. Despite these legislative measures, progress in reducing smoking rates has been limited. One of the main reasons for this is the weak implementation of health legislation, the lack of effective control mechanisms and insufficient information campaigns to inform and motivate people to quit smoking. For the successful implementation of this program, it is important that the state and municipalities play a more active role in supporting the elderly who want to reduce or stop the use of tobacco products.

Alcohol consumption is also among the main causes of mortality, with approximately 7% of all deaths in Bulgaria attributable to excessive alcohol use. Risks associated with alcohol use include liver damage (cirrhosis), increased risk of accidents and injuries, and an increased likelihood of developing various types of cancer. Excessive alcohol use also has a negative impact on mental health and can lead to depression, anxiety and aggressive behaviour.

Table 3. Household spending on alcoholic beverages and tobacco products in Bulgaria (%)

Alcoholic beverages and tobacco	Average	Households of pensioners	Households without pensioners
2023	3.5	3.0	4.0
2022	3.5	2.9	4.1
2021	3.7	3.1	4.3
2020	3.9	3.1	4.7
2019	3.8	3.1	4.5
2018	3.7	3.1	4.3

Source: NSI www.nsi.bg/sites/default/files/files/publications/Btdom2018.pdf , p. 115; www.nsi.bg/sites/default/files/files/publications/Btdom2019.pdf , p. 115; https://www.nsi.bg/sites/default/files/files/publications/Btdom2020.pdf , p. 115, https://www.nsi.bg/sites/default/files/files/publications/Btdom2021.pdf , p. 114, https://www.nsi.bg/sites/default/files/files/publications/Btdom2022.pdf ,p.114; https://www.nsi.bg/sites/default/files/files/publications/Btdom2023.pdf , p.114.

The analysis of the structure of household spending on alcoholic beverages and tobacco products in Bulgaria during the period 2018–2023, with a special attention on the differences in spending between households with and without pensioners reveals a gradual decline in the overall share of these expenses in the household budget. This indicates a sustained downward trend in the cost of these goods, possibly influenced by several important factors, including the growing influence of health attitudes and economic conditions that are gradually changing consumer preferences.

Interestingly, pensioner households maintain a relatively stable share of spending on alcohol and tobacco – around 3.0-3.1%. First of all, pensioner households have more limited financial resources and are characterized by a more conservative way of budget allocation. Also, in these households, spending prioritization is likely to focus on more basic needs rather than products such as alcohol and tobacco. It is also possible that pensioners refrain from consuming such products for health reasons, which could explain the lower and stable percentage of these costs.

In contrast, households without pensioners show greater dynamics and variation in spending on alcoholic beverages and tobacco products. This greater variability can be explained by the differences in income and lifestyle of these households. Younger households that do not include retirees may have greater flexibility in their spending and more pronounced consumer attitudes toward social and recreational consumption, including alcohol and tobacco. At the same time, the decrease after 2020 may be related to contemporary trends of increased awareness of the harms of these products, as well as rising prices that discourage consumption.

The difference in spending between pensioner and non-pensioner households reflects differences in the socio-demographic profile of these groups. Non-pensioner households, in general, have higher spending on alcohol and tobacco compared to pensioner households, highlighting the different generational consumption patterns and different spending priorities. Although spending on these products has declined for both groups in recent years, the relative difference remains significant and persistent over time, suggesting that differences in consumer behaviour between generations will not be easily overcome, even with the continued shift in attitudes toward healthy lifestyles of life.

The observed trends are likely to continue in the future. Retired households are expected to continue to maintain a stable level of spending on alcohol and tobacco products, which can be interpreted as a sign of established consumption habits and budget constraints, while non-retired households will continue to follow a greater flexibility and adaptability of spending, especially if health awareness and economic factors further influence their consumer preferences and decisions. It is possible that further developments in public health policies and increases in excise duties on alcohol and tobacco will accelerate these trends, particularly among younger households who can more easily change their habits. Of course, social and economic conditions will also play a significant role in future spending patterns. If household incomes rise, particularly those of retirees, some increase in spending on pleasures, including alcohol and tobacco, could be expected, albeit modestly, as priorities are likely to remain focused on other, more urgent needs.

The analysis also shows that cultural and social factors, as well as household structure itself, are important in determining alcohol and tobacco spending. Changes in the country's demographic profile, such as the increase in the share of pensioners in the population, could lead to further changes in spending patterns. If the percentage of pensioner households continues to rise, it is likely that the overall level of spending on alcohol and tobacco products in the country will continue to decline as a share of the budget, as these households, as the data show, are more frugal in this area.

Another significant factor that may impact future costs is innovation and the introduction of new products, such as e-cigarettes and non-alcoholic substitutes for alcoholic beverages. Although these products also have their own cost characteristics, they are often perceived as a healthier alternative, which could encourage changes in consumption habits and contribute to reducing the costs of traditional alcoholic beverages and tobacco. These innovations may have a stronger impact on younger households, who are more willing to experiment with alternatives, while households with retirees may remain more conservative and retain their traditional preferences.

Household expenditure on alcoholic beverages and tobacco products in the period 2018–2023 reflects sustained downward trends that are markedly different for households with and without pensioners. Although relatively stable in terms of values, these expenditures are declining as a share of total household expenditures, which may be related to socio-demographic, economic, and health factors shaping new consumer attitudes.

Low levels of physical activity are responsible for about 2% of deaths, which may seem like a relatively small proportion, but is a key indicator of the general health of the population. Insufficient physical activity is associated with a higher risk of cardiovascular disease, obesity, type 2 diabetes and musculoskeletal problems. Physical activity is extremely important not only for maintaining a healthy weight but also for improving mental health and preventing chronic diseases. Physical activity among adults is also low, with only 58% doing at least moderate physical activity each week, which is below the EU average of 64%. In 2002, the WHO adopted a recommendation that everyone should do physical activity for at least 30 minutes a day[7]. For healthy people aged 18–65 years, the WHO recommended target is to do at least 30 minutes of moderate-intensity physical activity 5 times a week or at least 20 minutes of vigorous-intensity physical activity 3 times a week. The required amount of physical activity can be built up in chunks of at least 10 minutes and can also consist of a combination of moderate and vigorous intensity periods.[8] Exercises to increase muscle strength and endurance should be added 2-3 times a week. For persons aged 65+, as a rule, goals should be achieved for healthy younger people. In addition, strength and balance training exercises are especially important in this age group to prevent falls. The National Strategy for the Development of Physical Education and Sports (2012-2022) has an important role in promoting healthy behaviour and prevention among individuals. It is aimed at promoting physical activity among all age groups, including those persons aged 65+. Regular physical activity is key to maintaining health, preventing chronic diseases and improving the quality of life of the elderly. The strategy encourages the inclusion of sport and exercise in daily life, which can help maintain mobility, muscle strength and general fitness. It also foresees the improvement of the sports infrastructure and the creation of specialized programs and services for the elderly to support their physical activity.

Exposure to fine particulate matter and ozone accounted for around 9% of deaths in Bulgaria (over 11,000 cases) in 2019, more than twice the European Union average (4%). Air pollution is a significant factor in mortality and morbidity from cardiovascular disease, respiratory disease and some cancers. In response to these problems, Bulgaria is developing a National program for the improvement of atmospheric air (2018 – 2024), as well as a National Program for Air Pollution Control (2020 – 2030). These programs aim to significantly reduce air pollution and improve its quality by introducing measures to control and reduce harmful emissions. Such measures include regulating industrial emissions, improving fuel quality, reducing transport-related pollution, and promoting the use of cleaner energy sources. In this regard, during the last 15 years, Bulgaria has succeeded in achieving progress in reducing the negative impact of air pollution on public health. Between 2009 and 2019, there was a

[7] http://www.who.int/moveforhealth/en/ ("Why move for health) [online] [Accessed 12 August 2024].
[8] In adults (young to middle-aged), light/relaxed walking (walking) can be a physical effort of 3,500 steps in 30 minutes, while in elderly people the same effect will be achieved by 2,500 steps in 30 minutes. Therefore, moderate walking requires 4000 steps in an adult and 3500 steps in an elderly person, while vigorous walking (climbing a slope, stairs or running) will require 4500 steps in an adult and 4000 in an elderly person.

significant reduction in premature mortality from air pollution, occurring at a faster rate than the EU average (OECD/EU, 2022). Furthermore, since 2019, there has been a steady trend of improving air quality. These national programs play a key role in Bulgaria's ongoing efforts to reduce the harmful effects of air pollution on public health by promoting better air quality management and stricter controls on pollutant emissions.

High mortality rates associated with nutritional deficiencies, smoking, excessive alcohol use, insufficient physical activity, and air pollution underscore the need for integrated and coordinated strategies to improve public health. To be effective, these strategies must include not only information campaigns aimed at raising awareness and promoting healthy lifestyles, but also a more serious involvement of state and local institutions in the development of policies and programs that provide real opportunities to change the behaviour of the population. It is necessary to expand preventive programs related to chronic diseases, paying special attention to risk factors such as obesity, lack of physical activity and unbalanced nutrition. Information campaigns should be supported by practical guidelines and measures to change harmful habits, for example through access to healthy foods, subsidies for sports activities and control of the sale and consumption of tobacco and alcohol.

Creating local initiatives and support groups is equally important. Such initiatives can be platforms for active communication and community engagement in efforts to maintain good health. Support groups can offer psychological and social support to those trying to change unhealthy habits, such as quitting smoking or reducing alcohol consumption. In addition, they could encourage older people to participate in regular physical activity and lead an active social life, which is a key element in improving their quality of life.

Programs to promote physical activity and healthy eating should be developed with a specific focus on persons aged 65+ who are more vulnerable and have specific needs. For example, specialized sports and fitness programs for older adults can help improve mobility, muscle strength, and balance, thereby reducing the risk of injury and falls. Involving adults in such initiatives could also stimulate their social engagement and reduce feelings of isolation.

Information campaigns should also be aimed not only at changing individual behaviour, but also at creating a favourable social environment in which a healthy lifestyle is the norm. This includes introducing incentives to eat healthy products, promoting walking and cycling as part of everyday life, and limiting access to unhealthy foods and products high in sugar and salt.

It is also necessary to create more effective partnerships between government, local authorities, non-governmental organizations and the private sector to provide resource and organizational support for all these programs and initiatives. Only through coordinated action and joint efforts can a significant improvement in the health status of the population and a reduction in preventable mortality be achieved. The implementation of comprehensive public health strategies is necessary to increase the quality of life of persons aged 65+ and to improve general public well-being.

6.2. Financial security – pensions and post-retirement income

Income from pensions

The trends in the development of the pension system, related to the right to a pension, insurance length of service and demographic changes, regulated by the Social Insurance Code, show a decrease in the number of pensioners in recent years, accompanied by a significant increase in the average amount of the pension. These changes reflect both the demographic process of population ageing and efforts to improve pension insurance in Bulgaria.

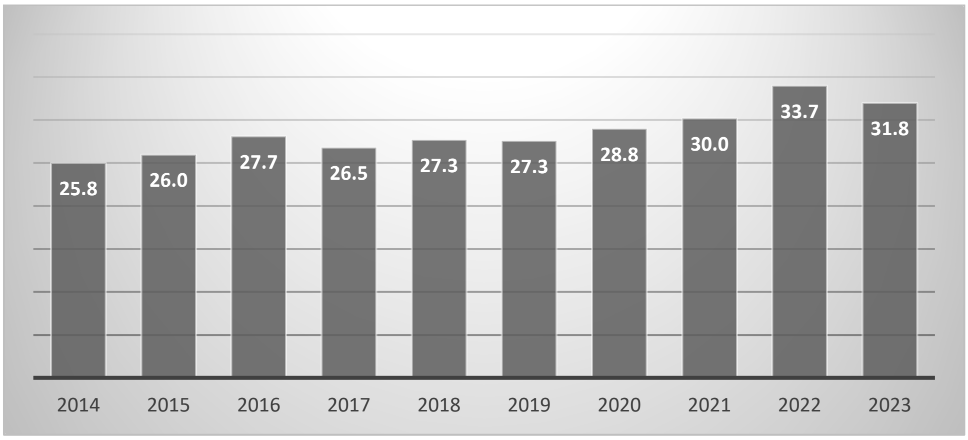
Table 4. Average monthly number of pensioners and average monthly amount of pension per pensioner (BGN)

	2019	2020	2021	2022	2023
Average monthly number of pensioners	2,145,271	2,123,017	2,080,454	2,036,543	2,031,191
Average monthly size of the pension of one pensioner	383.03	437.17	536.71	674.54	784.48

Source: National Social Security Institute (NSSI), https://nssi.bg/en/.

The increase of the average pension from BGN 383.03 in 2019 to BGN 784.48 in 2023 is more than twice in nominal terms. This significant increase leads to an improvement in the standard of living of retirees by providing them with additional funds to meet daily expenses and unexpected needs. Higher pensions have a positive psychological and social effect on retirees, as a better financial situation can reduce the stress and uncertainty associated with financial difficulties. The analysis of the share of pensions in the total income of pensioners' families allows us to assess how the economic and social policy of the country affects the financial well-being of the elderly and what measures have been taken for their support and protection (Figure 3).

Figure 3. The relative share of income from pensions in total household income (%)



Source: NSI, www.nsi.bg/sites/default/files/files/pressreleases/HBS2023_G2ERE8T.pdf, p. 3.

The analysis of pension income in the total income of households for the period 2014-2023 reveals important trends in the pension system of Bulgaria, which are the result not only of the economic and social conditions but also of the specific state policies during these years (the increase in the social security contribution to the "Pensions" fund by 1 percentage point each in 2017 and 2018).

In 2014, pension costs amounted to BGN 8.154 million, while in 2018 they were BGN 9.456 million.[9] These increases reflect the gradual adaptation of the pension system to the growing social needs and inflationary processes in the country, as well as the efforts of the state to provide sufficient funds to support pensioners.

In 2020, "Covid-19 Supplements" are also proving to be an important tool to support pensioners' incomes in pandemic conditions. They play a key role in supporting pensioners during the pandemic by providing an important financial buffer. Despite the significant costs (BGN 3.0 billion for the entire period), these measures are essential to minimize the economic difficulties of pensioners in difficult times.

In 2020, pension costs are already BGN 11.138 million, which is due to additional measures to support pensioners in the context of the COVID-19 pandemic, reaching BGN 15.634 million in 2022, with these increases reflecting both the need to adjust pensions to inflation, as well as the significant costs of social support during the pandemic period[10]. In 2022, the share of pensioners' income reaches its highest level for the considered period, 33.7%. This is the result of the continued implementation of social measures to support pensioners. The existing additional amounts to pensions, as well as the special supplements introduced during the pandemic, stabilize pensioners' incomes in the short term, but lead to a significant increase in public expenditure and a violation of the basic principle of differentiation according to the social security contribution – the relationship between the individual social security contribution and the amount of the pension.

In 2023, pension costs continue to rise to BGN 19,123 million[11], which represents an increase of 22.3% compared to 2022, but this growth is not related to the payment of COVID supplements or lump sums for vaccinated pensioners but stems from the regular updating of pensions according to the Social Security Code and is in response to the growing social and economic needs of pensioners. The share of pension income in total household income has declined in 2023 but remains significantly higher than the pre-pandemic level.

The existing additional amounts to pensions, as well as the special supplements introduced during the pandemic, stabilize pensioners' incomes in the short term, but lead to a significant increase in public expenditure and a violation of the basic principle of differentiation according to the social security contribution – the relationship between the individual social security contribution and the size of the pension. These results show continued adaptation of the pension system to dynamically changing economic conditions.

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[9] According to data from the National Social Security Institute (NSSI) [online]. Statistical reference – demography, economy and social security 2023 https://nssi.bg/wp-content/uploads/Demografia_2023.pdf, [Accessed 12 November 2024], pp. 48-51.

[10] Ibid

[11] Ibid

The data on the risk of poverty in Bulgaria for the period 2019-2023 also show the effectiveness of social transfers, and pensions in particular, in reducing poverty both among the overall population and among persons aged 65+ (Table 6).

Table 6. Poverty of people aged 65+ (%)

Survey year		2019	2020	2021	2022	2023
Income reference year		2018	2019	2020	2021	2022
At-risk-of-poverty rate	Total	22,6	23,8	22,1	22,9	20,6
	65 years and over	34,6	38,3	34,6	35,6	22,2
At-risk-of-poverty rate before social transfers	Total	42,2	41,7	44,3	44,2	45,3
	65 years and over	79,5	79,4	77,8	79,4	80,9
At-risk-of-poverty rate before social transfers (except pensions)	Total	29,6	29,9	31,5	30,3	28,5
	65 years and over	38,7	43,1	40,3	38	29,8

Source: NSI (SILC), https://www.nsi.bg/en/content/8258/poverty-and-social-inclusion-indicators-national-level.

After the inclusion of all social transfers, the overall at-risk-of-poverty rate shows fluctuations, but with a distinct downward trend towards the end of the period reaching 20,6% in 2023. While there have been shocks in early 2020 related to the global economic crisis and the COVID-19 pandemic, the trend shows a gradual reduction in the at-risk-of-poverty rate for both the total population and the elderly people. This is an indication of the stabilizing role of social transfers and their importance in improving the living standards of the most vulnerable groups. A particularly important aspect of social transfers is their ability to keep older people's incomes above the poverty line. Among persons aged 65+, a significant reduction in poverty was observed after the social transfers, reflecting the effectiveness of social policy in supporting this vulnerable group.

The data on the risk of poverty before social transfers reveal significantly higher values for all age groups, clearly showing that without social support a large part of the population would be exposed to poverty. This is particularly visible among elderly persons aged 65+, for whom the risk of poverty before social transfers is dramatically higher than that of the overall population.

Factors contributing to this high risk are diverse and include limited opportunities for additional income, reduced work capacity and lack of alternative sources of funds. Older people are more likely to rely on fixed incomes, making them more vulnerable in the absence of social support. These data highlight the importance of the welfare system as a poverty reduction mechanism, especially in the context of an ageing population.

When the risk of poverty is analyzed before social transfers, but with pensions included, a significant reduction in poverty is observed, especially among the elderly. Pensions act as a major source of income for persons aged 65+, providing significant relief and stability. This clearly demonstrates that pensions are not just a financial mechanism, but a key social tool for maintaining living standards and reducing poverty in this age group.

Although pension insurance plays a key role in providing income for the elderly, poverty among this group remains a significant problem, highlighting the need for additional social support. Pensions alone are not sufficient to significantly alleviate poverty, especially in the context of high inflation and rising costs of living. This fact requires continuous adaptation of the pension system to the changing economic conditions and the increasing needs of the pensioners. In this context, it is important to integrate pension provision with other components of social protection, such as social assistance and social services. This shows the need for a more flexible social protection system and policy measures to rapidly address rising poverty in crisis situations and provide protection for the most vulnerable (Shopov, 2024).

6.3. Employment after retirement

The Labour Code does not provide for restrictions on workers or employees who have acquired the right to a pension for length of service and age to continue working under their employment relationship.

Employers may terminate the employment contracts of employees who have acquired the right to a pension, but this is not a mandatory condition.

The ability of retirees to remain active in the labour market without losing their right to a pension creates a dynamic where experienced and skilled workers can continue to contribute to the economy while improving their financial situation and maintaining an active lifestyle. This transition to more flexible patterns of retirement and employment offers significant advantages, but also necessitates the need to adapt the labour market to the needs of older workers.

The data show a clear trend towards an increase in employment among persons aged 65+. This can be seen as a positive indicator of the inclusion and activity of the older population in the labour market (Table 7).

Table 7. Employed persons aged 65+

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total employed persons (1000 pers)	2934.9	2981.4	3031.9	3016.8	3150.3	3152.7	3233.1	3121.7	2877.2	2940.6	2931.9
Employed Aged at 65+ (1000 pers)	45.5	53.9	58.4	62.5	76.9	83.8	96.8	97.4	91.8	99.9	110.2
Share (%)	1.6	1.8	1.9	2.1	2.4	2.7	3	3.1	3.2	3.4	3.8

Source: NSI, https://www.nsi.bg/en/content/8258/poverty-and-social-inclusion-indicators-national-level.

The following assessments can be made and specific trends and conclusions can be drawn regarding changes in the employment of persons aged 65+ and their impact on economic processes and the labour market:

- The increase in employment among people aged 65+ can be seen as a form of compensatory mechanism that mitigates the negative effects of ageing on the labour market and incomes of the population.

- One of the reasons for the increasing employment among people aged at 65+ can be found in the development of flexible forms of employment and increased opportunities for remote work. Advances in technology are creating new career opportunities for adults who can enter the workforce without the physical strain of traditional jobs. This allows employers to attract older staff who can contribute experience and knowledge while performing tasks suited to their physical capabilities.
- At the social level, the increasing employment of persons aged 65+ requires directing resources to training and qualification programs so that they are able to adapt to the modern demands of the labour market and remain competitive.
- The trend towards an increase in the share of employed persons aged 65+ places new demands on employment and social protection policies. It is important that the government continues to develop measures to promote later-age employment, including through incentives for employers to hire older workers, providing access to training and qualifications, and introducing flexible employment programmes. In addition, it is necessary to consider options for optimizing the pension system so that it can adapt to new demographic realities and the increasing participation of older people in the labour force.

6.4. Social integration

Social integration for people aged 65+ refers to the process of actively including older people in public life, providing opportunities for participation in social, cultural, economic and civic activities. This includes creating conditions that enable older people to maintain social connections, contribute to the community and access services that support their well-being and quality of life.

Encouraging the population to participate in educational and training programs through information campaigns and support; the provision of funding and subsidies for educational programs aimed at persons aged 65+; increasing the offer of online training for this target group in order to increase access; financial literacy and financial management training, encouraging employers to support and promote the education and skills development of their older employees can be just some of the recommendations to achieve increased participation in education and training among the elderly population, which is an important aspect of active ageing. Opportunities to acquire new skills or professions are related, first, to access to training; secondly, with successful completion of training and thirdly, with the transition into employment (Tsanov et al., 2019).

The National Strategy for Financial Literacy and the Action Plan (2021-2025), adopted by the Council of Ministers in February 2021, are key documents aimed at improving the financial culture and skills of citizens in Bulgaria. They have been developed with the aim of increasing the financial literacy of various target groups, including the elderly aged 65+, providing them with the necessary knowledge and skills to manage their personal finances more effectively.

The implementation of the first priority of these documents – "Development of a framework of competencies in the field of financial literacy" – is particularly important for the target group of people aged 65+. This group often faces specific financial challenges, such as managing pensions, understanding health insurance and insurance products, and preventing risks of financial abuse. The competency framework aims to provide them with tools and knowledge to support them in these areas, increasing their financial independence and security.

Through this initiative, the National Strategy for Financial Literacy aims to help older people better navigate the modern financial world, cope with the challenges of the digital economy and make better financial decisions that improve their quality of life.

The Internet is a powerful tool that provides many opportunities for seniors and older people to continue to learn, socialize and manage their lives in an active and independent way. Supporting and promoting digital literacy among these population groups is essential for their well-being and integration into modern society. The data shows that the number of people aged 65-74 who regularly use the Internet increased significantly during the mentioned period. The percentage of people in the 65-74 age group is increasing significantly, from 17.8% in 2018 to 44.6% in 2023. This is an increase of 26.8 percentage points, indicating an almost three-fold increase in Internet use among this group of individuals (Table 8).

Table 8. People aged 65-74, regularly using the Internet (every day or at least once a week) (%)

Age	2018	2019	2020	2021	2022	2023
65-74	17.8	19.8	23.8	30.8	41	44.6

Source: NSI, https://www.nsi.bg/en/content/2814/individuals-regularly-using-internet.

The information presented and the data analysis show a significant increase in internet use among older people, which highlights the growing digital inclusion and the need for continued digital support. During the period under review, Bulgaria introduced a series of policies and programs to activate the elderly in the field of employment, by including them in training for the acquisition of new skills, meeting the priorities of the National Strategy for Active Life of the Elderly in Bulgaria 2019-2030.

Through specialized training and professional development, people acquire new skills and knowledge that increase their competitiveness in the labour market. This improves their chances of finding better jobs and provides stability in their working life. On the one hand, it leads to opportunities to increase participants' income by providing them with the opportunity to earn a salary instead of relying entirely on welfare. On the other hand, there is a positive impact on the social and economic integration of the participants, which helps their better inclusion in society and reduces the risk of social isolation.

All these initiatives largely play a key role in improving the socio-economic situation of the target group, but there are also significant shortcomings that make them unsustainable and ineffective – the disclosure of numerous projects and programs in the field of employment and social policy seems fragmented and non-targeted; many projects are initiated by different ministries, agencies or external partners without sufficient coordination, leading to duplication of effort, conflicting objectives and inefficient use of resources; in some projects, temporary positions or short-term training courses do not guarantee long-term employment or sustainable skills development.

7. Conclusions and recommendations

The study of the socio-economic aspects of active ageing in Bulgaria allows the following *conclusions* to be summarized:

- Active life after retirement not only improves the physical and mental health of older people but also contributes to their social engagement and independence. Active ageing enables people aged 65+ to participate actively in social and economic life, thereby reducing the risk of social exclusion and improving their overall life satisfaction. The opportunity to participate in public life and continue working is decisive for maintaining their physical and mental activity and strengthens their connection with the community.
- The current national policies and programs for active living of the elderly, provide a basis for a healthy lifestyle and social liability but the lack of effective coordination between different institutions and limited funding remain challenges to their sustainability and effectiveness. Without well-coordinated actions of state, local and non-governmental institutions, many of these programs do not achieve the desired scope and results, remaining difficult to access for part of the elderly population.
- Although there are national programs for the prevention of chronic diseases, their effectiveness remains limited due to the lack of wide-ranging information campaigns and ineffective implementation of health legislation. The increasing incidence of chronic diseases among adults highlights the need to improve preventive health measures, especially regarding balanced nutrition, regular physical activity and control of risk factors such as smoking and alcohol consumption.
- Despite pension increases and their key role in reducing poverty and improving the quality of life of this target group, pensioners' incomes remain uneven, making it difficult to maintain a good standard of living for all. Limited options for additional post-retirement income, such as flexible employment or volunteer work, restrain their choices and their financial stability. This underlines the need for sustainable development of the pension system, which guarantees financial support for the pensioners.
- Social exclusion and the lack of opportunities for cultural and social participation represent a significant problem for the elderly in Bulgaria. Although there is an increase in participation in educational programs, insufficient digital literacy and limited opportunities for socialization through cultural and community activities, continue to hinder the full inclusion of older people in public life. Improving digital skills and increasing cultural and social initiatives could help the full integration of this group.
- Based on the analysis and the conclusions drawn, the following *recommendations* suggest concrete steps to improve the quality of life of older people and to create a more favourable environment for active ageing:

- Strengthening health prevention and preventive measures: It is necessary to develop a long-term and integrated strategy for health prevention, which includes national information campaigns aimed at the elderly. They should focus on the importance of a balanced diet, regular physical activity and quitting smoking, using accessible and understandable communication channels such as local health centres, senior clubs and online platforms. It is recommended to strengthen control mechanisms for the implementation of health legislation and to promote cooperation between health institutions, local authorities and non-governmental organizations to ensure better coordination and implementation of health programs.

- Promoting flexible forms of employment and occupational inclusion after retirement: It is important to create incentives for employers to hire and retain older workers, for example through tax breaks or subsidies. It is recommended to develop vocational training and retraining programs for persons aged 65+ years of age to meet the modern requirements of the labour market. The introduction of flexible working models, such as telecommuting, part-time work and temporary projects, will enable older people to remain economically active while maintaining a work-life balance.

- Increasing digital literacy and creating educational opportunities: To improve the social integration of older people, the introduction of specialized training programs in digital skills is necessary. These programs can be organized within community centres, libraries or daycare centres for adults, with an emphasis on the use of computers and mobile devices, social networks and online services. Increasing digital literacy will allow older people to manage their daily lives more independently and will facilitate their access to online services, communication with loved ones and opportunities for socialization.

- Expanding social support and care services in the home environment: Expanding mobile home care and social support services, as well as the establishment of day centres and clubs for older people, is key to preventing social isolation and improving the quality of life of the elderly. These centres can offer social and health services, opportunities for cultural and educational activities, as well as psychological support. There is a need to create a network of mobile social services to support older people in a home environment and ensure regular contact with social services.

- Sustainability and optimization of the pension system: It is recommended to introduce measures to increase the financial sustainability of the pension system by attracting additional sources of financing. This may include the stimulation of voluntary pension insurance and the optimization of the ratio between the minimum and maximum pension. Support measures for low-income pensioners need to be developed to reduce the risk of poverty and social isolation.

- Promotion of cultural and social participation: The creation of specialized programs to involve older people in cultural, social and civic activities will contribute to their personal well-being and strengthen their sense of belonging to society. Cultural centres, local organizations and the non-governmental sector can organize events, courses and discussions aimed at persons aged 65+, which will encourage their socialization and engagement.

Implementation of these recommendations can provide better conditions for active ageing, improving the quality of life of older people and strengthening their role in society.

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Икономически Изследвания
Economic Studies
Volume 34(6), 2025

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IMPACT OF GLOBAL RISKS ON ECONOMIC DOWNTURN IN COUNTRIES WORLDWIDE: ANALYSIS OF THE CAUSES OF THE SITUATION AND OPPORTUNITIES FOR GROWTH RECOVERY[7]

The purpose of the article is to study the opportunities for resuming the economic growth of economies, considering the impact of global risks on its dynamics. The article provides a comprehensive analysis of the economic growth dynamics of over 200 countries from 1961 to 2023, revealing a general trend of declining growth rates, which is confirmed by the data of observations of GDP dynamics in the USA, Great Britain, Germany, Albania, Ukraine, Mongolia, China, Paraguay, Indonesia, and Sudan. It is defined that these trends are caused by the negative impact of global risks on the dynamics of economic growth of world countries. A contemporary map of the interconnections of categories and types of global risks is presented, illustrating the intertwining of geopolitical, economic, social, environmental, and technological risks. A selection of the five most influential global risks that affected the economic downturn of the world economy from 2006 to 2023 has been formed through logical-structural analysis and generalization method, demonstrating the predominant influence of economic and environmental factors. The analysis of the unique causes of economic downturn under the influence of global risks, conducted using the Ishikawa diagram, allowed to include a set of economic, environmental, social, geopolitical, technological, and other causes. The proposed political-legal, market, organizational-economic, and financial-investment mechanisms for accelerating economic recovery define the priority directions for restoring economic growth, considering the impact of global risks. The provided suggestions have practical significance for the elaboration of economic development strategies for countries to restore economic growth.
Keywords: global risks; economic downturn; GDP; logical-structural analysis; Ishikawa diagram
JEL: C19; F01; F43; O47; O57

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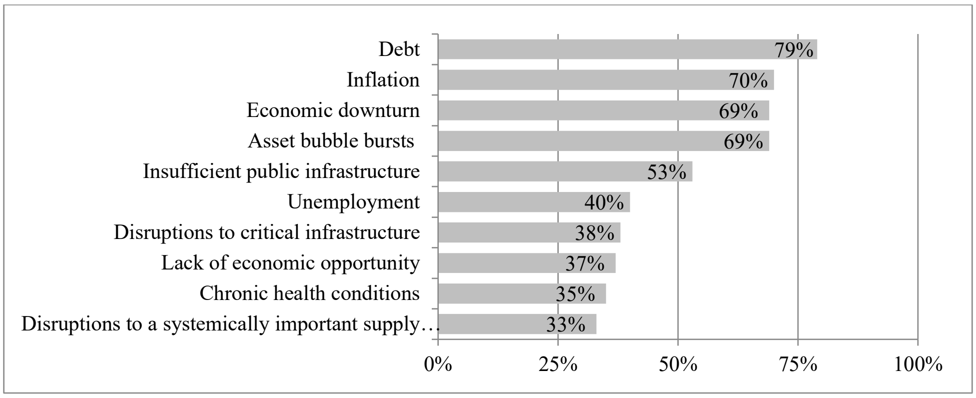
1. Introduction

For a long time, modern economies worldwide have lost their resilience due to the growing negative impact of numerous risks: geopolitical, which contribute to the disruption of the global order and the need for a shift towards power-based regulation (Yu, Wang, 2023), economic, which deepen the uncertainty of the market environment, cause financial destabilization and economic crises (Phan et al., 2021; Kryvovyazyuk, 2014b; Iordache et al., 2023), environmental, which cause irreversible ecosystem degradation and threats to the safety of human life (Prăvălie, 2021; Tong et al., 2022), social, which exacerbate dissatisfaction among certain population groups due to excessive social polarization and limited access to income and development opportunities (Stewart et al., 2020; de Soysa, Vadlamannati, 2023) and technological risks, which contribute to further stratification of labour markets between developed and developing economies (World Economic Forum, 2024).

The excessive negative impact of these risks has a global and simultaneously catastrophic effect on the economic development of national economies, not only over the past decade but over a much longer economic period. This impact is influenced by numerous factors, including globalization and the informatization of society, as noted by contemporary scholars in various scientific studies (Stiglitz, 2003; Adrian et al., 2019; Asafo-Adjei Emmanuel et al., 2023).

According to recent surveys, among the key economic problems of countries that need to be addressed are debt repayment, inflation, the emergence of "bubbles", and economic downturns (Figure 1).

Figure 1. Key economic problems of the countries worldwide



Source: built by the authors according to the World Economic Forum (2024).

While the study of solving the problems of debt repayment, reducing inflation and unemployment in countries, the emergence of "bubbles," the development of public infrastructure, etc. is relatively well studied both from the theoretical and practical point of view, the study of the impact of global risks on economic processes is still not sufficiently deeply studied.

Currently, there is already a discussion around solving the problem of the excessive negative impact of global risks on the economic growth processes of the world's economies, which makes it impossible to maintain their sustainability (Poruchnyk et al., 2021) and, as a result, leads to an economic downturn (World Economic Forum, 2024). However, there are very few such studies, which emphasize the importance and relevance of a comprehensive analysis of the impact of global risks on the decline in the economic growth rates of countries around the world, generalization of the reasons for the current situation, and the need to find opportunities for their recovery.

Accordingly, the object of research in this paper is the system of global risks, which can influence the dynamism of economic development of countries of the world with varying strength and depth. The subject of the research is the theoretical, methodological and analytical justification of the cause-and-effect interaction of global risks and the economic growth of the economies of the countries. The main purpose of the study is to determine the possibilities of resuming the economic growth of economies, taking into account the impact of global risks on their dynamics.

The high degree of validity of the scientific provisions, conclusions and recommendations presented in the work is ensured by the comprehensive application of scientific research methods, in particular, such as: abstraction and logical generalization – when studying theoretical approaches to justifying the cause-and-effect interaction of global risks and economic growth of countries' economies; analysis of "big data" – in the process of data processing to summarize the annual GDP growth rates of countries around the world; logical-structural analysis – when determining structural shifts in the dynamics of GDP of different countries around the world; the method of analyzing causes and effects based on the Ishikawa diagram – to summarize and illustrate the reasons for the decline of countries' economies under the influence of global risks; tabular and graphical analysis – to visualize, analyze and demonstrate research results; the generalization method – when formulating conclusions and developing proposals.

The structure of the article is organized as follows: in section 2, a critical analysis of existing theoretical approaches to justifying the cause-and-effect interaction of global risks and economic growth of countries economies is carried out; in section 3, a comprehensive approach to forming a system of interconnections between the strategic goal, objectives, theoretical framework and scientific-methodological basis for studying the possibilities of restoring economic growth of economies based on the results of studying the impact of global risks on the economic downturn of economies is revealed; section 4 presents the results of the analysis of the dynamics of economic growth of economies and global risks, unique reasons for the decline of economies under the influence of global risks, as well as proposed mechanisms for accelerating the economic revival of economies taking into account the influence of global risks. Section 5 summarizes the conclusions and recommendations, as well as future research areas.

2. Review of Literature

Modern scholars are actively debating the issue under study. At the same time, it is important to pay attention to the issues of defining the essence, establishing criteria and types of global risks that may affect economic processes in countries around the world, and studying the existing interrelationships between individual categories that determine the focus of this work.

In fact, global risks are exogenous factors that can determine the decisions of economic agents, which are prone to more or less significant ways of hindering economic growth (Gomes, 2022) or causing its inhibition.

Lund S. et al. (2020), in a research paper examining the relationships between risk exposure, resilience and recovery of global value chains, propose the following approach to the distribution of risk exposure, specifying them as: acute climate change, macroeconomic/financial crises, trade wars, pandemics, chronic climate change, cyberattacks, terrorism, supplier bankruptcy. However, this list does not cover the set of existing risks, which the authors do not include, for example, military actions, social polarization, limited access to resources, lack of economic opportunities, etc. It is also advisable to use the systematization of risks and their categorization.

This problem is partially solved in the work of Yatsenko O.M. et al. (2019), which notes that the system of distribution of the world economy is accompanied by the growing influence of global challenges and risks, the failure to take into account the impact of which reduces the efficiency of the functioning of the economies of countries and trade between them. The authors propose to divide global risks into 5 categories: technological, environmental, geopolitical, economic and social, which is fully consistent with the current challenges of the global economy. Also, among the listed categories, the most threatening risks and tools for preventing their negative impact are identified. The disadvantage here is the lack of study of the relationship between global risks and the development of economic processes in countries around the world, and their periodic recurrence, which would allow us to identify certain patterns of influence of such risks on the dynamics of economic indicators.

Kose M.A. & Terrones M.E. (2015) paid more attention to the relationship between economic growth and the cyclicality of economic development of countries. Thus, when studying global catastrophic economic events, scientists focus on four periods: 1975, 1982, 1991, and 2009. The authors analyze the changes that occur during the global business cycle due to the depth of destruction caused by global recessions, focusing on the ways of global recovery that accompanied the exit from such recessions in the periods under study. They outlined how economies deal with growth failures, noting that downturns and recoveries are features of cyclical development. The main need for economies is to develop better policy tools to reduce the losses associated with economic downturns and to implement mechanisms to accelerate economic recovery.

As defined in the content of some scientific studies, the excessive negative impact of global risks can lead to disruptions in global business cycles, cause global economic asymmetries and crises, making it impossible for the global economy to develop in a positive linear way (Poruchnyk et al., 2021). It should be noted that there are also alternative views on the study of this impact (Lawrence et al., 2024). At the same time, the numerous disruptions in economic development identified due to the impact of global risks require an analysis of the causes of this situation, as well as the consequences they can cause.

Sillmann J. et al. (2022) noted that scientific knowledge about individual systemic risks is often deep, but our understanding of the causal mechanisms linking these risks and the consequences they generate remains shallow. For example, the annual Global Risk Report identifies obvious connections between different types of risks but does not consider in detail the strengthening of feedback (World Economic Forum, 2024).

Exceptional attention should be paid to the scientific works of Sharma S. and Soederberg S. (2019), who propose to use global risk management as a central organizational structure in managing global development and to encourage the role of business in achieving sustainable development goals to address the problems of risk exposure. The authors consider global risk management as a dynamic and, at the same time, an uneven strategy that serves to consolidate and normalize the role of business as an active agent of development.

The global risks considered by scientists can cause numerous negative macroeconomic effects. In particular, of an economic nature – market instability, economic slowdown, inflation, disruption of business operations, deterioration of supply chains, and investment outflows; environmental – loss of yield; social – social tension in society; geopolitical – loss of territories and resources, destruction of infrastructure; technological – increasing cyber threats, information wars. This requires an in-depth analysis of not only the scope of global risks but also their impact on the dynamics of economic growth of countries.

Modern scholars have also carried out a comprehensive analysis of emerging markets and developing countries, paying considerable attention to the lessons of their global recession of 2009-2019, and considering policy options for these economies to boost growth and prepare for the possibility of a new global downturn (Kose, Ohnsorge, 2021). Attention is paid to the determinants of external crises, based on data from 62 countries over the period 1970-2019, to better guide macro-financial prudential policy. It was also found that countries with developed economies are more resilient to these risks (Cavallo et al., 2022). Additionally, the interconnection between the economic crisis caused by COVID-19 and the economic policies of countries was assessed (Chang et al., 2023), as well as the risks of transition from the global pandemic crisis to a model of long-term economic growth (Yussuf et al., 2023). At the same time, the authors also partially summarized measures that will help avoid economic downturns (Benabed, Bulgaru, 2023; Salavrakos, Palmadessa, 2023).

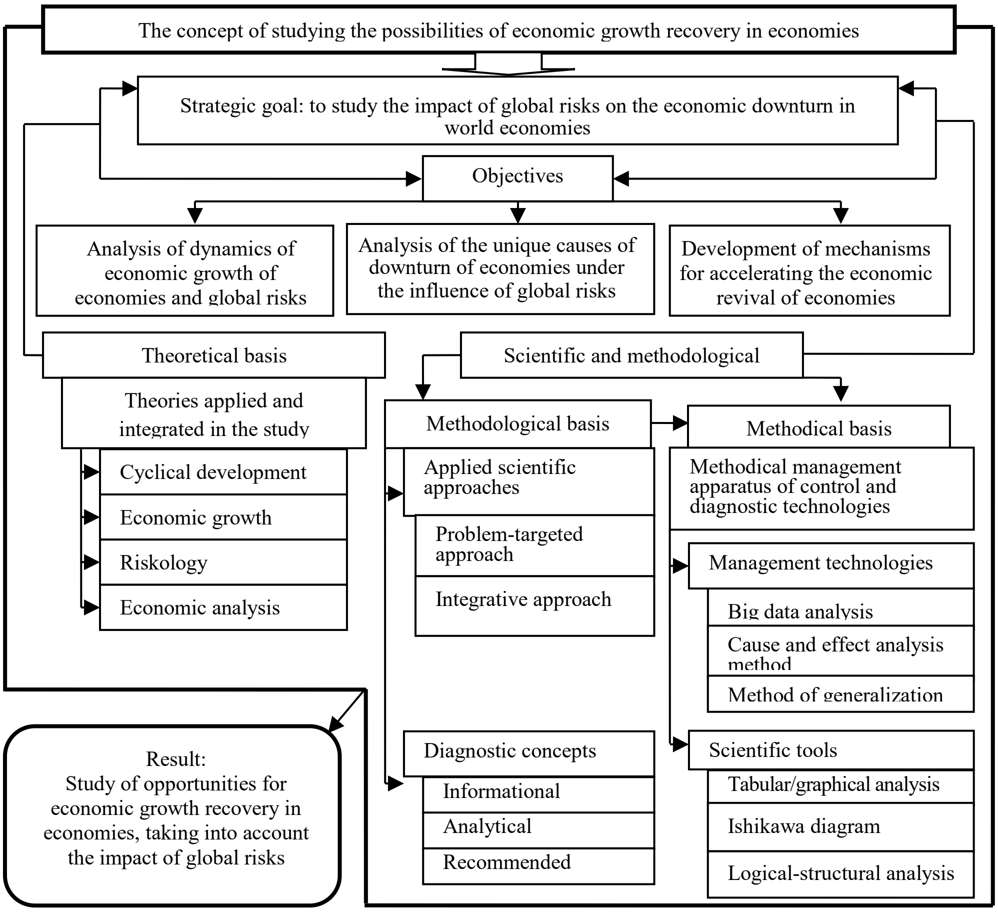
The fragmentary nature of the analysis of the issues raised in this paper, with attention to the negative impact of certain global risks on economic processes in countries, requires a detailed logical-structural analysis of the reasons that caused such changes and further study of the possibilities of recovering their growth rates, which was the purpose of the paper.

3. Methodology

In this article, we propose a problem-targeted scientific approach, which, in combination with the methods used, ensures the achievement of the research objective – to study the possibilities of recovering the growth rates of national economies based on the results of the analysis of the unique causes of their economic downturn and to study the relationship between the impact of global risks and the dynamism of GDP.

A comprehensive vision of the interrelationships of the strategic goal, objectives, theoretical framework and scientific-methodological basis for studying the possibilities of economic growth recovery becomes fundamental in the formation of its subject area in accordance with the conceptual approach to implementation (Figure 2).

Figure 2. The concept of studying the possibilities of economic growth recovery in economies, taking into account the impact of global risks



Source: developed by the authors.

The concept of studying the possibilities of restoring the economic growth of economies is based on a goal that provides a study of the impact of global risks on the economic downturn of the world's economies. This approach is formed on the basis of the appropriate theoretical basis by integrating the key provisions of theories of economic growth and cyclical development of economic systems, principles of economic analysis and concepts of risk theory. At the same time, the achievement of the strategic goal of implementing the proposed concept is also ensured by applied scientific approaches and diagnostic concepts, as well as applied management technologies and scientific tools.

Global recessions are cyclical in nature, which inevitably affects the slowdown in the economic growth of the economies of the world, and this demonstrates the relationship between economic growth and the cyclicality of the economic development of economies. The implementation of the principles of economic analysis during the study of the impact of global risks on the economic downturn of economies will ensure the implementation of a comprehensive analysis of the studied issues, and the application of the main concepts of risk theory – clarification of the level of global risks and their grouping.

The practical implementation of the idea requires the preparation of the necessary analytical basis for the study: generalization of analytical conclusions based on the results of the analysis of the dynamics of economic growth of economies and global risks that caused their changes in different periods, clarification of the unique causes of the recession of world economies that arose under the influence of global risks, as well as identification of opportunities for recovering economic growth in modern conditions.

This is achieved through the widespread use of methodical management apparatus of management technologies and diagnostics of economic processes. To solve the tasks set, the following management technologies and scientific tools were used: big data analysis (to summarize the annual GDP growth rates of more than 200 countries), tabular and graphical analysis (to visualize, analyze and demonstrate the research results), logical-structural analysis (when identifying structural shifts in the dynamics of GDP of different countries of the world), cause-and-effect analysis based on the Ishikawa diagram (in order to explain and further illustrate the reasons for the downturn in the economies of countries under the influence of global risks), and generalization method (when determining trends in certain phenomena and indicators, formulating conclusions and developing proposals).

The reliability of the results obtained is ensured by the use of the research design and the collected data. To obtain the information databases, the authors used a target sampling method based on the compilation and processing of information from the World Bank (2024, a, b) for the period 1961-2023 and the World Economic Forum (2006, 2020, 2024) for the period 2006-2023.

Thus, the proposed concept is intended to provide a comprehensive study of the possibilities for restoring economic growth of economies, taking into account the impact of global risks.

4. Results and Discussion

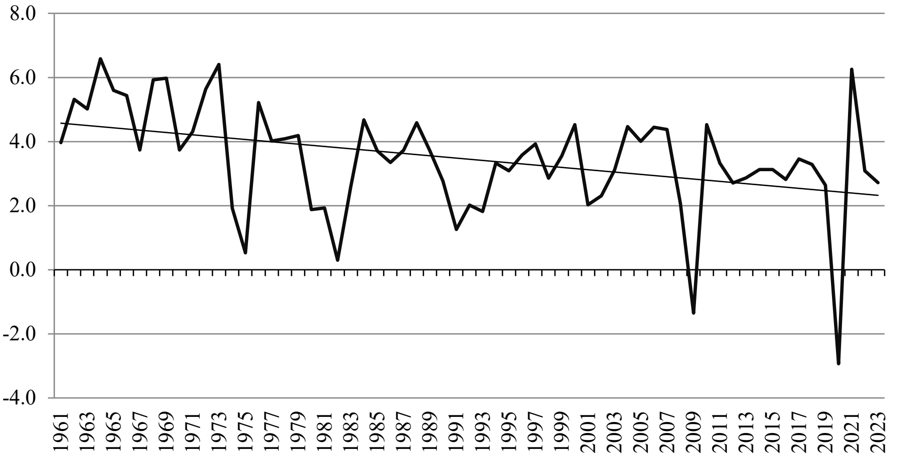
Ensuring economic growth, in the long run, is one of the priority goals of macroeconomic policy in the world, as it indicates an increase in production and total income, improved use of natural resources, a high level of technological sophistication of the economy, proper organizational support, and capital raising, which together ensure the growth of welfare in the country (Kryvovyazyuk I.V., 2014, a). However, global risks have a significant impact on the achievement of the goals set by countries, which affects the dynamics of economic growth, causing the need for an analytical study of this interdependence.

4.1. Analysis of the dynamics of economic growth of economies and global risks

The application of the big data analysis method to determine the annual GDP growth rate based on data from more than 200 world economies made it possible to establish that during the 63-year period under study, there is a clearly expressed cyclical pattern of gradual reduction in the economic growth rates of the world's economies with critical points in 1975, 1982, 1991, 2001, 2009 and 2020 (Figure 3).

An analysis of the dynamics of annual GDP growth of world economies revealed that the duration of the economic cycle in the period 1961-2023 is mainly 7-11 years with a sharp decline in growth in 2009 (-1.4%) and 2020 (-2.9%), which was caused by the U.S. real estate market crisis and subsequent financial consequences for countries around the world, and, accordingly, the spread of the COVID-19 pandemic.

Figure 3. Annual GDP growth of world economies (%)



Source: calculated by the authors based on World Bank data (2024a).

For a more in-depth study, we choose the period of 2006-2023, when the greatest slowdown in economic growth rates was recorded and which corresponds to two full economic cycles of their development. The dynamism of economic growth rates, indicators of the level of their economic development, and geographical representativeness served as criteria for the selection of world economies for further research.

The criteria for selecting the world's economies for further research were the dynamism of economic growth rates, indicators of their economic development, and geographical representativeness. Additionally, it should be noted that the selected countries are centres of geopolitical, economic, or environmental global risks (in particular, trade wars are constantly being waged between the United States and China, which has an impact on the destabilization of the global economy; Ukraine has become a military arena where a full-scale war is being waged and the largest geopolitical conflict since World War II is taking place, involving the United States, the United Kingdom, Germany, and China; a military coup took place in Sudan; Indonesia is a place of constant cataclysms and environmental disasters of a global scale; Paraguay is a place of transnational and social challenges, etc.).

Analyzing the data on the economic growth rates of individual economies in the world in 2006-2023 (Table 1), we see that its average value was: for the United States – 1.9% (at the beginning of the study period 2. 8%); for the UK – 1.25% (2.4%); for Germany – 1.26% (3.8%); for Albania – 3.47% (5.9%); for Ukraine – (-1.09%) (7.6%); for Mongolia – 6.32% (8.6%); for China – 7.86% (12.7%); for Paraguay – 3.76% (4.8%); for Indonesia – 4.92% (5.5%); for Sudan – (-.76%) (6.5%). This confirms the fact of a steady economic downturn in the economies, regardless of whether they belong to developed countries with a transitional market economy or developing countries.

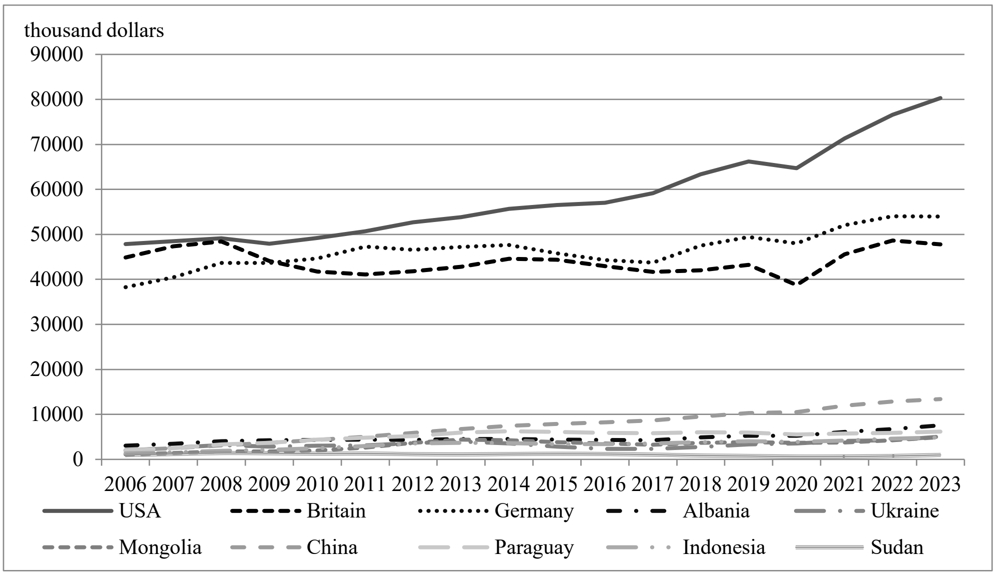
Table 1. GDP dynamics of selected world economies, 2006-2023 (%)

Countries	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Developed countries																		
USA	2.8	2.0	0.1	-2.6	2.7	1.6	2.3	2.1	2.5	2.9	1.8	2.5	3.0	2.5	-2.2	5.8	1.9	2.5
Britain	2.4	2.6	-0.2	-4.6	2.2	1.1	1.5	1.8	3.2	2.2	1.9	2.7	1.4	1.6	-10.4	8.7	4.3	0.1
Germany	3.8	3.0	1.0	-5.7	4.2	3.9	0.4	0.4	2.2	1.5	2.2	2.7	1.0	1.1	-3.8	3.2	1.8	-0.3
Countries with a transitional market economy																		
Albania	5.9	6.0	7.5	3.4	3.7	2.5	1.4	1.0	1.8	2.2	3.3	3.8	4.0	2.1	-3.3	8.9	4.9	3.4
Ukraine	7.6	8.2	2.2	-15.1	4.1	5.4	0.2	0.0	-10.1	-9.8	2.4	2.4	3.5	3.2	-3.8	3.4	-28.8	5.3
Mongolia	8.6	10.2	8.9	-1.3	6.4	17.3	12.3	11.6	7.9	2.4	1.5	5.6	7.7	5.6	-4.6	1.6	5.0	7.0
Developing countries																		
China	12.7	14.2	9.7	9.4	10.6	9.6	7.9	7.8	7.4	7.0	6.8	6.9	6.7	6.0	2.2	8.4	3.0	5.2
Paraguay	4.8	5.4	6.5	-0.3	11.1	4.3	-0.7	8.3	5.3	3.0	4.3	4.8	3.2	-0.4	-0.8	4.0	0.2	4.7
Indonesia	5.5	6.3	6.0	4.6	6.2	6.2	6.0	5.6	5.0	4.9	5.0	5.1	5.2	5.0	-2.1	3.7	5.3	5.0
Sudan	6.5	5.7	3.8	-2.8	3.9	-3.2	-17.0	2.0	4.7	1.9	3.5	0.7	-2.7	-2.2	-3.6	-1.9	-1.0	-12.0

Source: built by the authors based on World Bank data (2024a).

The recorded decline of economic growth in the world economy leads to a "freezing" of companies' capital and assets, and deterioration of business conditions. It causes a drop in securities prices and depreciation of international payment instruments during a period of growing crisis, increases economic instability, and leads to social problems. The difference in economic growth between countries has led to a significant difference in the living standards in these countries it has been observed for many years (Figure 4).

Figure 4. Comparison of per capita incomes in selected world economies



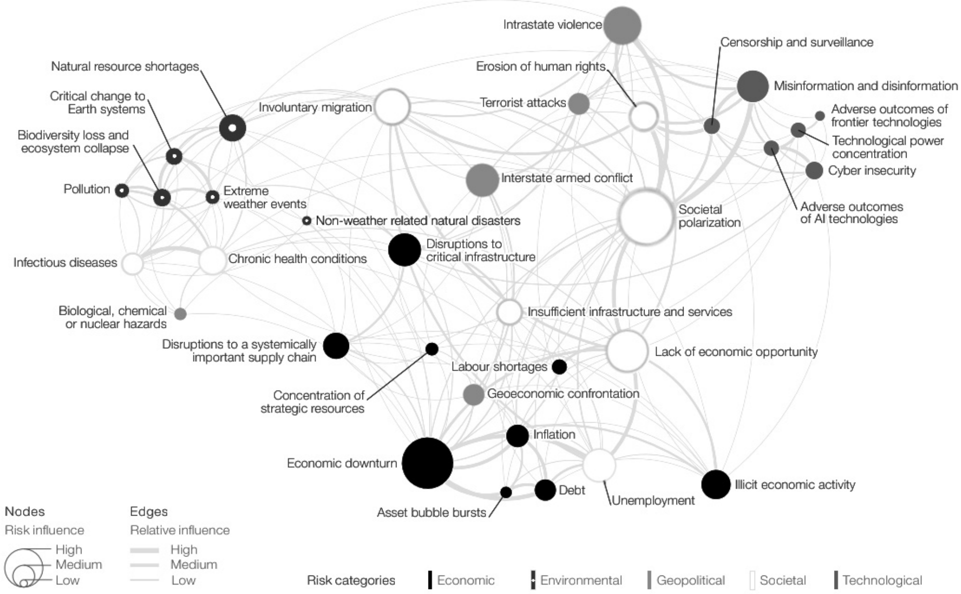
Source: built by the authors based on World Bank data (2024, a, b).

A comparison of the economic growth rates and per capita incomes of individual world economies shows a huge gap in per capita incomes between countries that have maintained economic growth rates for 60 years (the United States, the United Kingdom, Germany), the last 25 years (China), only 15 years (Albania, Indonesia), or show unstable changes in growth rates (Ukraine, Mongolia, Paraguay, Sudan). It should be noted that the level of income per capita in the United States increased by 67.82% between 2006 and 2023, in the United Kingdom by 6.58%, and in Germany by 41.02%. In the countries with transitional market economies per capita income growth was characterized by much higher dynamics: in Albania – 148.2%, in Ukraine – 160.0%, and in Mongolia – 345.95%. In developing countries, the level of income per capita changed as follows: in China – increased by 550.49%, in Paraguay – increased by 214.72%, Indonesia – increased by 258.09%, while in Sudan it fluctuated significantly (from 2006 to 2015 it increased by 29.17%, and then, by 2023, decreased by 20.16%; the overall growth from 2006 to 2023 was only 3.13%). Among the reasons that explain the significant increase in per capita income growth in developing and transition economies compared to developed countries are: increased capital investment in riskier and, at the same time, profitable projects, a decline in population growth, donor lending by developed countries on a non-repayable basis, etc.

The economic downturn in the world economies is well-founded and can be explained by the impact of global risks, which can have both a social origin due to interactive complexity and arise due to negative externalities, the society of organizations and the “error-proneness” versus “error-avoidance” of large technical systems (Le Coze J.-C., 2023), be related to environmental impacts (Qazi, Al-Mhdawi, 2023), or other factors.

For a comprehensive assessment of global risks, this study relies on the annual reports on global risks (World Economic Forum, 2006; World Economic Forum, 2020; World Economic Forum, 2024), where a thorough and in-depth assessment of the main risks facing the global economy is carried out. These reports divide global risks into five categories, namely geopolitical, economic, societal, environmental, and technological. Although they have distinctive features, in most cases the risks are intertwined, so their interaction should be viewed from an integrated perspective. We present the interaction of global risks in 2024 in the map of their interconnections (Figure 5).

Figure 5. Plane of global risks: map of interconnections



Source: World Economic Forum (2024).

It was established that, taking into account the variability of the external environment, the impact of certain global risks was not sustainable, and therefore this requires clarification of the list of risks that could cause the economic downturn of world economies, by forming their sample. Its formation is based on the results of an annual survey of more than 11,000 respondents who answered the question “Which five risks are most likely to pose the biggest threat to your country in the next two years?” and chose global risks from a list of 23-36 identified risks (World Economic Forum, 2006; World Economic Forum, 2020; World Economic Forum, 2024).

Summarizing the results of surveys for the period 2006-2023 made it possible to determine the presence of 34 global risks that had a direct or indirect impact on the economic downturn of the countries (Table 2).

Table 2. Top 5 global risks in terms of impact (2006-2023)

Rg	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
1	OPSh	BAP	BAP	AsPC	AsPC	FsCr	FinF	FinF	FsCr	WCr	CAF	WMD	WMD	WMD	CAF	InDi	EWE	ECr
2	InPd	DG	DG	DG	DG	CC	WCr	WCr	CAF	Ch(I)D	WMD	EWE	EWE	CAF	WMD	CAF	CLC	CLC
3	TRM	ISCW	ChHL	O(G)PS	OPS	GPLC	FdCr	FsCr	WCr	WMD	WCr	WCr	ND	EWE	BDL	WMD	CAF	RI
4	CC	Pd	OPSh	Ch(I)D	Ch(I)D	AsPC	FsCr	WMD	UNPL	ISCW	IM	ND	CAF	WCr	EWE	BDL	SCN	FdCr
5	KBR	OPSh	Pd	FsCr	FsCr	EPV	EPV	CAF	IBD	CAF	EPV	CAF	WCr	ND	WCr	NRCr	BDL	CCI

Note. AsPC – Asset price collapse, BAP – Blow up in asset prices, BDL – Bio-diversity loss, CAF – Climate action failure, CC – Climate change, CCI – Cyber-attacks on critical infrastructure, Ch(I)D – Chronic/Infectious disease, ChHL – China hard landing, CLC – Cost-of-living cisis, DG – Deglobalization, ECr – Energy crisis, EPV – Energy price volatility, EWE – Extreme weather events, FsCr – Fiscal crises, FdCr – Food crisis, FinF – Financial failure, GPLC – Geopolitical conflict, IBD – Infrastructure breakdown, InPd – Influenza pandemic, IM – Involuntary migration, ISCW – Interstate and civil wars, KBR – Knowability and risk, ND – Natural disasters, NRCr – Natural resource crises, O(G)PS – Oil (gas) price spikes, OPSh – Oil Price Shock, Pd – Pandemics, RI – Rising Inflation, SCE – Social cohesion-erosion, TRM – Terrorism, WCr – Water crises, WMD – Weapons of mass destruction, UNPL – Unemployment.

Source: built by the authors based on the World Economic Forum (2006, 2020, 2024).

The significant number and variety of global risks that occurred in terms of their impact on the dynamics of economic growth in the world in 2006-2023 requires further logical and structural analysis in accordance with the waves of cyclical development of economic processes. Thus, during the first wave of cyclicality (2006-2014), the dominance of economic risks can be traced, the share of which in the studied list is 48.9%, while the share of social risks is 17.8%, geopolitical risks – 17.8%, environmental risks – 11.1%, technological risks – only 4.4%. During the second wave of cyclicality (2015-2023), the situation changed significantly, and the impact of environmental risks dominated, with a share of 44.4% in the list, while the share of social risks was 26.7%, geopolitical risks – 17.8%, economic risks – 6.7%, and technological risks – 4.4%.

Analyzing the impact of economic risks on the dynamics of economic growth in the world, we can say that it was more negative during the first wave of cyclicality (2006-2014) compared to the second wave (2015-2023). For comparison, the average decline in the U.S. GDP growth during the first wave was 1.1%, while during the second wave it was 0.6%; for the UK, the decline was 1.3% and 0.8%, respectively; for Germany – 2.3% and 0.45%; for China – 2.8% and 1.2%; for Sudan – 6.1% and 3.0%. This is quite natural, since during the first wave, the number of economic risks that had an impact was predominant compared to other types of global risks.

The presented research results demonstrate the impact of global risks on the world economies. At the same time, scientists note the multicriteria nature of this impact, which causes controversy over the results. A number of works note that such risks can negatively affect people's quality of life, economic stability, physical and mental well-being, and social cohesion, intensify existing inequalities and create new problems for marginalized groups (Guo et al., 2024). They can also have an impact on the corporate value of companies (Cohen, 2023), and the growth of capital investment, which can affect economic growth, control of external pressures, and business risk in countries with effective public policies (Sun et al., 2023). Other researchers suggest focusing on the study of external financial conditions and lending in order to prevent economic risks that can significantly affect macroeconomic dynamics and GDP growth (Lloyd S. et al., 2024). In order to avoid the negative impact of global risks on economic growth, timely risk monitoring is necessary (Alonso, Molina, 2021), ensuring that the unique causes of the downturn of world economies are identified.

4.2. Analysis of the unique causes of economic downturns under the influence of global risks

The modern economy of the countries of the world is increasingly characterized by the destabilizing influence of global risks, which cause its economic downturn. To analyze the cause-and-effect relationship between the impact of global risks and the downturn of economies, we will build an Ishikawa diagram (Ishikawa, 1974), which provides a number of advantages over the use of risk assessment methods such as event tree analysis, fault tree analysis, decision tree analysis, or Bow-Tie analysis (ISO, 2018):

- Identifying areas where data should be collected for further study.
- Facilitating the identification of the root causes of the problem under analysis.
- Providing an opportunity to identify the determining factors of desired and undesired impacts.
- Presenting a graphical illustration of the results in an easy-to-understand manner.

The Ishikawa diagram is based on the results of annual surveys of respondents (representatives of the private business sector, academics, government, civil society, and international organizations) from all regions of the world. At the same time, most of them came from Europe (38%), North America (18%), Latin America and the Caribbean (9%), and South Africa (8%). The latest survey took into account the responses of 1,490 respondents who assessed the current risk landscape, short- and long-term risk landscape, short-term severity, long-term severity, consequences, risk governance, risk outlook, global efforts, global political environment for cooperation, outlook for the world and sample distribution (World Economic Forum, 2024).

While working with the Ishikawa diagram, the causes (factors) that in any way affect the economic downturn of the countries of the world were identified. They were brought into line with the previously identified criteria for the division of global risks, and they were grouped by cause-and-effect blocks. The insignificant and non-principled factors of non-global nature were excluded. As a result, all unique causes are summarized in the following 6 groups: economic, environmental, social, geopolitical, technological and others.

Economic causes. Many countries are experiencing growing financial and fiscal problems as a result of high debt burdens which are caused by excessive interest rates, economic support during the pandemic, and stimulus measures to support economies. This has a negative impact on the efficiency of the economic activity of enterprises, which is already extremely low (Britchenko et al., 2018), pricing policy, and the sustainability of importing countries (Yemelyanov et al., 2023). Illegal economic activity increases the size of the shadow economy and the need for greater government control. The negative impact of such risks leads to increased market volatility, a decline in investor confidence, and a negative impact on the economic growth of countries (Global Diplomatic Forum, 2023). At the same time, moderate inflation and oil and gas prices, to which most economies have become accustomed, have a positive impact on economic growth.

Environmental causes. Natural disasters, as well as biodiversity loss, climate change and disruption caused by anthropogenic impacts, are the most common causes of environmental global risk, indirectly causing economic downturns in world economies. Extreme weather conditions (hurricanes, floods, droughts) disrupt supply chains between countries (Qin et al., 2023; Kryvoviaziuk, 2013), destroy infrastructure (Clarke et al., 2021), and negatively affect yields and production continuity (Yadav et al., 2021). According to the World Health Organization's research, due to dramatic changes in climate conditions, the risks of excessive mortality will increase and by 2030 will be almost 2 times higher than today, which will reduce the ability to create additional value with human capital, which is a significant global risk in terms of impact on the dynamics of economic growth of the countries of the world. The escalation of climate-related risks poses a threat to businesses around the world, especially in those countries whose economic activity is significantly affected by the stability of weather conditions. Accordingly, countries have to improve their ability to predict the emergence of climate threats and respond faster and better to the impacts of extreme weather, fully consider extreme climate conditions when developing infrastructure, and formulate and implement their emissions commitments to prevent serious damage to the global supply chain (Qin et al., 2023).

Social causes. The growth of population and limited natural resources has led to the emergence of such crises as the water crisis and the food crisis. The population of most African countries and some Asian countries still suffers from hunger and lack of drinking water. The spread of chronic and infectious diseases and the COVID-19 pandemic have revealed how a global health crisis can significantly impact economies and disrupt business operations (Global Diplomatic Forum, 2023). Although vaccination efforts have made significant progress, potential pandemics remain significant risks to be taken into consideration. Accordingly, governments and businesses should work towards developing healthcare infrastructure, with the goal of strengthening the healthcare system.

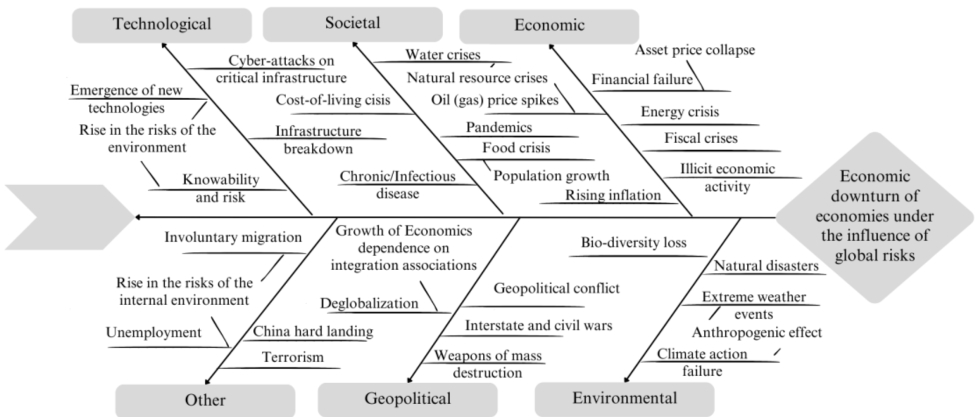
Geopolitical causes. The last decade (and especially the last few years) has become a real global challenge for countries, international governmental and military structures and associations in the context of unprecedented growth of geopolitical tensions since the Cold War. The war in Ukraine, terrorist threats from the Middle East, and presidential coups in Africa could have far-reaching consequences for the global economy. At the same time, trade disputes between the United States and China, existing sanctions and territorial conflicts between many countries significantly impede international cooperation. All of the above causes significant disruption of supply chains, especially in the Black Sea region. The existing geopolitical tensions create uncertainty, which may lead to a further increase in the negative impact of global risks, a further decline in investor confidence and a corresponding impact on economic growth.

Technological causes. The accelerated adoption of technology in the context of digital transformation and business innovation (Kryvovyazyuk et al., 2023) has brought enormous benefits, but at the same time exposed businesses and governments to unprecedented cybersecurity risks. Cyberattacks, especially in the context of rising geopolitical tensions, targeting critical infrastructure, government structures, financial institutions, and businesses, cause significant damage. Such damage is already estimated at USD 6 trillion for companies operating in the market (World Economic Forum, 2024). Companies should be vigilant in implementing robust cybersecurity measures to protect their operations and defend against potential breaches, improving strategic capabilities (Kryvovyazyuk and Strilchuk, 2016). It is also necessary to take into account the significant destruction of infrastructure caused by military actions in Ukraine, Russia, Israel and other countries of the world, which should be restored in the near future. The impact of technological risks is mitigated to a certain extent by such factors as the development of the knowledge society and the introduction of new technologies.

Other causes. A number of factors identified as significant and global in terms of their influence on the dynamics of economic growth of the countries are difficult to assign to a particular group due to their comprehensive and integrated impact. Terrorism can be considered as a technological factor (if it manifests itself in the form of cyberattacks on government structures, financial institutions, critical infrastructure, etc.), a social factor (if it threatens society, for example, by spreading viruses or poisonous substances), an economic factor (impact on the financial stability of the country under attack), an environmental factor (if there is a threat to the environment), etc. Factors such as unemployment and uncontrolled migration tend to be economic and social global risks at the same time. China's hard landing had geopolitical, economic and social consequences for world economies and caused the largest economic downturn in the entire period of the study.

The Ishikawa summary diagram graphically illustrates the reasons for the decline of countries' economies under the influence of global risks (Figure 6).

Figure 6. Causes of economic downturns in economies under the influence of global risks



Source: built by the authors based on World Economic Forum data (2006, 2020, 2024).

However, it should be taken into account that the defined list of unique causes of economic downturns under the influence of global risks is debatable and can be presented more widely. For example, it is also proposed to consider the role of national governments (Challoumis, 2024), polycrises, or causal interactions between crises (Lawrence et al., 2024).

Taking into account the trend of increasing interconnectedness of world economies, it should be understood that the causal nature of the impact of global risks on economic growth has the potential to be far-reaching, which is likely to cause uncertainty in global markets and business disruptions around the world.

4.3. Mechanisms for accelerating economic recovery considering the impact of global risks

To overcome today's global challenges and reduce the negative impact of global risks on national economies, it is essential to focus on developing infrastructure and implementing modern technologies, addressing social issues and geopolitical conflicts, overcoming environmental threats and economic crises, and ensuring the implementation of effective risk management strategies. Governments, society, and businesses must work together to tackle current challenges by developing appropriate mechanisms to accelerate the economic recovery of economies.

The mechanisms for accelerating the economic recovery of world economies can be appropriately grouped as follows: market mechanisms, political-legal mechanisms, organizational-economic mechanisms, and financial-investment mechanisms.

Market mechanisms. First of all, it is important to recognize that there are market imperfections that impede economic growth, which is especially evident in the context of global risks. These include price imbalances, flaws in tax regulation, the presence of a shadow economy, limited access to resources among countries, and the cost-of-living crisis. Accelerating the economic recovery of countries under such circumstances involves several mechanisms, among which the regulation of the development of a social market economy plays a key role. The main task of this mechanism is to balance the contradictions that arise in countries with different levels of per capita income to overcome the cost-of-living crisis. Support for socially vulnerable groups of the population and further development of social entrepreneurship in developing countries will also be important. Such actions will help reduce the negative impact of social and economic global risks, positively influencing economic growth. The obstacles posed by the shadow economy should be overcome by legalizing economic activities that are currently restricted and by implementing a more attractive tax regime for such activities, which could increase budget revenues; simultaneously, the role of institutions should be strengthened. It is quite difficult to overcome the problems of price imbalances (oil, gas, certain types of resources), because of the influence of monopolies. Typically, this is overcome by changing supply or demand in the stock markets. Partially, this issue can be resolved through international negotiations. Collectively, these measures will help mitigate the cause-and-effect impact of economic risk. At the same time, the economic growth of modern society not only requires the assurance of market mechanisms but also entails state intervention, necessitating the application of political-legal mechanisms.

Political-legal mechanisms. Political and legal institutions regulate economic forces by using specific levers and tools of influence (Malizia et al., 2020). While the regulation of political stability and accountability has a minimal impact on economic growth, control of corruption and government effectiveness have a significantly negative impact, whereas the rule of law and regulatory quality have a significantly positive effect (Beyene, 2024). The implementation of economic incentives and legislative monitoring of the causes of economic downturns will provide additional benefits to economic and environmental regulatory policies, thereby fostering intensified economic growth. We see the solution to the energy crisis through the further development of the "green economy", primarily through environmental and financial regulation at both the national and international integration levels. It should also be noted that government environmental policies aimed at increasing renewable energy consumption in developing economies have a positive impact on GDP growth and greenhouse gas emissions (Mohsin et al., 2021). Both developed and developing countries share responsibility for environmental pollution, which has reached global proportions, although awareness and stricter laws in developed countries have contributed significantly to environmental protection (Ukaogo et al., 2020). In a multipolar world, the most acceptable mechanism for resolving geopolitical conflicts is dynamic diplomacy based on timely monitoring of global and regional military and terrorist threats. International multilateral cooperation is an effective mechanism for preventing conflicts by establishing appropriate diplomatic channels and developing strategic partnerships. The application of these political-legal mechanisms will reduce the negative impact of economic, geopolitical, and, to some extent, environmental global risks.

Organizational-economic mechanisms. Overcoming the threats of global risks requires changes in approaches to managing economic systems. One successful example of such changes can be seen in the Chinese model of technological progress and structural changes for economic growth (Zhou et al., 2021). The country's transition from imitation to innovation has enabled unprecedented rates of economic growth. Accordingly, we recommend that governments develop policies and strategies that could foster economic growth through technological innovations and structural changes, based on digital transformation. To this end, it is advisable to improve mechanisms for talent development, enhance the digital literacy of employees, and ensure the sustainable development of the digital economy; refine the mechanism for monitoring changes in the market environment to accompany the development of the digital economy; and ensure the flow of capital into sectors with a higher degree of digitization, thereby promoting economic development and growth. Overall, these proposed measures are intended to mitigate the negative impact of technological and economic global risks.

Financial-investment mechanisms. At the current stage of the development of world economies, green financing policies are among the most effective tools that can help improve the scale and quality of economic growth while reducing its dependence on natural resources, albeit at the expense of slower growth rates (Ouyang et al., 2023). And thus contribute to reducing environmental and economic global risks. However, this is particularly relevant to the developed countries that possess sufficient financial resources to implement "green" projects. To enhance the attractiveness of investments and ensure rapid growth in infrastructure investment, which is one of the main factors for sustainable economic growth, it is necessary to stimulate investment activity by developing public-private partnerships and project financing tools, as well as creating a favourable business environment for their organization based on high technology and added value (Tolaganova, Ochilov, 2024). This, in turn, will mitigate the negative impact of technological risks. At the same time, some authors argue that only foreign investments should be considered as an indicator of economic attractiveness (Osei, Kim, 2023), which may not be as significant for transition economies and developing countries. An effective macroeconomic policy in countries around the world will ensure the development of an effective financial sector, which will positively influence the increase in savings and investments, as well as the rate of economic growth. When considering the impact of financial-economic mechanisms on a more global scale, a contradiction arises: "investment growth – production growth – economic growth – increased environmental pollution – investment in the environment – production constraints – reduced growth".

It should be emphasized that the proposed mechanisms are intended to ensure the proper acceleration of economic recovery in world economies from the perspective of implementing the concept of exploring the possibilities for recovery of their economic growth.

5. Conclusion

This study selected data on the annual GDP growth rates of over 200 economies from 1961 to 2023, highlighting a significant slowdown in economic growth during the period from 2006 to 2023. It utilized observations from the World Economic Forum for the same period regarding emerging global risks and analyzed the unique causes of the downturn of world economies under the influence of global risks. Based on the results of the cause-and-effect interaction between the economic downturn of economies and global risks, mechanisms for accelerating the economic recovery of economies, considering the impact of global risks, have been proposed. The final results of the study are as follows.

Firstly, the results of a comparative analysis of the economic growth rates of various world economies revealed that the rates of GDP decline are significantly lower in developed countries than in countries with transition economies and developing countries. Secondly, the assessment of global risks in categories such as economic, environmental, geopolitical, social, and technological during the period 2006-2014 demonstrates a predominant influence of economic risks, whereas the period 2015-2023 shows a predominant influence of environmental risks. Thirdly, empirical research in this article establishes that the causes of economic downturns of economies can vary significantly across different economic cycles. Fourthly, cause-and-effect analysis plays a crucial role in explaining the existing interaction between global risks and economic growth. The use of the Ishikawa diagram in this analysis clearly illustrates the causes of the economic downturn of economies under the influence of global risks.

According to the summarized conclusions, it can be stated that global risks negatively impact the dynamics of economic growth, causing a slowdown in its growth rate, and negatively affecting the development of economic activity in countries around the world. However, countries are able to use the opportunities to recover economic growth if they timely take into account the impact of global risks and apply market, political-legal, organizational-economic, and financial-investment mechanisms to accelerate economic recovery. It is important to emphasize that a significant portion of current research is focused on analyzing the negative impact of specific global risks on economic processes, while studies on how to mitigate or eliminate this negative impact in particular national economies are noticeably lacking. In light of this, we believe that future research should be deepened in the following directions: to explore the possibilities of applying mechanisms to accelerate economic recovery in the context of their implementation for economies in different regions of the world; to demonstrate how such mechanisms can be implemented in interaction with each other; to study the effectiveness of implementing mechanisms to accelerate the economic recovery of countries' economies in view of specific global risks that have negatively affected their economic growth.

Contribution of individual authors

Igor Kryvovyazyuk and Igor Britchenko developed the concept and methodology and carried out project administration.
Liubov Lipych has made a literature review and formal analysis.
Pavlo Kravchuk and Natalia Galaziuk were responsible for the statistics and visualization.
Oleksandr Burban has justified the relevance of the theme and has made a formal analysis ma carried out validation for the materials of the research.
All of the authors have made a great contribution to the results of the research and were involved in all discussions.

Conflict of Interests

The Authors declare that there is no conflict of interest.

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ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ
ECONOMIC STUDIES
Volume 34(6), 2025

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HOW DO YOUTUBE ADS SHAPE CONSUMER DECISIONS? (EMPIRICAL STUDY ON GEN-Z)[3]

This research investigated the influence of YouTube Advertising (YouTube ads) on the intention to purchase, with awareness, knowledge, and liking as mediators. Additionally, the study examines how intention to purchase impacts the purchase decision, with preference as a moderator. A structured online survey using stratified random sampling was conducted with 251 Generation Z respondents, using a quantitative research approach and Structural Equation Modeling (SEM) to analyze data on awareness, liking, knowledge, intention to purchase, preference, and purchase decisions.

The findings emphasized that while YouTube ads effectively increase awareness and knowledge among Gen Z, these cognitive factors do not substantially drive the intention to purchase. Liking emerges as the critical emotional factor, significantly impacting the intention to purchase and subsequently leading to the purchase decision. This suggests that Gen Z's purchasing choices are strongly motivated by their emotional responses to advertisements rather than more informational content. Liking surpasses awareness and knowledge as a primary predictor of purchase behaviour for Gen Z. This finding is aligned with research suggesting Gen Z values authentic and relatable content, which captures their attention more effectively than information alone. Thus, the results imply that marketers aiming to engage Gen Z should prioritize creating ads that inform and emotionally resonate, as Liking drives the progression from ad exposure to actual buying behaviour. This insight underscores the importance of emotional engagement in digital advertising strategies tailored for Gen Z. The research was robust to endogeneity and multilevel issues.

Keywords: youtube-ads; awareness; knowledge; liking; preference; intention to purchase; purchase decision
JEL: M00; M20; M31; M37

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[3] This paper should be cited as: *Haryanto, T., Haryanto, B. (2025). How Do YouTube Ads Shape Consumer Decisions? (Empirical Study on Gen-Z). – Economic Studies (Ikonomicheski Izsledvania), 34(6), pp. 87-106.*

1. Introduction

In the modern digital age, the spreading of online advertisements, primarily through platforms such as YouTube, has become a critical focus for marketers aiming to influence consumer behaviour (Firat, 2019a; Wang et al., 2023). YouTube advertising (YouTube ads) significantly shapes consumer behaviour, specifically regarding awareness, knowledge, and purchase decisions (Duffett, 2017). The visual and auditory appeal of YouTube ads and their ability to reach millions of users make them a powerful tool for influencing consumer choices (Clark et al., 2020; Opata et al., 2021).

The current business landscape is marked by rapid technological advancements and a strong pivot toward digital marketing strategies, such as YouTube ads, which significantly influence consumer decisions (Laila et al., 2024). Traditional advertising channels are overshadowed by digital platforms offering targeted, measurable, and interactive advertising opportunities (Bruhn et al., 2012). As one of the largest and most popular video-sharing platforms globally, YouTube provides businesses with a unique avenue to reach a vast and diverse audience. According to recent studies, YouTube's extensive reach and engagement make it an essential tool for brands to enhance their visibility and engagement (Guo et al., 2020; Khan et al., 2020; Wongsansukcharoen, 2022). The platform's algorithms and analytics capabilities allow for highly targeted advertising, ensuring that ads are shown to the most relevant audiences, thereby increasing the potential for positive consumer responses (Morrison, 2013; Patel et al., 2024).

Previous studies have presented various findings regarding the influence of YouTube ads on consumer behaviour (Firat, 2019a; Wang et al., 2023). Some research indicates that YouTube ads significantly enhance consumer awareness and knowledge, subsequently influencing their intention to purchase (Clark et al., 2020; Opata et al., 2021). These studies suggest that the informative and engaging nature of YouTube ads can effectively capture consumer attention and drive them toward purchasing (Morrison, 2013; Patel et al., 2024). Conversely, other studies suggest that the impact of YouTube ads on purchase intentions could be more minimal or nonexistent, questioning their effectiveness as a marketing tool (Bruhn et al., 2012). These conflicting findings highlight the need for further research to clarify the impact of YouTube ads on consumer behaviour.

Notably, while awareness and knowledge have been identified as essential precursors to purchase intention, the pathways through which YouTube ads influence these factors still need to be clarified (Morrison, 2013; Patel et al., 2024). For instance, Doe and Roe (2020) found no significant relationship between awareness and purchase intention, contradicting the findings of Smith and Anderson (2018), who reported a positive correlation. This discrepancy suggests that other factors may mediate the relationship between awareness generated by YouTube ads and actual purchase decisions. Similarly, the role of liking and preference as mediators in the relationship between YouTube ads and purchase decisions has been inconsistently documented, with some studies supporting their influence (Johnson, 2019; Brown, 2020) and others not (Clark et al., 2020; Opata et al., 2021).

Understanding the precise mechanisms through which YouTube ads affect consumer behaviour is essential for marketers to optimize their strategies and investments (Guo et al., 2020; Khan et al., 2020; Wongsansukcharoen, 2022). This research is essential as it addresses the existing ambiguities and provides a more related understanding of the direct and indirect effects of YouTube ads (Doe, Roe, 2020; Brown, Green, 2021). By describing the specific roles of awareness, knowledge, liking, and preference, this study aims to offer actionable insights that can help marketers enhance the efficacy of their advertising campaigns (Johnson, 2019; Patel, 2021).

While several studies indicate that YouTube ads enhance consumer awareness, there is limited exploration of specific content characteristics (e.g., entertainment vs. informativeness) that optimize this effect across different demographics (Firat, 2019b; Kristiyono et al., 2023). Further research could investigate how different types of YouTube ads affect awareness in various consumer segments (Dwivedi et al., 2021). Existing literature often focuses on brand awareness and purchase intention rather than directly measuring consumer knowledge. There is a need for studies that specifically assess how informative content in YouTube ads influences consumers' understanding of products or services (Kristiyono et al., 2023).

The digital marketing field continuously evolves, and consumer responses to online advertisements (such as YouTube ads) are subject to change (Evans, 2018; Hall, 2021). Thus, it is imperative to periodically reassess the impact of these ads to stay relevant and effective in influencing purchase decisions (Doe, Roe, 2020; Morris, 2019). This study contributes to this ongoing effort by providing up-to-date empirical evidence on the effectiveness of YouTube ads (Smith, Anderson, 2018); Johnson, 2019). Given the increasing competition in digital advertising, understanding these mechanisms can give marketers a competitive edge by tailoring their strategies to maximize consumer engagement and conversion (Williams, Jamal, 2020; Patel, 2021). Some studies suggest a relationship between advertising and consumer attitudes, but the specific factors that contribute to liking, remain under-explored (Febriyantoro, 2020a).

However, several factors challenge the assumption that YouTube ads consistently enhance consumer awareness, knowledge, and liking, leading to stronger purchase intentions and decisions. Consumer awareness and knowledge are foundational elements for intention to purchase, yet studies show that exposure to YouTube ads may not always effectively boost these variables. For example, Çelik et al. (2023)stated that high-frequency exposure can lead to "ad fatigue," where consumers become desensitized to repetitive ads, reducing both their awareness and retention of product details. Similarly, Tandyonomanu (2020) found that YouTube ads often fail to enhance consumer knowledge meaningfully, as frequent viewers begin skipping ads rather than engaging with their content. This lack of sustained attention challenges the impact of YouTube ads on awareness and knowledge, suggesting that while they may initially attract attention, their effect can wane over time (Huang et al., 2020).

The pathway from consumer liking to purchase intention and ultimately to purchase decision is also more complex than hypothesized. Hermawan et al. (2023) illustrated that young consumers (Gen Z), a primary demographic for YouTube ads, often exhibit scepticism toward branded ads, preferring influencer reviews over direct advertising, limiting the ads' influence on genuine consumer liking. Moreover, the assumption that consumer liking, awareness, and knowledge lead to purchase intention and decisions was not always held in various contexts. For example, a study by Yang et al. (2023) revealed that while YouTube ads may positively impact liking, this affective response does not necessarily translate into intention to purchase for all consumer segments. Duffett (2017)found that younger audiences, in particular, are sceptical of ad-driven information, showing a preference for organic reviews and recommendations from influencers rather than brand-sponsored ads. Furthermore, research has shown that even when consumers express a positive intention to purchase, their actual decisions may be driven by external factors such as social influence or price sensitivity, rather than prior exposure to ads (Zhang et al., 2020). These insights challenge demonstrate that the path from YouTube ads to purchase decisions is complex and may be moderated by consumer scepticism and alternative information sources (Shome, 2021).

The focus of the research was Gen Z who have media consumption habits that are deeply intertwined with digital and video content, with recent studies showing that 96% of Gen Z internet users actively engage with YouTube (Desiata, 2024). This high engagement level on YouTube is significant because Gen Z spends, on average, three hours per day on video platforms, which is much higher than older generations (Dixon, 2024). This extensive daily interaction with YouTube makes the platform a powerful channel through which advertisements can shape consumer attitudes and purchasing behaviour. The platform's dynamic, visually immersive nature aligns with Gen Z's preference for interactive and engaging content, which traditional advertising methods may lack (Carundeng et al., 2024). This strong affinity for video-based content, combined with YouTube's capacity to deliver visually compelling and story-driven ads, supports the idea that YouTube advertising has a uniquely positive impact on shaping Gen Z's awareness, knowledge, and ultimately, their purchasing decisions.

Specifically, this research provides a novel contribution by examining how mediating factors such as consumer awareness, knowledge, liking, and preference shape and reinforce purchase decisions in the context of YouTube ads. Deeply investigating the sequential and interdependent links between these mediating variables, provides a more thorough understanding of how YouTube ads affect consumer behaviour than just discovering correlations (Sebastian et al., 2021). Additionally, by exploring the moderating role of purchase intention in the pathway from YouTube ads to actual purchase decisions, this study offers a fresh perspective on how consumer behaviour interacts with digital advertising content. Considering intention frequently as the link between the final purchase decision and the cognitive and emotional reactions to advertising, this special emphasis on intention as a moderating element is especially pertinent to understanding Gen Z's purchasing behaviour (Nekmahmud et al., 2022).

This study also revealed a comparatively understudied topic in the scope of existing literature by thoroughly examining the direct and indirect effects of YouTube ads on purchasing decisions (Johnson, 2019; Brown, 2020). By incorporating a range of mediating variables and employing a robust analytical framework, this study aimed to fill the gaps left by previous research (Doe, Roe, 2020; Williams, Jamal, 2020). Specifically, this research explored how awareness, knowledge, liking, and preference influence consumer purchase decisions, providing a detailed understanding of the impact of advertising (Opata et al., 2021). Additionally, this research distinguishes itself by exploring the moderating role of intention to purchase in the relationship between YouTube ads and purchase decisions, offering a unique perspective on how consumer behaviour interacts in digital advertising (Shome, 2021).

2. Literatur Review

The increasing influence of digital advertising platforms, particularly YouTube ads, has been extensively studied regarding consumer behaviour, revealing the multifaceted relationship between various variables influencing purchase decisions (Smith, Anderson, 2018; Johnson, 2019). Theories such as the Hierarchy of Effects model (Lavidge, Steiner, 1961) and the Theory of Reasoned Action (Fishbein, Ajzen, 1975) provide foundational insights into how advertising influences consumer behaviours. The Hierarchy of Effects model suggests that advertising impacts consumers through a sequential process involving cognitive (awareness and knowledge), affective (liking and preference), and conative (purchase intention and behaviour) stages. This model serves as a theoretical framework for understanding the role of YouTube ads in shaping consumer behaviour (Febriyantoro, 2020b; R. Wang et al., 2023; Yunita et al., 2019).

However, the primary theoretical framework supporting this research is the Theory of Planned Behavior (TPB) proposed by Ajzen (1991). The TPB extends the Theory of Reasoned Action (TRA) by combining the concept of perceived behavioural control, which reflects the ease or difficulty of performing the behaviour and the past experiences and anticipated problem (de Regt et al., 2021; Pelet et al., 2021). The TPB postulates that an individual's intention to engage in a behaviour (such as making a purchase) is determined by three factors: attitude toward the behaviour, subjective norms, and perceived behavioural control (Ajzen, 2002).

Attitude towards the behaviour refers to the degree to which a person has a favourable or unfavourable evaluation of the behaviour in question (Duffett, 2020). In the context of YouTube ads, a positive attitude towards the ads can lead to a positive attitude towards the product, influencing the intention to purchase (Ajzen, 1991).

Subjective norms are the perceived social pressures to perform or not perform the behaviour. If significant others, such as friends, family, and influencers, are perceived to approve or disapprove of the behaviour, it can affect the individual's intention to engage in that behaviour. (Ajzen, 2002). For instance, if peers highly regard a product advertised on YouTube, this can influence an individual's purchase intention (Fishbein, Ajzen, 1975).

Perceived behavioural control involves the perceived ease or difficulty of performing the behaviour, influenced by past experiences and anticipated obstacles (Ding, Tseng, 2015; Jo ˇSko Brakus et al., 2009). High perceived control over the purchasing process can enhance the intention to purchase, whereas low perceived control can diminish it (Ajzen, 1991).

These components of the TPB collectively influence behavioural intention, which is the immediate antecedent of behaviour. The intention is considered the most important predictor of behaviour, with perceived behavioural control also directly affecting behaviour. This makes the TPB a comprehensive framework for understanding and predicting consumer behaviour in response to digital advertisements.

2.1. Direct Effects of YouTube Advertising on Awareness, Knowledge, and Liking

YouTube ads have become one of the most effective tools for increasing consumer awareness in the modern digital landscape. By leveraging engaging content in video format, YouTube ads have a unique ability to capture attention quickly and efficiently, leading to heightened brand recognition among consumers. Studies have shown that the combination of visual and auditory stimuli in video ads is more likely to stay in consumers' memory than other forms of advertising, like static images or text-based ads (Kpossa, Lick, 2020). The ability to deliver highly targeted ads based on user preferences and behaviour also ensures that the content reaches the most relevant audience, increasing the likelihood of brand recall and recognition (Patel et al., 2024).

Fang et al. (2021) highlight that YouTube ads boost awareness by repeatedly exposing consumers to brand messages, enhancing familiarity and recognition. According to Brown and Li (2022), YouTube’s precise targeting options allow advertisers to reach specific demographic groups, amplifying awareness within these segments. Furthermore, Garcia and Thompson (2023) reported that YouTube ads resonate particularly well with younger audiences, who are highly responsive to video content, thus further enhancing awareness among digital-native consumers. Alharbi et al. (2024) also noted that the interactive features in YouTube ads, such as clickable links and product demonstrations, deepen engagement and increase consumer awareness by encouraging direct interaction with the brand. Therefore, the hypothesis can be formed as:

H1: YouTube advertising has a positive effect on consumer awareness.

YouTube ads play a significant role in enhancing consumer knowledge about products and brands. Unlike traditional advertising formats, YouTube allows for detailed, informative content that can be delivered directly to consumers. By incorporating product demonstrations, tutorials, and detailed explanations within ads, YouTube provides a platform for brands to educate consumers, not just create awareness (Patel et al., 2024). This helps consumers understand product features and benefits, which is crucial in the consumer decision-making process, particularly when making complex or high-involvement purchases.

According to Febriyantoro (2020b), YouTube ads effectively educate consumers by breaking down complex information into engaging visual content, which enhances understanding and retention. Patel and Singh (2021) observed that the interactive features of YouTube ads, such as clickable links and product tutorials, allow consumers to explore in-depth product details, further expanding their knowledge. Moreover, Li and Zhao (2021) highlighted that YouTube’s algorithm-driven personalization ensures that consumers receive relevant information aligned with their interests, making the information more impactful and increasing knowledge acquisition. Jaud and Melnyk (2020) also noted that ads that combine visuals with informative content tend to leave a stronger impression, thereby strengthening consumers' grasp of product features. Thus, the hypothesis can be proposed as:

H2: YouTube advertising has a positive effect on consumer knowledge.

Unlike traditional static ads, YouTube ads combine visual, auditory, and sometimes interactive elements, which can foster a positive emotional connection between the consumer and the brand. Research has shown that advertisements that evoke enjoyment or entertainment are more likely to create favourable attitudes toward the brand (Ding & Tseng, 2015). This emotional engagement plays a crucial role in the consumer decision-making process, as consumers who like an advertisement are more likely to develop a positive attitude toward the product, increasing the likelihood of a future purchase (Batra & Ra, 1986).

Additionally, YouTube's ability to deliver personalized content based on user preferences and viewing habits enhances this effect. By showing ads tailored to individual interests, YouTube can increase the relevance of the ads, making them more appealing and enjoyable for viewers. This targeted approach contributes significantly to consumer liking, as ads that align with personal interests tend to generate more favourable attitudes (Patel et al., 2024). Thus, combining emotional engagement with personalization, YouTube ads can significantly enhance consumer liking for a brand. Therefore, the hypothesis can be formulated as:

H3: YouTube advertising has a positive effect on consumer liking.

Consumer awareness is the first step in driving consumers toward making a purchase. When consumers are aware of a product, they are more likely to consider it in their decision-making process. Studies have shown that awareness, primarily generated through platforms like YouTube, creates a mental presence of the brand or product, making it more likely for consumers to form purchase intentions (Smith, Anderson, 2018; Patel, 2021). As consumers become familiar with a brand through repeated exposure, awareness enhances their confidence in the product, increasing the likelihood of buying it.

Consumer knowledge plays a crucial role in shaping purchase intentions. When consumers gain a deeper understanding of a product – such as its features, benefits, or uses – they are more likely to consider purchasing it. Knowledge allows consumers to evaluate how well the product fits their needs, facilitating informed purchase decisions (Osei-Frimpong et al., 2020). YouTube ads, by providing detailed information through engaging content, help increase this knowledge, which, in turn, strengthens the consumer’s intent to purchase.

Consumer liking refers to the positive emotional response that consumers develop toward a product or brand, significantly impacting purchase intention. Emotional engagement through advertisements has been found to drive consumers toward purchase decisions (Batra, Ray, 1986). If consumers enjoy an advertisement or feel a personal connection to the product, they are more likely to form the intention to purchase it. By delivering personalized and emotionally resonant content, YouTube ads foster this liking and positively influence purchase intentions (Patel, 2021). Therefore, the hypothesis is as follows:

H4: Consumer awareness positively influences purchase intention.

H5: Consumer knowledge positively influences purchase intention.

H6: Consumer liking positively influences purchase intention.

The next stage involves the purchase decision, which is directly influenced by the intention to purchase. This sequential progression is consistent with the Hierarchy of Effects model, where intention mediates the relationship between advertising effects and purchase behaviour (Lavidge, Steiner, 1961). Therefore, the hypothesize:

H7: Purchase intention positively influences purchase decisions.

2.2. Mediating Role of Intention to Purchase

Intention to purchase is critical in the pathway from consumer awareness to purchase decision. While awareness is essential for consumers to recognize a brand or product, it does not directly translate into a purchase. Instead, awareness must first generate an intention to purchase, leading to the final purchase decision (Lavidge, Steiner, 1961). Studies show that when consumers become aware of a brand through platforms like YouTube, their intention to buy increases, and this intention subsequently leads to a decision to purchase (Smith, Anderson, 2018). Thus, the relationship between awareness and purchase decision is primarily mediated by purchase intention.

Consumer awareness is often seen as the first step in the purchase funnel, establishing recognition and familiarity with a product or brand. However, awareness alone is rarely sufficient to drive a purchase decision (Ovidiu Ioan Moisescu, 2009). Research by Fang et al. (2021) suggests that awareness needs to lead to an intention to buy for it to significantly impact purchasing behaviour. Purchase intention acts as the motivational factor that translates awareness into an actionable decision. This aligns with Lavidge and Steiner's (1961) hierarchical model of advertising effectiveness, which posits that awareness creates an initial foundation, but consumer action is only driven by the formation of intent. Recent studies in digital advertising further confirm that without purchase intention, awareness tends to remain passive and does not lead directly to a purchase (Dwivedi et al., 2021). Thus, purchase intention serves as a crucial bridge, mediating the relationship between initial awareness and the final purchase decision.

In consumer behaviour theory, purchase intention is widely recognized as a crucial mediator that connects core elements of the consumer domain – namely, awareness, knowledge, and liking – to the purchase decision. These three components reflect cognitive and emotional aspects within consumers that shape their responses to advertisements and influence brand interactions. However, each of these domains requires the formation of purchase intention to translate into actual buying behaviour. As studies in digital marketing have shown, while awareness, knowledge, and liking provide the foundational dispositions, the intention to purchase serves as the essential link that moves these predispositions toward concrete action (Umami, Darma, 2021).

Liking, an emotional response toward a brand or product, significantly influences the formation of intention to purchase. Batra and Ray's (1986) foundational work suggests that liking generates a positive effect, making consumers more likely to develop an intention to purchase. Recent empirical studies further emphasize that digital advertisements, especially on platforms like YouTube, can generate strong emotional responses, which in turn foster purchase intentions (Alharbi et al., 2024; Li, Zhao, 2021). However, liking alone may not always lead to a purchase decision unless accompanied by a concrete intent to buy. According to (Jaud and Melnyk, 2020), emotional connections must be channelled through the intention for liking to result in a purchase. Purchase intention, therefore, plays a mediating role, translating positive emotions into committed consumer action and influencing the purchase decision outcome.

The mediating role of purchase intention in the pathways from awareness, knowledge, and liking to purchase decisions underscores the importance of intent in the consumer journey.

Smith and Anderson (2020) found that awareness and knowledge build a foundation while liking creates emotional engagement. However, none of these factors alone consistently lead to purchasing behaviour without the presence of purchase intention as a mediator. This indicates that awareness, knowledge, and liking indirectly contribute to purchase decisions, requiring an intention to convert these cognitive and emotional responses into final actions (Martin, Wilson, 2021). Purchase intention thus acts as a necessary intermediary, suggesting that strategies to enhance intention formation may be more effective than solely increasing awareness or knowledge.

A critical review of the literature also reveals potential limitations in the relationship between purchase intention and actual purchasing decisions. Studies indicate that even when consumers express purchase intentions, other factors, such as price sensitivity, social influence, and external constraints, may override these intentions and influence the ultimate decision (Brown, Li, 2022). For instance, Garcia and Thompson (2023) found that consumers might abandon purchase intentions when faced with financial or social barriers, demonstrating that the description of intention into action is not always straightforward. This finding highlights the complexity of consumer behaviour, where intention alone is necessary but not always sufficient to guarantee a purchase decision.

Additionally, the reliance on purchase intention as a mediator can vary based on demographic and psychographic factors. Alharbi et al. (2024) suggest that younger consumers (e.g., Gen Z) might prioritize peer recommendations and authenticity over traditional advertising. Thus, while intention to purchase mediates, its strength may vary depending on the consumer segment. This aligns with insights from Wang and Evans (2022), who argue that intention is more predictive of purchase decisions in older, more brand-loyal consumers. Consequently, marketers may need to consider how demographic factors impact the effectiveness of purchase intention as a mediator and adapt strategies accordingly. Therefore, the hypothesized state is as follows:

H8: Purchase intention mediates the relationship between awareness and purchase decision.

H9: Purchase intention mediates the relationship between knowledge and purchase decision.

H10: Purchase intention mediates the relationship between liking and purchase decision.

2.3. Moderating Role of Preference

The concept of preference as a moderating factor in consumer behaviour has gained significant attention, particularly in its potential to strengthen the link between purchase intention and purchase decision (Duarte et al., 2024). Preference represents a favourable inclination or bias toward a specific brand or product, which can intensify the consumer's intention to purchase and increase the likelihood of actual purchasing behaviour (Wang et al., 2023). This moderating role of preference is critical, as it adds depth to the understanding of how internal consumer attitudes interact with external advertising influences to shape decision-making processes (Agag et al., 2024).

Studies indicate that consumers with a strong preference for a brand are more likely to follow through with their purchase intentions (Kim, Park, 2021). For instance, Wang et al. (2021)

found that high preference significantly boosts the likelihood that a consumer's purchase intention will translate into an actual purchase, reinforcing the role of preference as a catalyst. Garcia and Thompson (2022) further note that preference amplifies commitment, making consumers less likely to be swayed by competing options. This suggests that when preference is high, the relationship between purchase intention and decision becomes more resilient, demonstrating preference's moderating power in consumer decision-making.

YouTube ads serve as an effective platform for building awareness and fostering emotional engagement through their visually rich and engaging content. However, research shows that awareness alone is insufficient to drive purchase decisions unless it generates consumer liking and purchase intention in a sequential pathway (Fang et al., 2021). When a preference is high, this sequential pathway becomes even more effective, as consumers with a strong preference are more inclined to develop a favourable disposition toward the advertised product, ultimately leading to a purchase decision.

Knowledge contributes to a deeper understanding of a product's features and benefits, which can foster liking and subsequently lead to purchase intention. Patel and Singh (2021) found that YouTube ads conveying informative content enhance consumer knowledge, creating a pathway that proceeds from knowledge to liking, then to purchase intention, and finally to purchase decision. Fang et al. (2021) noted that YouTube ads enhance consumer awareness and knowledge, which subsequently fosters liking and strengthens purchase intention. When preference is high, the indirect influence of YouTube ads becomes even more potent, as preference encourages a stronger response at each stage. This indicates that preference not only moderates the relationship between purchase intention and purchase decision but also enhances the effectiveness of each mediator within the pathway (Wang, Evans, 2022).

Consumer preference for a brand or product can strengthen the effect of purchase intention on the actual purchase decision. Preference moderates, enhancing the likelihood that intention will translate into behaviour (Oliver, 1999). Then, the following were the hypothesize:

H11: Preference moderates the relationship between purchase intention and purchase decision, such that the relationship is more robust when preference is high.

YouTube ads have emerged as a powerful tool for influencing consumer behaviour, primarily by fostering a sequential pathway that leads from awareness to liking and, ultimately, to purchase intention. Advertisements that generate high awareness create an entry point for further engagement with the brand, which can then translate into a positive effect or liking toward the advertised product or service (Krishnamurthy, Kumar, 2018). This process is consistent with previous studies, which show that awareness is often a primary driver of engagement and liking in digital advertising contexts (Harrigan et al., 2017). Moreover, when viewers develop a positive sentiment toward the brand due to repeated exposure on YouTube, it enhances their purchase intention (Boateng, Okoe, 2015). Thus, YouTube ads' sequential impact on purchase decisions through awareness and liking underscores its influence on consumer purchase pathways (Wei et al., 2024).

Another pathway through which YouTube ads influence consumer purchase decisions is through knowledge, liking, and purchase intention. Studies reveal that knowledge serves as a vital intermediary step, particularly when consumers are in the information-gathering phase and seek detailed product insights (Ghose, Yang, 2009). Exposure to YouTube ads that provide informative content enables consumers to gain knowledge about the product, which positively impacts their affinity for the brand (Paramitha et al., 2021). Consequently, this liking leads to a stronger purchase intention, aligning with the sequential process observed in digital advertising research (Lou, Yuan, 2019). This pathway emphasizes that consumer decisions are not merely driven by awareness but by an enhanced understanding of the product, which fosters a deeper connection and greater purchase likelihood (Hsu, Lin, 2016).

YouTube ads influence purchase decisions through multiple mediators, including awareness, knowledge, and liking, creating an indirect but cumulative effect on consumer decision-making. Studies emphasize that digital advertising's impact is maximized when awareness and knowledge collectively contribute to a favourable attitude toward the brand (Tafesse & Wien, 2018). This cumulative mediation pathway shows that each factor-awareness, knowledge, and liking – plays an interrelated role in shaping the consumer's purchase decision, with one element strengthening the next (Sokolova, Kefi, 2020). For instance, an ad that creates brand awareness can lead to increased knowledge acquisition, which, if favourable, fosters a positive sentiment (Dwivedi et al., 2018). This indirect yet sequential mediation enhances the depth of consumer engagement and the eventual decision to purchase, reinforcing YouTube ads' role in building layered consumer pathways (Chen, Lin, 2019). Therefore, the hypothesize:

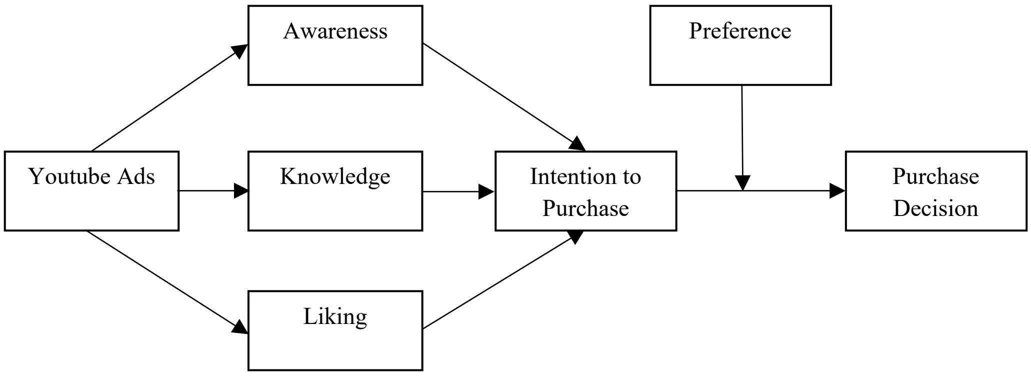
H12: YouTube advertising influences purchase decisions through a sequential pathway involving awareness, liking, and purchase intention.

H13: YouTube advertising influences purchase decisions through a sequential pathway involving knowledge, liking, and purchase intention.

H14: YouTube advertising indirectly influences purchase decisions through multiple mediators involving awareness, knowledge, and liking.

The conceptual model framework (Figure 1) for this research incorporates the variables identified in the study, including YouTube ads, awareness, knowledge, liking, preference, intention to purchase, and purchase (Smith, Anderson, 2018; Johnson, 2019; Doe, Roe, 2020; Clark, 2017; Evans, 2018). YouTube ads are evaluated based on their ability to display entertaining content, convey information, deliver targeted advertisements, and increase trust in a product (Morris, 2019; Patel, 2021). Awareness measures how effective YouTube ads are in generating brand awareness, alerting consumers to new offerings, and getting attention to particular brands (Smith, 2020). Knowledge assesses the ads' effectiveness in providing information, being a good source of knowledge, and offering valuable product knowledge (Johnson, 2019; Clark, 2017). Liking evaluates the ads' impact on consumers liking the brands more, adding to the enjoyment of using YouTube, and positively influencing liking advertised products (Evans, 2018; Batra, Ray, 1986). Preference measures how ads stimulate brand preference, relevance to interests, and effectiveness in gaining interest in products (Brown, 2020; Williams, Jamal, 2020). intention to purchase assesses consumers' desire to buy products advertised on YouTube, while purchase evaluates actual buying actions influenced by the YouTube ads (Ajzen, 1991).

Figure 1. Conceptual Framework



The TPB supports this framework by explaining how attitudes, subjective norms, and perceived behavioural control lead to behavioural intentions, which subsequently influence actual purchase behaviours, with the variables in the conceptual model acting as mediators and moderators within this process (Ajzen, 1991; Fishbein, Ajzen, 1975).

3. Methodology

The study aimed to explore the impact of YouTube ads on consumer behaviour, mainly focusing on Gen Z (R. Duffett, 2020). To achieve this, a stratified random sampling technique (Thompson, 2012) was employed to ensure a diverse representation of different demographic groups within Gen Z. A total of 251 respondents, who were regular YouTube users aged between 18 and 24, were selected for this study.

The survey was directed online using a structured questionnaire (Marshall, 2005; Regmi et al., 2016). Participants were recruited through various social media platforms and online communities frequented by Gen Z to ensure a broad reach and diverse sample. The questionnaire included closed-ended using Likert scale questions (Heo et al., 2022) to measure consumer behaviour, such as awareness, liking, knowledge, purchase intention, preference, and purchase decisions.

The study utilized a comprehensive set of measures to assess the impact of YouTube ads on various stages of consumer behaviour. Each measure was developed based on established scales and adapted to the context of YouTube ads.

4. Results and Discussions

The demographic profile of the respondents provides essential context for understanding the study results (Sarvari et al., 2016). The sample consists of a diverse group in terms of age, gender, and education, which allows for a comprehensive analysis of YouTube ads' effects across different demographic segments (Akkaya, 2021).

Table 1. Sample Characteristics

Demographic Variable	Categories	Frequency (N = 251)	Percentage (%)
Age	18-20	221	88.05
	21-24	30	11.95
Gender	Male	98	39.04
	Female	153	60.96
Education	High School	54	21.51
	Undergraduate	167	66.53
	Postgraduate	30	11.96

The demographic data in Table 1 reveals that the sample is relatively balanced in terms of age and gender. A slight majority of participants are aged 18-20 (88.05%), while the remaining are aged 21-24 (11.95%). The gender distribution is nearly even, with 39.04% male and 60.96% female respondents. In terms of education, most participants are undergraduates (66.53%), followed by high school graduates (21.51%), and a smaller group of postgraduates (11.96%). This demographic composition provides various perspectives for analyzing YouTube ads' effects (Mickle et al., 2011).

Table 2. Path Coefficients

Path	Original Sample (O)	T-Statistic	P-Value
Awareness → Intention to Purchase	0.097	1.208	0.227
Intention to Purchase → Purchase Decision	0.510	5.638	0.000
Knowledge → Intention to Purchase	0.079	0.798	0.425
Liking → Intention to Purchase	0.655	8.770	0.000
Preference → Purchase Decision	0.402	4.135	0.000
YouTube Ads → Awareness	0.919	59.825	0.000
YouTube Ads → Knowledge	0.748	24.124	0.000
YouTube Ads → Liking	0.695	19.043	0.000

Table 2 reveals insights into the consumer behaviour stages of awareness, knowledge, liking, preference, and intention to purchase, with particular emphasis on emotional engagement and its role in driving purchase decisions. While awareness and knowledge are foundational, their impact on intention to purchase is statistically insignificant ($p = 0.227$ and $p = 0.425$, respectively), suggesting that mere exposure or knowledge about a product does not strongly motivate purchase intent (Berger, Heath, 2008; Keller et al., 2015). However, liking – a measure of emotional connection – significantly influences purchase intentions ($p = 0.000$), supporting literature that emphasizes the importance of emotional engagement in consumer decision-making (Isen, 2001). Preference also significantly impacts the purchase decision, illustrating that when consumers develop a favourable view of a product, they are more likely to act on that preference (Aaker, 1996). Notably, the analysis does not address the "evaluation of alternatives" stage, where consumers would typically compare options. This exclusion is a limitation of the study, potentially affecting the comprehensiveness of the consumer behaviour model, as it focuses more on single-path influence rather than comparative decision-making processes.

Table 3. Confidence Intervals

Path	2.5% CI	97.5% CI
Awareness → Intention to Purchase	-0.063	0.249
Intention to Purchase → Purchase Decision	0.340	0.697
Knowledge → Intention to Purchase	-0.117	0.274
Liking → Intention to Purchase	0.507	0.802
Preference → Purchase Decision	0.197	0.580
YouTube Ads → Awareness	0.887	0.948
YouTube Ads → Knowledge	0.683	0.805
YouTube Ads → Liking	0.618	0.762

The confidence intervals provide further insight into the reliability and strength of the relationships between variables (Table 3). For awareness and knowledge, the confidence intervals (-0.063 to 0.249 for awareness, -0.117 to 0.274 for knowledge) indicate that these factors may have limited or neutral effects on intention to purchase, further supporting the finding that understanding and knowledge alone are insufficient to drive consumer action. In contrast, the confidence intervals for liking, intention to purchase, and preference are narrow and consistently positive, with intervals such as 0.507 to 0.802 for liking and 0.197 to 0.580 for preference, indicating solid and reliable effects on their respective outcomes. YouTube ads also show highly reliable effects, particularly on awareness and liking, with narrow confidence intervals (0.887 to 0.948 for awareness and 0.618 to 0.762 for liking), confirming that these ads are practical tools for influencing consumer behaviour.

Table 4. Indirect Effects

Path	Original Sample (O)	T-Statistic	P-Value
Awareness → Purchase Decision	0.049	1.141	0.254
Knowledge → Purchase Decision	0.040	0.767	0.443
Liking → Purchase Decision	0.334	4.654	0.000
YouTube Ads → Intention to Purchase → Purchase Decision	0.308	5.036	0.000

Table 4 showed that the indirect effects of awareness and knowledge on the purchase decision are insignificant ($p = 0.254$ and $p = 0.443$, respectively), indicating that these important factors do not strongly influence consumer purchasing decisions when mediated by intention to purchase. This suggests that consumers need more than just awareness and knowledge to purchase; emotional engagement and deeper consumer-brand connections are required. On the other hand, liking has a strong and significant indirect effect on the purchase decision ($p = 0.000$), underscoring the importance of emotional responses to ads. YouTube ads also have a significant indirect effect on purchase decisions ($p = 0.000$), primarily mediated by intention to purchase, showing that effective advertising campaigns influence consumer behaviour through a sequence of emotional and cognitive responses.

Table 5. Indirect Effects

Path	Original Sample (O)	T-Statistic	P-Value
Awareness → Purchase Decision	0.049	1.141	0.254
Intention to Purchase → Purchase Decision	0.510	5.638	0.000
Liking → Purchase Decision	0.334	4.654	0.000
Preference → Purchase Decision	0.402	4.135	0.000

YouTube Ads → Purchase Decision	0.308	5.036	0.000

The total effects further strengthen the earlier findings, with liking, preference, and intention to purchase showing the most substantial total effects on purchase decision (Table 5). Liking ($p = 0.000$) and preference ($p = 0.000$) significantly drive the likelihood of a purchase, indicating that consumers who emotionally connect with a product or develop a preference for it are more likely to purchase. The robust effect of intention to purchase on purchase decision ($p = 0.000$) confirms that once consumers have decided to buy, they are highly likely to follow through with the purchase. Finally, the total effect of YouTube ads on purchase decisions is also significant ($p = 0.000$), primarily due to the ads' impact on liking and intention to purchase, highlighting the importance of engaging, emotionally resonant advertising in driving consumer behaviour. Awareness and knowledge, while foundational, only directly lead to purchases with emotional engagement and intent.

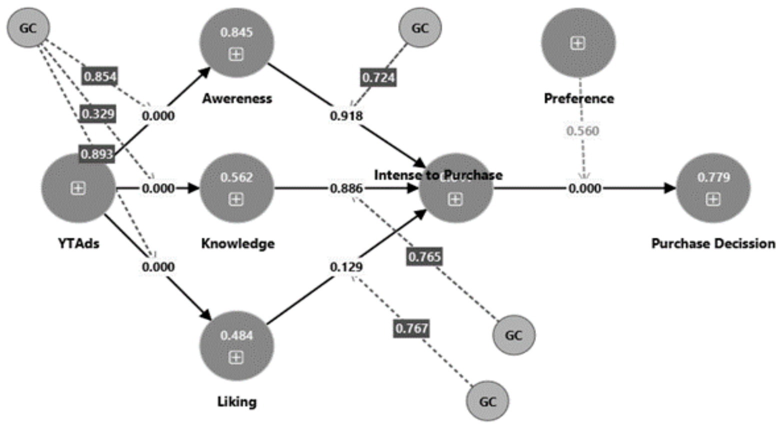
Table 6. Total Effects

Path	Original Sample (O)	T-Statistic	P-Value
Awareness → Purchase Decision	0.049	1.141	0.254
Intention to Purchase → Purchase Decision	0.510	5.638	0.000
Liking → Purchase Decision	0.334	4.654	0.000
Preference → Purchase Decision	0.402	4.135	0.000
YouTube Ads → Purchase Decision	0.308	5.036	0.000

The total effects illustrated in Table 6 further reinforce the earlier findings, with liking, preference, and intention to purchase showing the most substantial total effects on purchase decision (Table 6). Liking ($p = 0.000$) and preference ($p = 0.000$) significantly drive the likelihood of a purchase, indicating that consumers who emotionally connect with a product or develop a preference for it are more likely to purchase. The strong effect of intention to purchase on purchase decision ($p = 0.000$) confirms that once consumers have decided to buy, they are highly likely to follow through with the purchase. Finally, the total effect of YouTube ads on purchase decisions is also significant ($p = 0.000$), primarily due to the ads' impact on liking and intention to purchase, highlighting the importance of engaging, emotionally resonant advertising in driving consumer behaviour. Awareness and knowledge, while foundational, only directly lead to purchases with emotional engagement and intent.

Therefore, to ensure that there is no endogeneity between the variables. Endogeneity is considered an existential threat to reliable study findings from four different sources. By referring to issues and related concerns, micro and macro researchers commonly use independent terms (Hill et al., 2021). The Gaussian Copula was implemented to test the endogeneity between variables. Then, the results show no endogeneity of the research model (Figure 3).

Figure 3. Endogeneity Test Result (Gaussian Copula)



The study addresses stages in consumer behaviour, specifically awareness, knowledge, liking, preference, and purchase intention, while excluding the crucial "evaluation of alternatives" phase, which involves consumers comparing choices – a key element in comprehensive models of consumer decision-making (Kotler, Keller, 2012; Solomon et al., 2016). Findings reveal that awareness and knowledge, though essential for initial exposure, have limited influence on the formation of purchase intention, consistent with literature suggesting that mere cognitive awareness does not drive purchasing decisions. Instead, liking, as an emotional response, significantly impacts purchase intention, supporting empirical research on the role of affect in motivating consumers. Additionally, preference demonstrates a strong connection to purchase decisions, indicating that positive brand associations often lead directly to purchasing behaviour (Oliver, 1999). However, the exclusion of the "evaluation of alternatives" stage limits the study's scope, as it overlooks the comparative processes that influence consumer choices, suggesting that future research should integrate this phase to reflect a fuller consumer decision-making model.

5. Conclusion

The study's findings highlight the strong influence of YouTube ads on Gen Z, revealing this generation's responsiveness to visual, emotionally engaging content that aligns with their values for authenticity and connection. Specifically, the study shows that Gen Z's purchase intentions are significantly driven by factors like "liking" and "preference," underscoring the importance of emotionally resonant ads in capturing their attention and fostering brand loyalty. However, the current cross-sectional approach limits insight into how these effects evolve, especially for a generation known for adapting quickly to digital trends. Future research should take a longitudinal approach to better understand shifts in Gen Z's attitudes and behaviours toward YouTube ads over time.

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Future studies should empirically examine the effects of various ad formats (e.g., skippable vs. non-skippable), content types (e.g., influencer-led vs. traditional ads), and production quality on Gen Z's engagement and purchase decisions. Expanding the sample to include a broader spectrum of Gen Z – varying in digital engagement and media literacy – would enhance the generalizability of results across this diverse demographic. Additionally, investigating factors like cultural background, personal values, and consumer personality traits could provide a deeper understanding of how specific ad characteristics resonate with distinct Gen Z subgroups. By incorporating these practical and demographic considerations, future research could offer more targeted insights for advertisers aiming to maximize the effectiveness of YouTube ads for Gen Z's unique preferences and behaviours.

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ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ
ECONOMIC STUDIES

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Volume 34(6), 2025

COMMUNICATION FOR THE IMPLEMENTATION OF ESG INNOVATIONS IN BULGARIAN SMALL AND MEDIUM-SIZED ENTERPRISES[2]

Innovations are mainstream for modern business. The responsible innovations carried out in the context of the Concept of Corporate Social Responsibility (CSR) and the closely related ESG concept (Environment, Society, Government) are also increasingly important. In Bulgarian small and medium-sized enterprises, implementing innovations in the ESG framework context still needs improvement. The introduction and implementation of good practices in business management are directly related to adopting actions in harmony with the concept of ESG and realizing socially responsible innovations. Based on empirical research (survey with closed questions) among 350 companies operating in Bulgaria, we will examine their communications and partnerships, the innovations created, and the implementation of good practices related to ESG. The article presents conclusions and recommendations for increasing the understanding of the importance of implementing socially responsible innovations for achieving a sustainable competitive advantage. In general, they can be systematized as the need to promote the adoption of a socially responsible culture of innovation and the creation of communication programs to understand the importance of innovations in harmony with the ESG framework and for their creation and introduction. A communication model is proposed to explain the meaning of ESG and their subsequent creation.

Keywords: internal communication; integrated marketing communication; partnerships; stakeholders; strategy
JEL: M14

1. Introduction

Creating and innovating has become imperative for companies that want to increase the sustainability of their competitive advantage. Innovations are directly related to Corporate Social Responsibility (CSR) and the resulting Environment, Social, and Government (ESG) concept. In the context of what has been said, innovations in harmony with the philosophy of the mentioned concepts should contribute to the increase of society's welfare and, in a

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[2] This paper should be cited as: *Dimitrova, Y. (2025). Communication for the Implementation of ESG Innovations in Bulgarian Small and Medium-Sized Enterprises. – Economic Studies (Ikonomicheski Izsledvania), 34(6), pp. 107-124.*

reciprocal relation, support the increase of the overall performance of the companies that implement them.

For Bulgarian businesses to adopt the idea of generating and implementing innovations in harmony with ESG, communication programs that encourage stakeholders must be implemented. This article presents the results of an empirical study among companies implementing innovative products and services in the Republic of Bulgaria and a communication model to facilitate the adoption of the idea of implementing ESG innovations.

2. Literature Review

2.1. Innovation

Innovation is the ability to create conditions for searching and identifying better solutions in organizations (Martins, Terblanche, 2003). The innovation concept involves generating and introducing new combinations of resources through which value is created and added by and for the organization. It helps to increase stakeholders' welfare and overall performance (Drucker, 1985; Baldwin, Curley, 2007). It can be found in a variety of forms (product, marketing, process, social), derives from different sources (closed and open innovation) and is associated with different aspects of change (incremental, radical, disruptive) (Chesbrough, 2003; MacGregor, Fontrodona, 2008; Dimitrova, 2017).

Hull and Rothenberg (2008) consider that companies' involvement in socially responsible policies and practices positively affects their financial performance by adopting innovation processes. Socially responsible actions increase the innovation capacity of firms and enable them to increase their competitive advantage (McGahan, Porter, 1997). From the stakeholder theory perspective, some authors argue that management can identify and respond to strategic opportunities and challenges when the company is engaged in socially responsible practices and monitors stakeholder relationships and the surrounding macro environment. and microenvironment. Monitoring stakeholder demands, needs, and trends in the macro environment is critical to the success of innovation activities and processes and achieving competitive advantage (Li, Liu, 2014).

It's important to note that the socially responsible actions of companies also contribute to non-technological innovation, such as social innovation. This broader understanding of innovation and its impact on companies' success is a key aspect of the discussion.

2.2. ESG

The concept of ESG (Environmental, Social and ||Government) derives from the Principles for Responsible Investment formulated by the United Nations (2006) Principles for Responsible Investment (PRI).

ESG is becoming an indicator for measuring companies' sustainable development capacity. ESG integrates environmental protection policies, social responsibility and corporate governance. The concept governs the creation of lasting value and the application of sustainable behavioural norms and assumptions (Wang et al., 2023).

ESG is directly related to companies' economic performance. Companies' responses to problems arising from the environment and related to working conditions affect their financial results. Interaction between companies, management, and other stakeholders increases (Porter, Kramer, 2019).

ESG is a management tool that can measure companies' overall performance. Last, ESG is also part of investors' decision-making process. Companies are under constant pressure from shareholders and other stakeholders to implement policies and practices in the context of social responsibility (Dorfleitner, 2015).

We can make the following brief distinction between CSR and ESG. CSR is the framework for sustainability plans and the impact of companies' socially responsible culture, while ESG is the result of evaluating a company's overall sustainability performance.

2.3. Stakeholder theory

The concept of CSR and ESG is also built around stakeholder theory (Freeman, 1984; Donaldson, Preston, 1995; Freeman et al., 2010; Brower, Mahajan, 2013), according to which management seeks to satisfy the needs of diverse stakeholders, which are influenced or influence the company's actions.

Freeman and colleagues (Freeman, Harrison et al., 2010, p. 263) even propose replacing the term "corporate social responsibility" with their idea of "company stakeholder responsibility", which implies a new interpretation of the purpose of CSR practices. The idea is adequate for the primary goal of CSR, which is to create value for key stakeholders to fulfil the company's responsibilities to them. This idea considers business and society in their interdependence and predetermines that when relationships with stakeholders are managed competently, they will increase the company's competitive advantages. In this regard, it is necessary to know to whom the organization has specific responsibilities and their nature.

The business value created by the organization should also be supported through CSR programs that emphasize values aligned with the concepts of critical stakeholders.

Costa and colleagues (2015) support the claim that understanding stakeholders' needs and demands promotes mutual understanding and opportunities to satisfy their diverse demands. Establishing and maintaining favourable relationships with external stakeholders helps companies improve their access to diverse sources of external knowledge and information (Costa et al., 2015) and increase their absorptive capacity and knowledge-generation capabilities related to the company's innovation activities.

The creation of shared value for business and society complements standard shareholder satisfaction. Porter and Kramer (2006) formulate corporate shared value as a set of policies and operational practices through which companies create economic value by satisfying society's needs. Integrating ESG strategies in management allows companies to develop a competitive advantage, increase efficiency and effectiveness, and improve their reputation.

2.4. Corporate culture

Adopting the concept of CSR and the related ESG concept, companies must manage a corporate culture characterized by the ability to provide appropriate responses to social needs and expectations to support ethos and compliance with legal norms. These priorities must be considered in creating strategies, be at the heart of the overall corporate policy, and be subject to accountability. An influential culture is related to the strategy and structure of the organization. Culture can only be shaped after the organization formulates its strategy. One of the most essential criteria for the effectiveness of culture is that it should be relevant to strategy (Chatman, Cha, 2003).

Corporate culture is a set of values, norms, and basic assumptions accepted by the organization's members and by which they carry out their daily work activities (Schein, 1992; Miron et al., 2004). Culture represents "shared social knowledge" in an organization that influences employee attitudes and behaviours through rules, values, and norms (Colquitt et al., 2009).

The multifaceted approaches, paradigms, typologies, and models extensively presented in the academic literature shape corporate culture's complexity. One of the most researched aspects of corporate culture is its influence on the organization's competitiveness (Dimitrova, 2012).

Numerous studies in academic literature have been devoted to the relationship between corporate culture and CSR (Maon et al., 2010; Trevino and Nelson, 2007). Corporate culture is also closely related to stakeholder theory (Wood, 1991; Maon et al., 2010).

Here, we will not dwell in detail on the culture of socially responsible innovation (Dimitrova, 2020). In general, the innovation culture model (Dimitrova, 2018) is upgraded with the inclusion of CSR principles and the actions implemented by the company, which will convey social sustainability. An essential component of this model is the stakeholders, who are fundamental both for the implementation of innovations and for the understanding and implementation of actions by the philosophy of CSR. Its management, in the context of the specifics of each company, will result in the search for a balance between the interests of society and those of the company.

An essential element of the culture of innovation and, subsequently, of the socially responsible culture of innovation is change – the redefinition of business models by the requirements imposed by the claims and needs of key stakeholder groups, the trends and challenges arising from the micro and macro environment, the tolerance for uncertainty and risk-taking, and the perception of change as a positive that supports the upgrade.

A socially responsible culture of innovation is a culture of interaction – between the organization's members and between them and external stakeholder groups. It is based on open communication, free sharing of knowledge, and existing trust inside and outside the organization. All this is not just connected with perception and action by the principles of CSR, but it also ensures that everyone is included and part of a transparent process, understanding the meaning of the triple-bottom-line, and the orientation towards sustainability.

Enacting and managing a socially responsible culture of innovation requires a deep understanding of its meaning from both the leaders and the organization's members. The organization's leaders must not only understand but also embody the principles of CSR, and be ethical, innovative, and visionary. When CSR philosophy is harmonized with strategies involving responsible innovation and organizational structures facilitating interactions between stakeholders is necessary. Leader's role is significant and inspiring, as they lead the organization towards a culture of socially responsible innovation.

2.5. Responsible innovation

One type of innovation directly related to CSR is responsible innovation.

Responsible innovation is a concept based on the ethical and social commitments accepted before the start of the innovation process. A prerequisite for developing the concept is that the innovation must provide benefits intended to improve the users' quality of life. However, the innovation itself does not necessarily have to be aimed at achieving good. Many examples of innovations and new technologies have led to severe negative consequences. The concept of responsible innovation is being developed to avoid negative impacts on society.

Responsible innovation overcomes the traditional limitations of innovation management, adapting it to the changing demands of the environment and increasing openness to including new elements (such as stakeholder engagement and dialogue with them). The inclusion of goals and values also supports the concept.

In its broadest scope, responsible innovation is associated with reflection, analysis and public debate about the moral acceptability of innovations and new technologies. Stakeholders are encouraged to get involved and take collective responsibility for managing innovation in an ethical, sustainable and socially acceptable. Thus, the innovation will acquire much more significant social benefits. In the context of responsible innovation, science and innovation are called upon to contribute to the well-being of future generations through the company's current achievements. Social and sustainable innovation must also provide answers to societal challenges. They are transparent, interactive processes between stakeholders involved in them and share responsibility for creating ethical, acceptable, sustainable, innovative processes and their products (Owen et al., 2013).

There are many definitions of responsible innovation. Some emphasize that innovation is both a process and a result of this process – it is related to society as an object of moral commitment.

Other definitions of responsible innovation mainly emphasize its process dimension. An example is the Rome Declaration on Responsible Research and Innovation, which defines responsible research and innovation as "a continuous process of connecting research and innovation with the values, needs and expectations of society" (European Commission, 2014).

The most essential and significant features of responsible innovation are those related to responsibility and the main areas of interest (von Schomberg, 2013, pp. 51-74): ethical, social and environmental aspects, with the presumption of commitment to the well-being of future generations by managing the innovation process in the present.

Responsible innovation should be understood as a concept in both its substantive and process aspects. As a process, innovation is linked to norms such as accountability, inclusion, and transparency (to stakeholders and society as a whole).

In its essential aspect, responsible innovation is associated with the results and consequences of innovation, which find expression in products, services, and innovative technologies, i.e. to the process dimension of responsible innovation is added a product dimension, which is the result of the process.

Responsible innovation imposes at most minuscule two obligations on innovators – the first concerns the innovation process, and the second concerns the products, i.e., the innovations that result from this process.

Innovation processes, systems, and investments must focus on solving social challenges and current problems related to health care, energy, water, climate, and quality of life.

Responsible innovation is a multidisciplinary effort in the early stages of developing new technologies presented in the design orientation. These three characteristics link responsible innovation to other forms of technology's ethical and social impact. Responsible innovation is also an ongoing process that is open and inclusive, includes all directly affected stakeholders, and is reflexive to ethical commitments.

Various tools have been created to diagnose responsible innovation (Dimitrova, 2020).

The concept of open innovation, the culture of socially responsible innovation, dynamic capabilities, and digital transformation increase companies' ESG performance. Innovation is necessary for ESG in the context of the emergence of new ideas, processes, and interactions that improve society's well-being while companies generate economic achievements.

2.6. ESG communication

There are various channels through which companies can communicate their CSR activities, for example, CSR advertising (Wagner et al., 2002), ESG reports (Pucker, 2021), corporate web pages (Du, Vieira, 2012), social media platforms (Korschun, Du, 2013). According to Batra and Keller (2016), ultimately, integrating marketing communications influences customer attitudes to increase their willingness to buy. Well-communicated socially responsible policies and actions of companies help to increase brand awareness, provide transparent information about ESG activities, generate trust in the company, and promote willingness to buy.

A severe challenge for small and medium-sized enterprises is implementing quality communication of ESG policies for stakeholders. Some large companies also need to communicate their actions adequately in the context of ESG. For ESG to communicate adequately, it is necessary to integrate them into the corporate strategy and the business model.

ESG and CSR offer different communication opportunities. A CSR framework can help a company better represent its values to its stakeholders by promoting a better work environment and increasing its visibility in the community. An ESG framework helps a company prove to its current and potential investors that its actions in the context of social, environmental, and governance responsibility have a corresponding return.

The importance of social media in communicating companies' socially responsible actions to their stakeholders is increasing (Benitez et al., 2020).

The role of communication is to connect diverse stakeholder groups in a way that enables organizations to achieve their CSR strategic goals. Du, Bhattacharya, and Sen (2010) note that two of the essential goals of socially responsible communication – promoting awareness and minimizing stakeholder scepticism – are critical to the success of a socially responsible strategy.

Two-way communication is necessary to raise employee awareness of social responsibility programs, provide guidance for their implementation, overcome employee resistance and ensure feedback related to CSR performance.

Corporate communication is a strategic tool for achieving mutual understanding between the organization and its stakeholders and managing and maintaining the company's reputation.

Communicating the company's activities in harmony with the principles of social responsibility means presenting them as ethical, socially responsible, and open.

Companies actively implementing campaigns aligned with the CSR concept are much more attractive as employers when recruiting new employees. Therefore, communication to present and encourage perception and action by the postulates of CSR must be carefully and competently constructed and implemented.

The communication of the company's socially responsible initiatives should also ensure support for their implementation by external stakeholders (Scott, Lane, 2000), which adds additional competitive advantages to its essence and helps increase the propensity to invest in it, consumption of the products and services it provides. What has been said presents the possibility for external stakeholders of the organization to also perceive it as responsible and sensitive to current social problems, for example, through corporate philanthropy, with the help of which it maintains and posits its reputation.

Monitoring, measuring and evaluating the effect of communicating socially responsible policies and practices is imperative to increasing efficiency and effectiveness. If this communication is based on continuous dialogue and interactivity between the company and its stakeholders, it will legitimize the company as socially responsible.

As noted by Du and colleagues (Du et al., 2010), transparency of information related to a company's CSR activities posits its ethical identity.

Corporate communication, in the context of social responsibility, builds, manages, and maintains corporate images, identities, and reputations through the dissemination of information that not only attracts attention but also encourages proactive actions by stakeholders that contribute to the harmonization of different social values in corporate strategy (Kuhn, Deetz, 2008) and supports its functioning as a socially responsible actor.

Companies that use media (such as annual reports and press releases) to manage the relevant public's perception of their legitimacy emphasize that their behaviour is appropriate and desirable. Social accountability is conceptualized as a process of social justification and risk management (Bebbington et al., 2008). CSR online communication ensures successful campaigns on various corporate web pages (Capriotti, 2011) and blogs (Fieseler et al., 2010). It supports online discursive practices related to the issue (Unerman, Bennett, 2004).

From the above, the channels through which communications about CSR activities are spread are diverse. Traditional communication channels are used, but social media and networks are increasingly preferred because they allow faster dissemination and make the company more transparent for stakeholders.

According to Hooghiemstra (2000), web-based CSR communication helps stakeholders legitimize these practices by influencing their positive perceptions. The latter is also because digital media empowers stakeholders. While traditional media serve primarily to disseminate information, in the considered case related to CSR practices of companies, new media and social networks provide an opportunity for accurate application of the symmetrical communication model (Grunig, Hunt, 1984) and the so-called dialogical strategy (Cornnelisen, 2011).

The Internet and social media have significantly changed the relationship between organizations and their stakeholders and facilitated knowledge sharing (Capriotti, 2011). Digital forms of communication allow stakeholders to unite around shared interests and take coordinated action against irresponsible business practices.

For CSR goals to be successful, communication about its practices must be professionally planned and implemented and as transparent as possible for recipients from all target audiences.

The communication of CSR practices requires the application of the integration trend and the concept of self-communication (Dimitrova, 2013) to jointly build the company's identities and images by its key stakeholders. The above supports the successful management of the company's reputation, provided that it reflects the organizational essence and applies good practices.

We emphasize once again that the "Stakeholder Theory", in the context of the "Concept of CSR", focuses on the importance of being able to engage stakeholders in long-term value creation (Morsing, Schultz, 2006). The process emphasizes building long-term, mutually beneficial cooperation between the organization and its stakeholders, thus ensuring the sustainability of financial results. Positive relationships with stakeholders guarantee maintaining the organization's competitive advantage (Andriof, Waddock, 2002; Post et al., 2002). An essential aspect of the management of relations with stakeholders is the communication strategies intended to involve them in the affairs carried out by the organization in the context of the CSR Concept. They must be designed to ensure long-term and beneficial contacts with the various groups of stakeholders.

Morsing and Schultz (2006) created a research framework for implementing stakeholder communication based on the contextual and dynamic characteristics of specific communication frameworks. They link communications for all the company's stakeholders by targeting the processes of sensemaking and sense-giving (Gioia, Chittipeddi, 1991; Ravasi, Schultz, 2006) to the models proposed by Grunnig and Hunt (1984).

The three communication strategies that Morsing and Schultz (2006) propose are The stakeholder information strategy, based on one-way communication, creating sense giving; stakeholder response strategy, The stakeholder response strategy, based on the two-way asymmetric communication model and creating sense giving from sensemaking and stakeholder involvement strategy The stakeholder involvement strategy, based on the two-way symmetrical communication model, which represents the continuous interaction between the processes of sensemaking and sense giving. From a communication point of view, the ideal option is precisely the continuity between sensemaking and sense-giving processes.

The engagement strategy involves the stakeholders actively engaging in dialogues with the company. The degree of involvement of stakeholders in the organization is based on their relationship with it; for example, investors are interested in information that provides them with data on corporate strategies, and customers are interested in the specifics of the offered goods and services (Cornelissen, 2011). The interest of employees lies in their ability to be motivated and achieve a sense of satisfaction from working for the company through a clear understanding of its goals, the direction in which it is developing and the main highlights of its activity. Through the communication of the messages related to the CSR actions of the company, the different (often conflicting) interests of the stakeholder groups must be overcome, i.e. the realization of polyphonic communication (polyphonic communication) is necessary (Christensen et al., 2008). The latter requires stakeholders to be involved in a polyphonic dialogue initiated by the organization through the communication related to its identity and the CSR practices it implements.

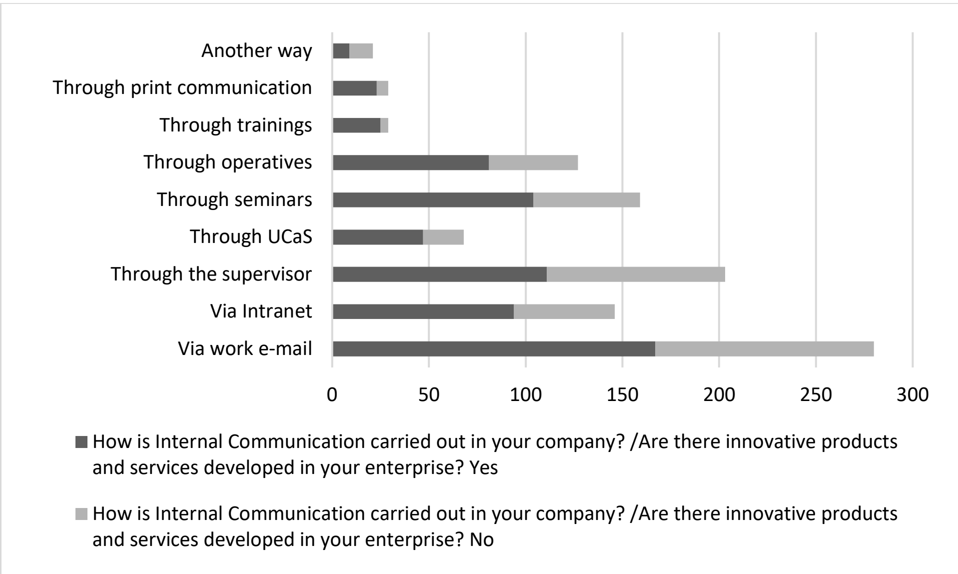
3. Empirical Study

The sample is based on the number of companies in Bulgaria, according to their size. The data source is the National Statistical Institute.

The profile of the surveyed companies is as follows: the number of respondents – 206 companies, and the owners and managers of the companies were interviewed. The author pre-prepared the closed-question survey. "Sova Harris ", an agency for sociological, political, and marketing research, conducted the research from August to September 2023. The results were processed with SPSS, visualized and subsequently analyzed. The size of the companies is determined according to the European classification. The micro enterprises (up to 10 people) – one hundred and two respondents, small (10-49 people) – sixty-three, medium (50-249) – thirty-three, and large (over 250 employees) – seven. From the demographic profile, we see that the respondents in the survey are mainly representatives of small and medium enterprises. By field of activity: Two of the respondents in the survey are employed in trade, fifty-three companies in manufacturing, fifty-seven in the services sector, six in the light and processing industries, eleven in mechanical engineering, seven in energy, and twenty-two in science and education. Twenty-nine of the participants in the survey represented the IT sector. Other respondents are engaged in tourism, culture, ecology, media and advertising, communications, financial sector, health, construction and design, and publishing activities.

For the research, we examine the communication channels used to implement internal corporate communications by the respondents in the research, the motivating effect that internal communications have on employees for the performance of their work duties, and to what extent they implement integrated marketing communications in their business activities. The presence of practices in harmony with the ESG concept among the research participants is presented, as well as whether they implement innovations in harmony with them. We also examine the perception of the relationship between corporate culture and the economic performance of companies in the context of the presence of ESG-related innovations.

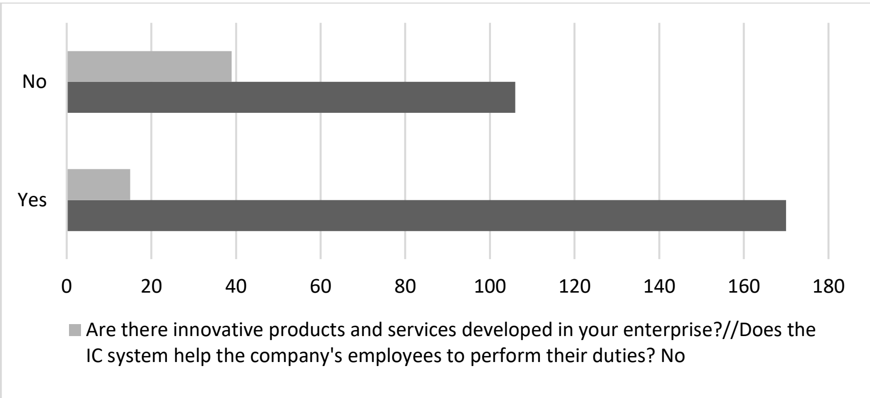
Figure 1. How is Internal Communication carried out in your company? /Are there innovative products and services developed in your enterprise?



The respondents' answers in the present study revealed that those who create and offer innovative products and services use a variety of communication channels, with communication through a supervisor, seminars, operatives, training, and UCaS being preferred. Traditionally used channels for communication with employees are the official e-mail and the company's internal network.

A necessary condition for successfully implementing communication processes is the selection of the right communication channel, which will most fully deliver the message to its recipient. The results presented show that the respondents in the present study are aware of the importance of competently constructed communications for achieving the goal of the communication process.

Figure 2. Are there innovative products and services developed in your enterprise?/Does the internal communication system help the company's employees to perform their duties?



Sound policies for implementing internal communications and their motivating effect regarding the performance of official activities by personnel are permanent trends among Bulgarian businesses (Dimitrova, 2013, 2017; Dimitrova, 2020). Respondents who offer innovative goods and services to the market are no exception.

Motivated employees are much more committed to the company they work for and their work. The motivating effect is related to the quality and relevance of the information they receive to fulfil their work duties and the feedback they provide regarding the quality of their performance of specific tasks. The answer to this question shows that the channels used by the respondents to carry out internal communications are correctly selected and do not lead to information overload.

The goal of integrated marketing communications is the synergistic management of the corporate brand. Through it, stakeholders get a much more tangible idea of the companies' products and services and the policies and practices they implement. The results from the answers show that respondents who create and introduce innovative products and services are willing to apply integrated marketing communications in their business activities. By implementing them, they become more visible to stakeholders.

Figure 3. Are there innovative products and services developed in your enterprise?/ Do you implement IMC in your business?

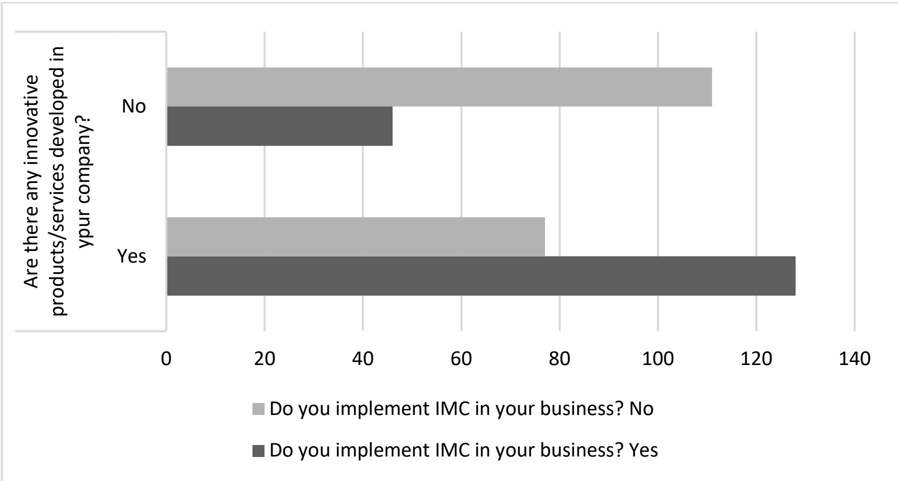
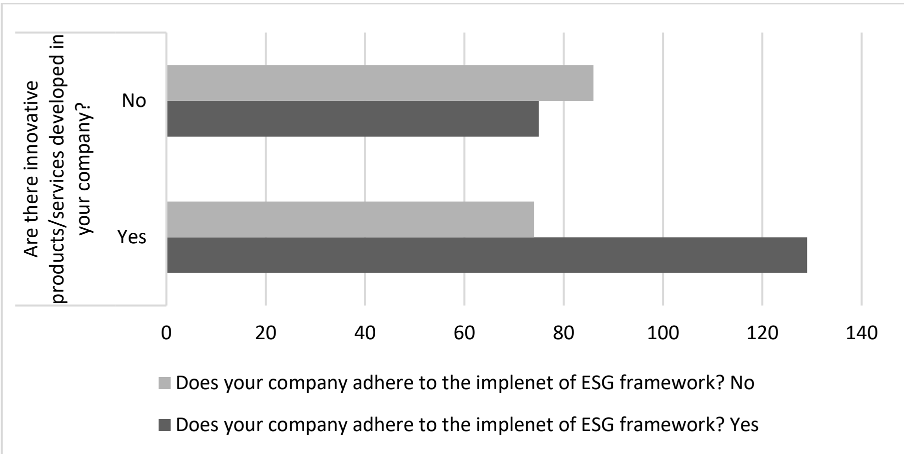
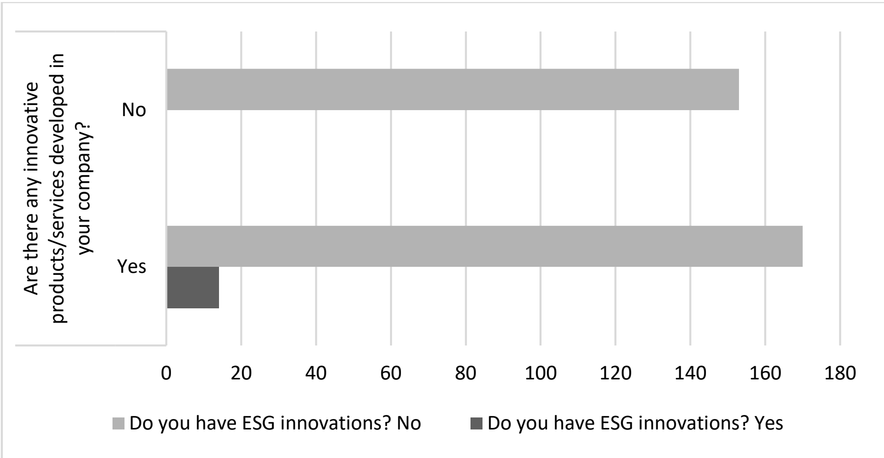


Figure 4. Are there innovative products and services developed in your enterprise?/Does your company adhere to the implementation of the ESG framework?



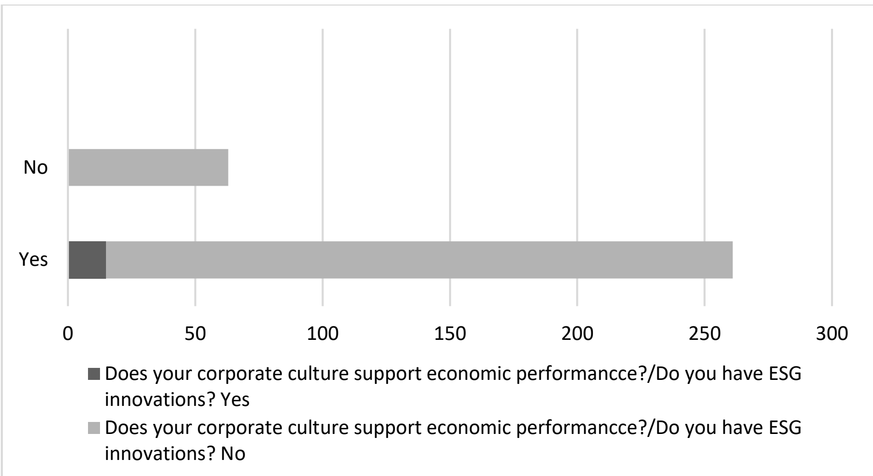
Many respondents from the survey confirm that the companies they work for are prone to implementing policies and practices in harmony with the ESG framework. Results of the same study show that respondents care about the well-being of the communities in which they are located and apply practices related to environmental protection, some of which are pollution control, recycling, conservation of natural resources, investment in human capital, and improving working conditions. Respondents who offer innovative goods and services are willing to adhere to the ESG framework in their business activities.

Figure 5. Are there any innovative products and services developed in your company? / Do you have ESG innovations?



Even though many respondents in the present study offer innovative products and services and indicate that they create and implement practices in the spirit of the ESG concept, innovation in the context of ESG is very scarce. The ESG framework's innovation rate is noticeably low even though the respondents actively introduce and offer innovative products and services.

Figure 6. Does your company's corporate culture support its economic performance? Do you have ESG innovations?



The lack of innovation in the context of ESG is also confirmed when answering the question about the influence of corporate culture on the company's competitive performance. Among Bulgarian businesses, the positive acceptance of this relationship is permanent, emphasizing that here, we did not seek the importance of understanding the essence of the construct of corporate culture (Dimitrova, 2012; Dimitrova, 2017; Dimitrova, 2020). The relationship between corporate culture, innovation and social responsibility of companies is widely reflected in the research literature.

4. Discussion

In today's turbulent business environment, creating and innovating is imperative for any company that wants to achieve sustainability in its competitive performance. An essential element of this sustainability is the practices related to the socially responsible actions of the companies. In the context of the CSR and ESG concepts, innovation is necessary to improve stakeholders' welfare by offering solutions to their specific problems, requests, product and service needs. By meeting the needs of different communities, companies generate benefits and profits. The added value created with the help of innovation in the context of ESG provides an opportunity for reciprocity of company-society relations.

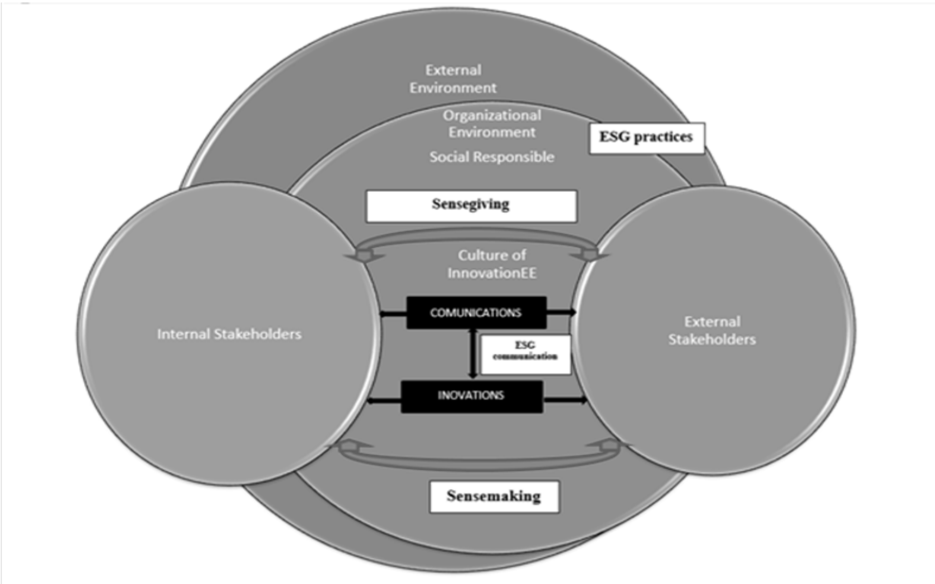
The following recommendations regarding SMEs implementing their business activities in the Republic of Bulgaria can be made.

It is necessary to initiate policies and practices in harmony with a socially responsible culture of innovation. Mentioned above requires adopting values and norms that encourage companies' actions in this direction. Managing this type of culture will contribute to shaping an organizational environment that supports employees' creative and innovative activities.

As a result of managing a socially responsible culture of innovation, the communication policy will promote the exchange of internal and external knowledge, support cooperation between different organizations, and encourage all interested parties to be complicit in co-creating value.

A model was created to facilitate communication processes and promote the creation and introduction of innovations related to ESG. This model is an upgrade of a previous one (Dimitrova, 2022).

4.1. Model



Source: Dimitrova, 2024.

4.2. The components of the model are as follows:

The external macro and microenvironment, the internal, is shaped by the socially responsible culture of innovation, stakeholders, ESG practices, innovation and communication about it, and the creation of sensemaking and sense-giving as a continuous process.

Communication is interactive, and sensemaking and sense-giving are continuous. Interactions between stakeholders and practices in the context of ESG affect the internal and external organizational environment.

5. Conclusions

From the results of the present empirical study and previous studies, we see that the perception of the positive influence of corporate culture on the overall competitive performance of the companies they work for is permanent among Bulgarian businesses. It is necessary to emphasize that the extent to which the respondents understand the essence of the corporate culture construct has not been investigated in depth. As mentioned above, understanding the positive nature of the relationship between corporate culture – and competitive performance indicates the attitude towards introducing and implementing sound management practices to increase the sustainability of competitive performance in the long term.

It is essential to understand the importance of competent communication planning and subsequent execution in organizations. The importance of technology in maintaining an organization's image in public space has yet to be completely realized. However, as is evident from the results, companies that create and bring innovative products and services to market. More on integrated marketing communications to present them to the various stakeholder groups associated with them.

In perceiving innovation ideas as one of the primary sources of increasing competitive performance, organizational leaders should promote a culture change towards a culture of socially responsible innovation and actively involve organizational members in this process. Subsequently, this type of culture must be competently managed. From the theoretical developments, corporate culture and communications are mutually connected and mutually influencing. Communications also play an essential role in managing corporate images, identities, and campaign reputation. In the model presented above, it is through communications that sense giving, and sense meaning are substantiated and managed, i.e. through them, contact is made between all the stakeholders of the organization, and burdens are removed in the context of the application of good practices, i.e. the influence of the organization in terms of solving significant problems for communities is not limited. The importance of creating and sustaining innovations in the context of ESG through various communication programs can be explained. Subsequently, communication strategies can be developed during their implementation.

For the sustainability of competitive performance, it is essential to be aware that initiating and implementing good practices must be integrated into the deep level of the organisation's culture, necessitating its change and the perception of ethical responsibilities as an imperative.

Acknowledgement

This article is under the project "Innovation in business and education. Development of a conceptual communication model for innovations in a business-information organizational environment", Fund of Scientific Research, Bulgaria, КП-06-Н-35/5-18.12.2019.

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ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ
ECONOMIC STUDIES
Volume 34(6), 2025

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THE IMPACT OF PROMOTIONAL ACTIVITIES ON CONSUMER BEHAVIOR: A CASE STUDY OF THE BEVERAGE INDUSTRY IN KOSOVO[4]

This paper offers a detailed analysis of the beverage market in Kosovo, with a specific focus on the role of promotional activities in influencing consumer behaviour. The study delves into how various promotional strategies, including discounts, product samples, and free coupons, contribute to the development of products in diverse business environments. By combining both primary and secondary data sources, the research explores the relationship between these promotional activities and consumer purchasing decisions within the beverage sector.

The study emphasizes the need to distinguish between the broader beverage industry and the specific segment analyzed, particularly local products such as non-alcoholic beverages, juices, and soft drinks, which are central to the research. The scope of the study focuses specifically on non-alcoholic beverages, including juices and soft drinks produced locally in Kosovo.

This distinction is important as the broader term 'beverage industry' encompasses a variety of products, including alcoholic drinks and energy beverages, which are not part of this analysis. By narrowing the scope to local products, the study aims to provide a targeted understanding of consumer behaviour and the impact of promotional activities in key regions such as Prishtina, Gjilan, and Ferizaj. The findings demonstrate that promotional strategies such as free samples, coupons, and bonus packaging are particularly relevant and effective for local brands in these segments, offering insights into how these tools influence consumer decision-making at the regional level.

While the findings align with existing literature on promotional practices, they provide valuable insights into the specific dynamics of the Kosovo beverage market, an area that has received limited attention in the context of the region's business environment. The paper underscores the importance of integrating promotional strategies within the

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[4] This paper should be cited as: *Rashiti, L., Jashari, S., Katrandjiev, H. I. (2025). The Impact of Promotional Activities on Consumer Behavior: A Case Study of the Beverage Industry in Kosovo. – Economic Studies (Ikonomicheski Izsledvania), 34(6), pp. 125-140.*

overall marketing mix to foster consumer engagement and influence purchasing decisions.
The primary objective of the study is to assess how diverse promotional strategies affect consumer behaviour in Kosovo's beverage market, concentrating on key consumption centres and highlighting the significance of locally produced beverages.
Keywords: promotion; beverage market; consumer behavior; decision-making; local products; marketing mix
JEL: M00; M20; M31

1. Introduction

Today, the market offers a wide range of promotions that we encounter almost every day. Promotion, as a marketing activity, plays a crucial role in building communicative relationships with customers. In this study, we will explore how the beverage industry organizes its promotional activities and how the promotion process for products is executed by beverage manufacturers. Marketers increasingly rely on promotional activities as effective strategies to reshape consumer perceptions of brands and enhance their interest in making purchases. In the market, marketers must adopt various strategic techniques to differentiate their products and attract more consumers. Consumers make purchasing decisions daily, and marketing professionals concentrate on the process of purchase decisions, as major corporations carefully analyze consumer behaviour to determine key factors such as: What products do consumers choose? Where do they make their purchases? How much do they buy? When do they buy? And why do they buy? (Grewal et al., 2021). Marketing specialists analyze current consumer purchases to understand what, where, and how much is being bought. However, understanding the "why" behind consumer behaviour in purchasing is a greater challenge, as answers are often hidden deep within the consumer's mind (Kotler & Armstrong, 2020). This complexity highlights the importance of effective promotional strategies that can resonate with consumers' motivations and drive purchasing decisions. This relates to what consumers seek to fulfil. They engage in daily purchases and encounter various offers, yet their needs and desires correspond to their prioritized needs for fulfilment. The customer decision-making process involves stages such as recognizing needs, seeking information, evaluating alternatives, and completing post-purchase activities (Grewal, et al., 2021).

The marketing communications mix, often referred to in a corporate context, comprises a targeted blend of advertising, public relations, personal selling, sales promotions, and direct marketing strategies a company uses to clearly communicate value to customers and build sustainable relationships with them. Sales promotion is a significant element of promotion aimed at generating various effects to enhance and increase sales. It is one of the most short-term instruments in the promotional mix. While advertising or personal selling may encourage consumers to "buy," sales promotion tells them to "buy now" (Kotler & Armstrong, 2020).

To identify the impact of sales promotion on consumer behaviour within the beverage industry in Kosovo, we have established the following research objectives:

- To examine whether the "Buy One, Get One Free" offer impacts consumer purchasing behaviour in the beverage industry.
- To determine the influence of coupons on consumer purchasing behaviour in this industry.
- To explore the effect of free samples on consumer purchasing behaviour.
- To identify the impact of bonus packaging on consumer purchasing behaviour within the beverage industry.

Undoubtedly, the paper also has limitations, which may vary. One potential limitation of this study is the limited understanding of the marketing activities and promotional strategies used by some companies in the beverage industry, as some of these may differ from those documented in existing literature. Another limitation is the availability of accurate data on the impact of promotional activities on Kosovar consumers, which could be influenced by external factors, such as market interconnections and seasonal changes in demand.

2. Literature Review

2.1. Concept of Sales Promotion

Promotional activities are fundamental components of the promotional mix, with promotion itself being a key element of the marketing mix. According to Kotler et al. (2020), promotional activities serve as primary tools in marketing, typically designed for short-term use to stimulate rapid or excessive purchases of specific products or services by consumers or businesses. This can lead to impulsive buying decisions (Muruganantham, G.; Bhakat, R.S., 2013), who define impulse buying as "a consumer purchasing a product with little or no planning, triggered by an unexpected stimulus." Promotional activities are regarded as marketing tools used to attract customer attention (Bhandari, 2014). Retail sales promotions, used by retailers in modern trade, aim to increase sales among consumers, utilizing tactics such as displays and flash discounts. Today, consumers can easily decide on their purchases, but the relationship between brand equity and the perceived value at the time of purchase plays a crucial role. This relationship influences how consumers assess the brand (Yee & Al-Khaled, 2024). The concept of 'promotion' has gradually evolved to reflect affordable discounts in the minds of consumers. This transformation not only signifies cost savings but also emphasizes the added value and benefits customers can receive, making products more accessible and appealing at a reasonable price (Katrandijev, 2016).

Promotional strategies facilitate rapid sales generation and influence various elements of consumer behaviour. As discussed in the study's objectives, the significant increase in sales promotions—especially within consumer markets—can be attributed to several influencing factors. First, within companies, product managers face increasing pressure to boost current sales, and promotions are seen as effective short-term sales instruments (Kotler & Armstrong, 2020). Furthermore, promotional activities are essential marketing tools for both manufacturers and retailers, aimed at boosting sales and encouraging customers to purchase more. Such activities include free samples, discount coupons, price reductions, and "buy one, get one free" promotions, through which retailers or manufacturers market their goods or services using strategic communication methods. It is vital for retailers to focus on customer reactions when using promotional tools. By employing these tools, retailers or manufacturers can accelerate customer purchasing behaviour, as promotional activities effectively stimulate buying actions (Nasir & Bal, 2016). Companies must focus on developing comprehensive strategies by analyzing promotional activities from multiple perspectives. As consumers have become more diverse and have access to various information sources, they can quickly acquire details about a company's products or services (Bondarenko & Vyshnivska, 2023).

There are several interesting studies on consumer attitudes towards sales promotions, which vary depending on the country or region (Katrandijev, 2016). However, such research is limited in Kosovo, which makes this paper a valuable starting point for comparisons with other countries in the Balkans.

2.2. Key instruments in promotional activities

To achieve the objectives of sales promotion, various instruments can be used, each yielding different outcomes. Consumer promotions encompass a broad range of tools, such as product samples, coupons, price discounts, premiums, point-of-sale displays, lotteries, and event sponsorships (Kotler & Armstrong, 2020). Sales promotions often leverage a combination of tools to influence the market. Based on the target group, promotional instruments can be categorized into: consumer stimulation, intermediary stimulation, sales staff stimulation, and opinion leader stimulation (Reshidi & Ceku, 2006). In today's consumer market, preferences have shifted, particularly in the realm of promotion. Consumers are now almost fully informed about their purchasing decisions. With increased reliance on the Internet, the purchasing experience has undergone significant changes. Consumers must navigate an overwhelming array of goods and services that are available through various online communication networks (Vasan, 2024). According to Vasan (2024). Generation Z emphasizes the use of Web 2.0 search tools, highlighting that the adoption of technology can better measure the effectiveness of promotional activities and their influence on purchasing behaviour. This study will examine the impact of promotional activities on this generational group, particularly from a physical perspective.

H1. Promotional sales instruments notably enhance consumer buying behaviour.

2.3. Product sample

Among the primary instruments of sales promotion is the product sample, used for promotional purposes and often included as an initial informative step for customers interested in a product. Offering samples is one of the most effective—yet costly—ways to introduce a new product or renew interest in an existing one (Kotler & Armstrong, 2020). A free sample serves to create awareness for a new product, thereby generating demand. Although the sample size may be limited, it should be large enough to provide a meaningful experience to the target audience, showcasing what the product offers. Once demand for the product increases, free samples can be discontinued. According to Ashraf et al. (2014), note that when a company launches a new product, public awareness is typically low. To create market visibility for the product, marketers employ various promotional tools, with free samples being a key tactic. By receiving free samples, consumers can try the product at no cost, which creates interest among potential buyers. A sample is essentially a small portion of the product meant for consumer testing. Similarly, free sampling aims to boost sales.

This study suggests that offering free samples has a positive relationship with consumer purchasing behaviour (Ahmad et al., 2015). Additionally, the free sampling approach motivates customers to experience newly introduced products, taking into account their characteristics and the time involved. This strategy is particularly effective in shaping purchasing decisions, as it connects customers with their preferred brands and increases sales of the promoted product (Shamout, 2016). In today's digital era, consumer preferences have evolved. The e-commerce sector is growing substantially, and online shopping has become a significant aspect of modern consumer lifestyles (Tubalawony, Kurniawan, & Ningsih, 2024).

H2. Offering free samples has a positive impact on consumers' purchasing decisions.

2.4. Free coupon offers

Free coupon offers are another effective tool for product promotion, particularly prevalent in the beverage industry. Customers often prioritize understanding the tangible benefits they can gain from a promotional offer. The term "coupon" refers to discounts that customers can receive on products at their regular prices. A free coupon provides an opportunity to obtain a price reduction on a specific product. Coupons facilitate trial purchases of different products and services, while free coupon promotions can encourage consumers to switch brands. By offering coupons, manufacturers and retailers actively promote their products (Mughal, Mehmood, & Ahmad, 2014).

"Coupon advertising" refers to those customers who take advantage of product discounts. Coupons are considered no-cost offers for specific products, making them accessible to customers who may not otherwise purchase the product at full price. Coupons are easy to access and straightforward for customers to understand, making them highly effective for encouraging first-time product trials (Mughal et al., 2014).

H3. Free coupons significantly influence consumer purchasing behaviour in a positive manner

2.5. Summary of the literature review

The literature review explores various dimensions of consumer behaviour in response to promotional activities. Sales promotion is identified as a crucial element of the marketing mix, with tools like product samples, free coupons, and price discounts playing a significant role in influencing purchase decisions. Previous studies have highlighted factors such as impulse buying and consumer preferences, demonstrating the effectiveness of these tools in shaping purchasing behaviour.

It is noted that Generation Z, in particular, relies heavily on digital platforms, emphasizing the importance of web-based promotional strategies. However, most studies focus primarily on online consumer behaviour, leaving gaps in understanding the effects of promotional activities in physical retail environments. This paper seeks to address these gaps by investigating how various promotional tools influence consumer decision-making, particularly within Kosovo's beverage market, with an emphasis on balancing digital and physical promotional strategies.

3. Research Methodology

This study utilizes both primary and secondary data to achieve its objectives. Secondary data were collected from the literature to provide a theoretical foundation and a deeper understanding of the importance of sales promotion and its influence on consumer behaviour. The core of this research, however, is based on primary data obtained through a structured questionnaire.

The research follows a descriptive design and adopts a quantitative methodology to examine and test the hypotheses derived from the literature review. The independent variables under investigation include "price reductions," "free product samples," and "free coupon offers," while the dependent variable is consumer purchasing behaviour, with a specific focus on individuals purchasing local beverages. The primary aim of this research design is to utilize quantitative techniques to deliver detailed analysis and a comprehensive understanding of the relationship between promotional tools and consumer behaviour (Morse, 2016).

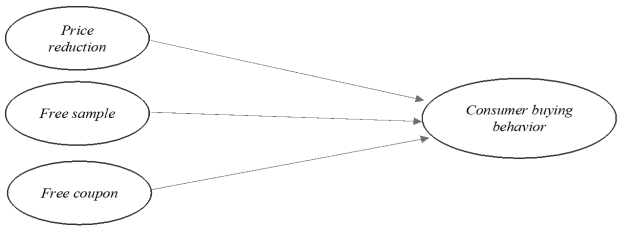
The questionnaire was distributed to 105 consumers selected randomly, primarily targeting shoppers at large supermarkets that stock local products. The selection of supermarkets was strategic to ensure access to respondents who frequently encounter promotional activities for local beverages. Respondents were briefed on the purpose of the research and the structure of the questions to encourage honest and accurate responses. Data collection took place from August to September 2021. A total of 105 questionnaires were distributed across retail locations in Pristina, Gjilan, and Ferizaj. Out of these, 80 were successfully completed, yielding a response rate of approximately 76%. The responses were systematically coded and entered into SPSS software for statistical analysis.

The chosen methods provide a robust framework for understanding the impact of promotional strategies on consumer purchasing behaviour. However, the justification for selecting quantitative research lies in its ability to objectively measure the correlation between promotional tools and consumer responses, allowing for generalizable and data-driven conclusions. Furthermore, the random sampling technique ensures the representation of diverse consumer perspectives, while SPSS software facilitates rigorous analysis of the collected data.

3.1. Research model

In this section, we will present the conceptual model of the study, which illustrates the key variables: free coupons, free samples, and price reductions. These variables will be examined for their impact on consumer buying behaviour. By analyzing how these promotional strategies influence purchasing decisions, we aim to gain a deeper understanding of the dynamics at play in consumer behaviour and the effectiveness of different promotional tactics. Consumer behaviour encompasses multiple stages of interaction with the product and brand, beginning with need recognition, information search, evaluation of alternatives, purchase decision, and post-purchase evaluation. Promotional activities, such as coupon campaigns and free samples, play a critical role at different stages, shaping both immediate and long-term consumer preferences.

Figure 1. Research Model of Variables



The research model we have adopted focuses on the interconnection of variables that will be explored through the research questions posed to a randomly selected group of consumers. The purpose of this model is to investigate the connections between the independent variables – such as price discounts, free samples, and complimentary coupons – and their effect on consumer purchasing behaviour. The conceptual model of consumer behaviour emphasizes its dynamic nature, progressing through stages like need recognition, information search, evaluation of alternatives, purchase, and post-purchase evaluation. Promotional activities play crucial roles at these stages, providing stimuli that influence and guide consumer decisions over time.

3.2. Research hypotheses

The hypotheses formulated in this study are as follows:

H1. Promotional sales instruments notably enhance consumer buying behaviour.

H2. Offering free samples has a positive impact on consumers' purchasing decisions.

H3. Free coupons significantly influence consumer purchasing behaviour in a positive manner.

These hypotheses are grounded in the comprehensive research framework developed for this study and will be validated using the statistical software SPSS. Following the validation of these hypotheses, we will present an in-depth analysis of the results obtained from regression analysis. This approach will clarify the strength and nature of the relationships among the variables and enhance our understanding of how promotional strategies impact consumer behaviour. The primary goal of this research is to deliver practical recommendations for marketers looking to enhance their promotional strategies in a highly competitive marketplace.

3.3. Data analysis

This research aims to explore the connections between different promotional strategies and their effects on consumer behaviour, with a particular focus on purchasing behaviour related to fast-moving consumer goods (FMCG). Additionally, the study aims to examine the interrelationships among these variables. To test the connections between the variables, the hypotheses, and the influence of the associated activities in the research, we employed regression analysis to assess the impact among the variables.

This analytical approach allows us to quantitatively evaluate how different promotional strategies affect consumer decisions, providing a clearer understanding of their effectiveness in driving purchases. By elucidating these relationships, the study contributes to the broader field of marketing research, offering insights that can inform the development of more effective promotional campaigns.

3.4. Regression analysis

A regression analysis was conducted to evaluate the effect of sales promotions on consumer behaviour, particularly within the beverage sector in the country. The findings from the analysis revealed that promotional strategies have a significant and measurable influence on consumer behaviour, especially in terms of purchase decisions and brand preference. These strategies, such as price reductions, free samples, and coupons, were found to directly shape consumer attitudes and purchasing patterns. As a result, we can confidently conclude that the hypotheses regarding the impact of sales promotions on consumer behaviour were strongly supported and validated based on the regression analysis results. This analytical technique provides a robust framework for understanding how various promotional strategies affect consumer purchasing decisions, offering empirical support for the proposed hypotheses.

The findings provide valuable insights into the field of marketing by emphasizing the effectiveness of sales promotions in influencing consumer preferences and behaviours. Specifically, the results highlight how various promotional strategies, such as price reductions, free samples, and coupons, significantly impact purchasing decisions. These insights are essential for businesses looking to tailor their marketing efforts to better meet consumer demands and optimize sales outcomes. By demonstrating the positive correlation between promotional activities and consumer behaviour, the research provides a clear understanding of how these strategies shape consumer choices, ultimately leading to increased brand engagement and sales in the beverage sector. Here's the table format for the model summary:

Table 1. Model Summary – Promotional tools facilitate the purchase of the product

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.958[a]	.918	.917	.21544

a. Predictors: (Constant), Product promotion aids consumers in product selection.

Prediction (Constant); Product promotion aids consumers in product selection. According to the R model, a positive result of 0.958 is predicted, with an adjusted R square value also indicating a positive outcome at 0.917.

Table 2. Coefficient for promotional tools that facilitate product purchasing

Coefficients					
Model	*Unstandardized Coefficients*		*Standardized Coefficients*	*T*	*Sig.*
	B	*Std. Error*	*Beta*		
(Constant)	*.460*	*.084*		*5.452*	*.000*
Product promotion aids consumers in product selection.	*.850*	*.029*	*.958*	*29.568*	*.000*

a. Dependent Variable: Promotional tools facilitate product purchasing.

The unstandardized coefficient in relation to the following variable, "product promotion aids consumers in product selection," is 0.46 and 0.850, indicating a positive correlation. In comparison, the standardized coefficient is 0.958, which demonstrates a higher value than the preceding variable. This suggests that product promotion significantly influences consumer decision-making.

Table 3. Summary of the Model – Promotional tools demonstrate a positive influence on consumer purchasing behaviour

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.844[a]	.713	.709	.42213

a. Predictors: (Constant), Promotional sales instruments notably enhance consumer buying behaviour

The prediction (constant) indicates that promotional tools have a positive effect on consumer buying behaviour. According to the R model, a positive result of 0.844 is forecasted, along with an adjusted R-squared value of 0.709, which also reflects a positive correlation.

Table 4. Coefficient for promotional tools having a positive effect on consumer buying behaviour

Coefficients					
Model	*Unstandardized Coefficients*		*Standardized Coefficients*	*T*	*Sig.*
	B	*Std. Error*	*Beta*		
(Constant)	*.675*	*0.154*		*4.384*	*.000*
Promotional tools have a positive effect on consumer buying behaviour	*.688*	*.49*	*.844*	*13.912*	*.000*

a. Dependent Variable: Product promotion informs the customer about products

The unstandardized coefficient related to the variable "promotional tools have a positive effect on consumer buying behaviour" is 0.675, indicating a positive relationship, along with a standardized coefficient of 0.844, which is higher than the previous variable's coefficient of 0.688. This suggests that promotional tools significantly influence consumer purchasing behaviour, reinforcing their effectiveness in driving consumer decisions.

Table 5.Summary of the Model – Free Samples Assist Consumers in Product Selection

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.931[a]	.867	.866	.39719

a. Predictors: (Constant), Free samples assist consumers in product selection.

Prediction (Constant): Free Samples Assist Consumers in Product Selection. According to the R model, a positive result is forecasted at .931, with the adjusted R-squared value also being positive at .866.

Table 6. The coefficient for the third hypothesis – Free samples facilitate the purchase of the product

Coefficients					
Model	*Unstandardized Coefficients*		*Standardized Coefficients*	*T*	*Sig.*
	B	*Std. Error*	*Beta*		
(Constant)	*-.161*	*.111*		*-.1452*	*.150*
Free samples assist consumers in product selection.	*1.033*	*.046*	*.931*	*12.581*	*.000*

a. Dependent Variable: Free samples facilitate product purchasing

The unstandardized coefficient for the variable indicating that free samples facilitate product purchasing is beta -0.161, indicating a negative effect, while the standardized coefficient is beta 0.931, demonstrating a higher positive value compared to the previous variable.

Table 7. Summary of the model – Free coupons facilitate product purchasing.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.909[a]	.827	.825	.42134

a. Predictors: (Constant), Free coupons facilitate product purchasing

Prediction (Constant): Free coupons facilitate product purchasing. According to the R model, a positive result of 0.909 is forecasted, with the adjusted R-square also indicating a positive value of 0.825.

The unstandardized coefficient for the variable "Free Coupons Facilitate Product Purchases" is beta -0.392, indicating a negative effect, while the standardized coefficient is beta 0.909, demonstrating a higher positive value compared to the previous variable. The positive unstandardized coefficient of 1.099 further reinforces the overall impact of free coupons on facilitating consumer purchases, suggesting that while there may be instances where the effect is less pronounced, the overall trend remains significantly positive.

Table 8. Coefficient for Free Samples Have a Positive Effect on Consumer Buying Behavior

Coefficients					
Model	*Unstandardized Coefficients*		*Standardized Coefficients*	*T*	*Sig.*
	B	*Std. Error*	*Beta*		
(Constant)	*-.392*	*.181*		*-2.169*	*.033*
Free coupons facilitate product purchasing.	*1.099*	*0.57*	*.909*	*19.297*	*.000*

a. Dependent Variable: Free samples have a positive effect on customer buying behaviour

Table 9. Model Summary – Free coupons have a positive effect on consumer buying behaviour

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.932[a]	.869	.867	.32136

a. Predictors: (Constant), Free coupons have a positive effect on consumer buying behavior.

According to the R model, a positive result is predicted with a value of .932, while the adjusted R-squared is also positive at 0.867. This indicates a strong relationship between the independent variable of free coupons and the dependent variable of consumer buying behaviour.

Table 10. Coefficient for free coupons having a positive effect on consumer buying behaviour

Coefficients					
Model	*Unstandardized Coefficients*		*Standardized Coefficients*	*T*	*Sig.*
	B	*Std. Error*	*Beta*		
(Constant)	*.694*	*.115*		*5.632*	*.000*
Free coupons have a positive effect on consumer buying behaviour.	*.833*	*.037*	*.932*	*22.746*	*.000*

a. Dependent Variable: Free coupons assist consumers in selecting products.

The unstandardized coefficient related to the variable indicating that free coupons have a positive effect on consumer buying behaviour is -0.694 (negative) and 0.833 (positive), compared to the standardized coefficient of 0.932, which represents a higher value than the preceding variable.

3.5. Discussion of data and hypothesis validation

The findings of the study should be connected to the stages of consumer behaviour to ensure their relevance and validity. Consumer behaviour follows a process involving multiple stages: need recognition, information search, evaluation of alternatives, purchase decision, and post-purchase evaluation. By tying the results to these stages, we gain a clearer understanding of how sales promotions influence consumer decision-making across each phase.

Regarding the audience's demographics, it's important to examine how factors like age, income, education, and other variables impact the effectiveness of sales promotions. Younger consumers, for instance, are more likely to engage with online promotions, such as digital coupons or free samples, while older consumers may prefer traditional in-store promotions. Understanding these demographic differences can help marketers tailor promotional strategies to specific groups, ensuring a more effective and targeted approach.

The research targeted consumers who had previously purchased beverages, which allows for a deeper understanding of how their past experiences with these products influence their purchasing decisions. This focus on a specific segment helps contextualize the role of promotions in shaping consumer behaviour, making the findings more actionable for marketing strategies. The study's findings align with existing research that shows the positive impact of promotional activities on consumer buying behaviour. Sales promotions are recognized as key drivers of consumer decision-making, influencing buying behaviour across various regions. The findings demonstrate that 'buy one, get one free' offers are particularly effective during the purchase decision stage, while free samples significantly impact the initial information search and product trial stages. These results reinforce the idea that consumer behaviour is not a one-time act but a process influenced over time by ongoing promotional efforts. This reinforces the essential role that marketing strategies play in shaping consumer perceptions and encouraging purchases. These insights highlight the need for marketers to design promotional strategies that align with the specific stages of consumer behaviour, ensuring that the tools used are optimized for maximum impact at each phase of the decision-making process.

3.5.1. Hypothesis validation

First Hypothesis: The first hypothesis, which suggested that sales promotional tools have a significant positive impact on consumer behaviour, was validated. Regression analysis revealed strong relationships between variables, with the highest standardized coefficient ($\beta = 0.958$), indicating that promotional tools not only encourage purchases but also foster consumer engagement and loyalty.

Second Hypothesis: The second hypothesis, asserting that free samples positively influence consumer buying behaviour, was not supported by the findings. The regression analysis showed an unexpected negative value of -0.16, suggesting that free samples may not always lead to increased purchases. This result could be due to market saturation or the lack of alignment with consumer preferences, indicating that free samples might not always be an effective promotional strategy.

Third Hypothesis: The third hypothesis, which posited that free coupons positively impact consumer buying behaviour, was confirmed. The regression analysis revealed a strong positive correlation (0.69), suggesting that financial incentives, such as coupons, effectively encourage immediate consumer action and drive sales performance.

Our study contributes to the broader understanding of how promotional activities affect consumer behaviour, particularly in the context of beverage consumption. It shows that well-structured promotional strategies, such as price reductions, free samples, and coupons, can have varying effects on consumer purchasing decisions. Moreover, the research confirms that financial incentives, like coupons, play a key role in influencing consumer behaviour, supporting the notion that discounts are powerful tools in promotional strategies.

In conclusion, the study highlights that sales promotion programs are critical in shaping consumer behaviour and driving purchasing decisions. The findings underscore the importance of continually adapting promotional strategies to consumer preferences and market conditions. The study also suggests that while some promotional methods, like coupons, may be universally effective, others, such as free samples, may require further adjustment to align with consumer expectations and needs.

3.6. Recommendations

Based on the findings of this study, it is recommended that local beverage companies implement targeted promotional strategies tailored to consumer preferences. Specifically:

Leverage 'Buy One, Get One Free' Offers: These promotions were found to be particularly effective during the purchase decision stage. Companies should use them to drive immediate purchases, especially during peak shopping times, such as weekends or holidays.

Distribute Free Samples Strategically: Free samples should be placed in high-traffic locations such as supermarkets or at events to encourage trial among consumers who are unfamiliar with the product. This method can be especially effective for new product launches, as it helps build brand awareness and trust.

Adopt Digital Coupons: Younger consumers, who are more likely to shop online or use apps for discounts, can be effectively engaged through digital coupons. Developing a user-friendly online platform or partnering with local e-commerce sites can enhance the reach and effectiveness of such campaigns.

Create Demographic-Specific Campaigns: Tailoring promotional activities to specific consumer segments is crucial. For example, older consumers may respond better to traditional in-store discounts or loyalty programs, while younger demographics prefer digital engagement.

In addition to these strategies, companies should establish a robust monitoring system to assess the effectiveness of these promotional efforts in real time. This will allow businesses to adjust their strategies based on consumer feedback and sales data. By using a data-driven approach, companies can ensure their promotions remain relevant and impactful, fostering sustained consumer engagement and loyalty.

Moreover, it is essential for manufacturing organizations to adopt diversified and creative promotional strategies that are aligned with consumer preferences. Such an approach will contribute to increased sales revenues and a broader market reach. The study findings indicate that product samples have a consistently positive effect on promotional activities within the beverage industry, reinforcing the importance of well-structured promotional efforts for achieving significant benefits.

This aligns with the work of Ogunsiji and Odunlami (2011), who emphasize the need for a well-established sales promotion department staffed by experienced personnel. This department should focus on developing a diverse range of promotional strategies that align with the company's overall goals. Additionally, adequate budgeting for these activities is critical, as sales promotions can deliver substantial long-term benefits. A well-invested promotional budget can help companies increase sales, improve product visibility, and enhance market acceptance, while also educating consumers about the company's offerings.

Another key recommendation is the implementation of a modernized, computerized distribution system. Such a system will allow managers to more effectively track sales activities, address customer feedback, and manage complaints. This comprehensive approach not only improves operational efficiency but also strengthens relationships with consumers, leading to sustained business growth.

However, companies must also be mindful of the potential negative repercussions of overusing sales promotions. While strategies like price reductions, free samples, and coupons can drive short-term sales, they can undermine long-term brand value and customer loyalty if overused. Consumers may begin to expect frequent discounts, which can diminish the perceived quality of the product and weaken the brand image. Additionally, if promotional offers do not align well with consumer needs or market trends, they may lead to unsatisfactory consumer experiences and harm the brand's reputation. Excessive promotions can also create increased competition among businesses, potentially eroding profit margins.

Finally, it is crucial that promotional activities are integrated into a broader marketing communications strategy. While promotions can boost immediate sales, care should be taken to balance short-term promotional efforts with long-term brand positioning and relationship-building with consumers. Over-reliance on frequent, deep discounts or free samples may not effectively communicate the brand's values and messaging, potentially prioritizing sales over the long-term health of the brand.

3.7. Recommendations for future research

Building on the insights from this study on the impact of promotional activities on consumer behaviour in the beverage industry in Kosovo, we propose the following directions for future research:

- Enhanced Focus on Digital Campaigns: Future studies should prioritize digital promotional strategies, capitalizing on the growing reliance of consumers on online platforms. This includes using social media, email marketing, and targeted online advertisements to reach and engage the intended audience more effectively.
- Integration of Interactive Advertising: Researchers should explore the potential of interactive advertising, such as gamification, polls, or augmented reality experiences, to enhance consumer engagement and foster more memorable interactions with the brand.

- Data-Driven Approaches: Future research should emphasize the use of data analytics to better understand consumer behaviour and preferences. By closely monitoring these factors, companies can fine-tune their promotional activities to cater to the specific needs and desires of their consumers, increasing the effectiveness of their marketing strategies.
- Cross-Channel Strategies: Future studies should explore integrated marketing approaches that combine traditional and digital promotional methods. Such strategies can reinforce brand messages and enhance consumer engagement across multiple platforms.
- Focus on Content Marketing: Developing relevant, valuable content that resonates with consumers can strengthen brand loyalty and positively influence purchasing decisions. Future campaigns should focus not only on promoting products but also on educating and informing consumers about the benefits and values of the products they are offered.

3.8. Conclusions

This study aimed to explore the impact of sales promotions on consumer behaviour, specifically within the beverage sector in Kosovo, and to validate the influence of promotional activities like price reductions, free samples, and coupons on consumer purchasing decisions. The research has successfully met its objectives by demonstrating that sales promotions can significantly influence consumer behaviour, though with varying degrees of impact depending on the type of promotional strategy employed. The findings revealed that while sales promotional tools, particularly price reductions and coupons, positively affect consumer behaviour, the effect of free samples was less pronounced, suggesting that the effectiveness of this promotional strategy can vary depending on factors like consumer preferences and market conditions. These results underscore the importance of understanding the diverse consumer segments and the role that demographic factors play in shaping responses to promotions. By targeting specific consumer groups with tailored promotional strategies, businesses can increase engagement and drive sales.

The study also highlights the relevance of continuously adapting promotional strategies to align with changing consumer preferences and market dynamics. As consumer behaviour continues to evolve, particularly with the increasing reliance on digital platforms, businesses must remain agile and innovative in their promotional approaches. The recommendations provided in this study emphasize the need for diversified, targeted promotional strategies that not only drive immediate sales but also build long-term brand loyalty. In conclusion, this research contributes valuable insights to the field of marketing, particularly in understanding the role of sales promotions in influencing consumer decision-making. By validating the hypotheses and addressing the implications of promotional strategies, the study provides a comprehensive understanding of how these activities impact consumer behaviour at different stages of the purchasing process. The findings can serve as a guide for marketers seeking to optimize their promotional efforts and effectively engage their target audience, ultimately improving sales performance and consumer satisfaction.

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ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ
Economic Studies
Volume 34(6), 2025

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THE IMPACT OF EURO ADOPTION ON LABOUR MARKETS IN CENTRAL AND EASTERN EUROPE: A COMPARATIVE ANALYSIS OF STRUCTURAL CHANGES AND EMPLOYMENT DYNAMICS[2]

This paper examines how the adoption of the euro has affected labour market outcomes in Central and Eastern Europe (CEE) from 2000 to 2023. We focus on four key dimensions: employment trends, unemployment dynamics, wage convergence, and labour productivity. Using panel data econometric techniques and drawing on data from ILOSTAT, Eurostat, national statistics, and scholarly studies, we provide empirical evidence on the labour market impacts of joining the euro area. The analysis situates these outcomes in the context of economic integration theory, particularly optimum currency area (OCA) criteria, which emphasize labour mobility and wage flexibility as adjustment mechanisms in a currency union. Our difference-in-differences and panel regression results indicate that euro adoption is associated with significant gains in labour productivity and continued convergence of wages, but it has a more nuanced effect on employment and unemployment, largely influencing the volatility of labour market cycles rather than long-run levels. The paper concludes with a discussion of policy implications, suggesting that while euro adoption can bolster economic integration and productivity, it requires supportive labour market institutions and policies to ensure positive employment outcomes and mitigate the short-term adjustment costs. These findings contribute to the broader literature on economic convergence and labour market adaptation in the context of European Monetary Union (EMU) enlargement.
Keywords: Euro Adoption; Labour Market; Wage Convergence; Labour Productivity; Central and Eastern Europe
JEL: E24; F15; J21; J31

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[2] This study was conducted within the framework of the research project "Adapting the Labour Market under Conditions of Eurozone Membership: Socio-Economic Dynamics, Technological Modernization, Demographic Changes, and Educational Restructuring", funded by the National Science Fund under contract № КП-06-Н75/12.
This paper should be cited as: *Yotzov, V. (2025). The Impact of Euro Adoption on Labour Markets in Central and Eastern Europe: A Comparative Analysis of Structural Changes and Employment Dynamics. – Economic Studies (Ikonomicheski Izsledvania), 34(6), pp. 141-162.*

1. Introduction

Since the early 2000s, many Central and Eastern European (CEE) countries have undergone the dual transformations of transitioning to market economies, joining the European Union (EU), and in several cases adopting the euro as their currency. Euro adoption represents the culmination of deeper economic integration for these countries, offering potential benefits such as lower transaction costs, increased trade and investment, and monetary stability. However, it also means the loss of independent monetary policy and exchange-rate flexibility, which could pose challenges for labour markets in adjusting to economic shocks. This study seeks to provide an analysis of how the introduction of the euro has impacted labour market outcomes.

Labour markets are among the most affected economic domains in monetary transitions, as currency adoption influences wage dynamics, employment levels, and labour mobility. The theoretical underpinnings of this relationship are largely drawn from the Optimal Currency Area (OCA) theory (Mundell, 1961), which posits that a shared currency can enhance economic efficiency, provided that labour markets exhibit high flexibility and cross-border mobility. However, critics argue that structural rigidities in CEE labour markets may hinder these expected benefits, potentially leading to wage stagnation and employment disruptions (Blanchard, Wolfers, 2000).

Over the past two decades, several CEE countries have joined the euro area. Slovenia became the first among the 2004 EU accession cohort to adopt the common currency in 2007, followed by Slovakia (2009), Estonia (2011), Latvia (2014), Lithuania (2015), and most recently Croatia (2023). Other CEE member states – including Bulgaria, Poland, Hungary, the Czech Republic, and Romania – have yet to adopt the euro as of 2023, thus providing a natural basis for comparison. Notably, Bulgaria occupies a unique position in this group, having participated in the Exchange Rate Mechanism (ERM II) for almost five years and standing on the verge of full eurozone membership.

These divergences prompt several critical questions. Has euro adoption accelerated job creation or improved unemployment outcomes for the adopting countries relative to their non-euro counterparts? Has it facilitated swifter wage convergence toward Western European levels? Has it fostered greater labour productivity through deeper economic integration? Conversely, how has the forfeiture of exchange-rate autonomy influenced these countries' capacity to respond to economic crises, and what role has labour mobility played in the overall process of adjustment?

We approach these questions by combining economic theory with empirical analysis. Theoretically, joining a currency union like the EMU can influence labour markets through multiple channels. On one hand, deeper integration and credibility can spur investment and trade, potentially boosting output and labour demand. On the other hand, without the buffer of an independent currency, macroeconomic adjustments to shocks must occur via "internal devaluation" – changes in wages, employment, and migration – rather than exchange-rate shifts (Hafner, Jager, 2013). The net effect on employment and wages is thus ambiguous and may depend on the flexibility of labour market institutions. This study contributes to the literature by empirically evaluating these effects in the CEE context, using econometric methods to isolate the impact of euro adoption from other concurrent trends.

The remainder of the paper is organized as follows. Section 2 reviews the theoretical framework and existing literature on currency unions and labour markets, with a focus on OCA theory and prior studies of the euro's impacts in Europe. Section 3 outlines the data and methodology, including our econometric identification strategy. Section 4 presents the empirical results for each of the five labour market dimensions (employment, unemployment, wages, productivity, and mobility), supplemented by evidence from case studies and prior research. Section 5 provides a discussion of the findings, and Section 6 concludes with key conclusions and policy implications for CEE countries and European integration more broadly.

2. Theoretical Framework and Literature Review

2.1. Theoretical Framework

Optimum Currency Area Theory and Labour Market Adjustment: The adoption of a common currency can be analyzed through the lens of OCA theory (Mundell, 1961). In a nutshell, the OCA framework posits that for a group of regions or countries to share a currency optimally, they should satisfy certain criteria such as synchronized business cycles, labour and capital mobility, wage/price flexibility, and fiscal transfer mechanisms. In the absence of national monetary policy, adjustments to country-specific (asymmetric) economic shocks must occur through other channels. Classic OCA theory emphasizes that labour mobility and wage flexibility are critical adjustment mechanisms when exchange-rate adjustment is not available. If workers can move freely to areas with better job prospects and if wages can adjust downward during downturns, a currency union can better absorb shocks without prolonged unemployment. The EU provides for the free movement of labour, and this mobility is expected to help equilibrate labour market imbalances across member states in the euro area. Likewise, flexible labour markets (e.g. decentralized wage bargaining or adaptable working arrangements) can help cushion the impact of shocks when a country cannot devalue its currency.

For the transition economies of CEE, the relevance of OCA criteria was extensively debated as they prepared for EMU membership. Prior to euro adoption, many CEE countries had to evaluate whether their economies were sufficiently flexible and aligned with the eurozone. The loss of an independent monetary policy was seen as a trade-off: giving up the ability to set interest rates or devalue in exchange for benefits like stable prices and integration. Economic stability loss vs. efficiency gain is the classic trade-off described by OCA theory. If a CEE country in the eurozone were hit by a negative demand shock specific to that country (for example, the collapse of a key export sector or a sudden stop in capital flows), it could no longer cushion the shock by lowering interest rates or letting its currency depreciate. Instead, the adjustment would require either fiscal policy support (constrained by EU rules) or reductions in production costs – typically via lower wages or layoffs – unless other eurozone members experienced the same shock (in which case the ECB's common monetary policy could respond). Thus, one concern was that early euro adoption could lead to higher structural unemployment if labour markets were rigid (International Monetary Fund, 2005). Indeed, (Boeri & Garibaldi, 2006) argued that CEE labour markets would face "challenges" from early EMU entry, warning that without sufficient flexibility, asymmetric shocks under a single currency could increase joblessness or require painful wage cuts.

Expected Benefits of Euro Adoption: On the other hand, joining the euro was anticipated to bring several advantages that could positively influence labour market outcomes. A key expected benefit was enhanced trade and investment. By eliminating exchange rate uncertainty and transaction costs with major EU trading partners, the euro can stimulate exports and imports and encourage foreign direct investment (FDI) inflows. Greater trade openness tends to raise productivity and can create jobs in export-oriented and supporting industries. Empirical studies by Rose & Wincoop (2001), as well as Micco, Stein, & Ordonez (2003), found that the euro boosted trade among members and even with non-Euro countries. In CEE, where Western Europe is the primary trading partner, this trade expansion could translate into higher labour demand. Additionally, reduced currency risk premiums were expected to lower borrowing costs, fueling investment in capital and technology. Capital mobility into the new euro members could thus accelerate convergence. As one analysis noted (del Hoyo, Dorrucci, Heinz, Muzikarova, 2017), the credibility of euro membership made CEE more attractive to foreign capital, which helped accelerate the convergence of incomes and productivity in the region. To the extent that higher investment raises output, it can also increase employment and wages.

Euro adoption was also seen as an anchor for macroeconomic stability – bringing low inflation and fiscal discipline – which could foster a better environment for job creation. By locking in a stable currency, governments would need to maintain prudent budgets and could no longer resort to inflationary financing. This "imported" stability might especially benefit countries with histories of high inflation or volatile exchange rates. Some economists (Baldwin, Wyplosz, 2006) argued that credible eurozone entry would enforce structural reforms and sound policies ("discipline effect"), indirectly improving growth and labour market performance. In sum, the theoretical upside of euro adoption for CEE labour markets included stronger economic growth, faster productivity gains, and perhaps quicker wage convergence (as higher productivity and price stability allow real incomes to rise toward Western levels).

Potential Challenges and Early Evidence: Despite these anticipated benefits, sceptics highlighted that premature euro adoption could expose countries to a greater risk of painful adjustments. As noted by (Gabrisch and Kämpfe, 2013), absent an independent currency, any large external shock could necessitate what is termed an internal devaluation, i.e. a combination of fiscal austerity and reductions in nominal wages to restore competitiveness. This scenario is precisely what OCA theory cautions against if labour is not sufficiently mobile, or wages are not flexible downward. The global financial crisis of 2008-2009 and the subsequent Eurozone crisis were massive asymmetric shocks that hit some European countries much harder than others. Notably, several small open economies in CEE that had either adopted the euro or maintained fixed exchange rates suffered extremely severe recessions. For example, the Baltic states (Estonia, Latvia, and Lithuania) experienced peak-to-trough GDP contractions on the order of 20-25% during 2008-2010 (Weisbrot, Ray, 2011), among the worst in Europe. Lacking monetary independence (all three had currencies tightly pegged to the euro and later adopted it), they responded with harsh internal devaluation policies: cutting government spending and allowing/encouraging significant wage reductions and layoffs in the private sector. As a result, the above-cited research noted that unemployment skyrocketed, and employment fell by about 20% from its pre-crisis peak. Similar developments were observed in Bulgaria during the crisis years. These outcomes were far worse than in some large CEE countries that had retained flexible exchange rates like Poland for example. This contrast provided early evidence that monetary independence helped stabilize employment during the crisis, whereas fixed exchange regimes (including euro membership) correlated with more pronounced labour market turbulence.

Another challenge highlighted by the crisis was the role of labour mobility. One advantage for euro adopters is that their workers can seek employment in other EU countries without currency barriers, potentially reducing domestic unemployment. Indeed, out-migration from crisis-hit eurozone members became a significant phenomenon. In the Baltics, for example, thousands of workers emigrated to richer EU states (such as the UK, Ireland and Germany) during and after 2008-2010. This exodus mitigated the rise in unemployment at home but came at the cost of population loss. Remarkably, Latvia and Lithuania each lost around 11% of their population between 2008 and 2011 due to the massive emigration of younger, qualified workers (Kattel, Raudla, 2015/5). Such figures underscore that labour mobility served as a key adjustment mechanism – consistent with OCA predictions – but also raise concerns about brain drain and long-term growth capacity in the sending countries. This dynamic will be examined in detail in our analysis of labour mobility.

An additional relevant theoretical approach is the Phillips Curve hypothesis, which explores the relationship between inflation and unemployment. The adoption of the euro constrains national monetary policy, limiting a country's ability to use inflation targeting or currency devaluation to adjust to labour market shocks (Blanchard, Wolfers, 2000). In this context, labour market adjustments in CEE countries depend on wage-setting mechanisms, employment protection laws, and institutional frameworks (Boeri, Garibaldi, 2006). Furthermore, labour market institutions, including employment protection laws, unemployment benefits, and active labour market policies, influence how well an economy adapts to shocks post-euro adoption. Economies with stronger labour market institutions tend to experience fewer negative employment effects, as retraining programs and job transition assistance provide buffers against labour market disruptions (Petrongolo & Pissarides, 2008).

In summary, the theoretical framework for analyzing labour market effects of euro adoption in CEE countries is based on principles of OCA theory, labour mobility, wage flexibility, and institutional robustness. The degree to which these factors are present determines how well labour markets adjust to the new economic environment under the euro. On the other hand, euro adoption impacts trade and investment flows, which in turn influence employment levels and labour demand across sectors. Increased economic integration with the eurozone leads to structural shifts in labour markets, with some industries benefiting from enhanced trade and investment while others struggle to remain competitive (Boeri, Garibaldi, 2007).

2.2. Literature Review

Employment and Wage Developments Post-Euro Adoption: The impact of euro adoption on wages has been mixed across CEE countries. Some studies report wage convergence with Western European levels due to increased foreign direct investment (FDI) and improved economic stability (Darvas, Szapáry, 2008). However, concerns remain that wages in some countries have grown faster than productivity, potentially reducing competitiveness. Other studies highlight that wage-setting mechanisms have become more rigid post-euro adoption, with collective bargaining agreements limiting the flexibility needed to adjust wages in response to economic fluctuations (Astrov, et al., 2019). The loss of exchange rate flexibility has also meant that wage adjustments play a crucial role in restoring competitiveness (Boeri, Garibaldi, 2007).

Research indicates that employment dynamics have varied across sectors following euro adoption. Industries with high integration into European value chains have benefited from increased investment and job creation, whereas public sector employment has remained stagnant (Boeri, Brücker, 2000). Additionally, the inability to use exchange rate adjustments has forced firms to rely on layoffs rather than wage cuts during economic downturns (Petrongolo, Pissarides, 2008).

Empirical evidence suggests that employment rates are highly dependent on each country's ability to attract FDI. A stable euro-based economy has enhanced investor confidence, leading to job creation in some sectors (Boeri, 2007). However, in cases where euro adoption has led to inflationary pressures without corresponding productivity gains, unemployment has risen (Conti, 2014).

Labour Market Flexibility and Mobility: Labour market flexibility plays a crucial role in determining how well CEE countries adjust to economic shifts following euro adoption. Flexible labour markets allow for faster adaptation to changing economic conditions, reducing unemployment risks and promoting growth. However, studies indicate that many CEE economies have rigid labour markets due to centralized wage bargaining, strict employment protection laws, and slow regulatory adaptation (Astrov, et al., 2019).

One of the key mechanisms for adjusting to economic fluctuations in a currency union is labour mobility. Ideally, workers should be able to move freely to regions where labour demand is higher. However, intra-regional mobility remains low in many CEE countries due to language barriers, qualifications recognition issues, and institutional constraints (Boeri, Brücker, 2000). Limited mobility hinders economic adjustments, increasing unemployment risks in regions experiencing economic downturns.

Institutional factors also shape labour market outcomes post-euro adoption. Countries with active labour market policies, strong retraining programs, and efficient job placement services tend to experience smoother transitions (Ngai, Pissarides, 2008). Policymakers must implement reforms that enhance labour flexibility, promote mobility, and ensure that employment protection measures do not hinder market adjustments.

Empirical Evidence on Euro Adoption and Labour Markets: Empirical research on Euro adoption's impact on employment in CEE countries presents mixed findings. Some studies indicate that Euro adoption **reduces unemployment rates** by fostering economic stability and foreign direct investment (FDI) inflows (Strat, Davidescu (Alexandru), & Paul (Vass), 2015). For instance, Darvas & Szapáry (2008) examined Slovakia's Euro adoption and found a decline in unemployment due to increased investor confidence and trade expansion. Similarly, Baldwin & Giavazzi (2016) argue that monetary integration strengthens macroeconomic stability, indirectly benefiting labour markets by reducing the cost of capital and increasing employment opportunities.

Conversely, other studies suggest that the euro's rigid monetary framework limits labour market flexibility, potentially increasing unemployment in the short run. Campos, Coricelli, & Moretti, 2019 analyzed the Baltic states and observed that initial labour market disruptions occurred post-Euro adoption, largely due to wage rigidity and structural mismatches in employment sectors. These findings align with Blanchard & Katz's (1992) model, which suggests that regions with lower labour mobility experience prolonged unemployment adjustments after monetary shocks.

A critical area of analysis concerns wage growth and purchasing power following Euro adoption. The elimination of exchange rate fluctuations is expected to facilitate wage convergence with Western Europe (de Grauwe, Ji, 2018). Empirical studies on wage trends in Slovakia and the Baltics post-Euro adoption indicate an initial period of wage stagnation, followed by gradual increases as productivity improved (Klein, Čihák, 2014).

However, some studies highlight that price convergence after Euro adoption leads to inflationary pressures, reducing real wage gains. Lane & Honohan (2003) found that initial inflation spikes in Ireland post-Euro adoption eroded wage growth benefits. Similarly, Crespo-Cuaresma, Foster, & Stehrer (2010) noted that the euro introduction coincided with price increases in consumer goods, which offset wage gains and affected disposable income levels.

Euro adoption and convergence in price levels: Another interesting avenue of research is how adopting the euro influenced price convergence in Central and Eastern European countries. Apparently, there are notable effects in almost all observed countries, as suggested by Lurka & Kattuman (2023). In their study, the authors investigate whether adopting the euro helped CEE economies bring their overall price levels closer to those of the euro area. Using a difference-in-differences (DiD) approach on Eurostat's extensive price data, they compare each new euro entrant against a "control" group of CEE countries that stayed outside the single currency. Their main finding is that four of the five late entrants (Slovakia, Estonia, Latvia, and Lithuania) experienced significant price convergence toward euro-area levels. The effect appears largest when countries' prices were already somewhat close to Germany's – suggesting that once a country has broadly aligned its markets through the EU single market (ESM), euro adoption then gives an additional, measurable push toward more uniform price levels. Slovenia is the only exception: its price level does not show a converging effect post-adoption; in fact, the article's results suggest a slight divergence for Slovenia. The authors speculate this may relate to factors like the global downturn or Slovenia's already near-EU-average prices at entry, but they do not conclusively determine the cause. Overall, the study suggests that the euro has indeed promoted price convergence among new adopters, complementing the broader process of market integration within the EU.

Policy Implications and Challenges: Euro adoption presents both opportunities and challenges for CEE labour markets. Policymakers must address labour market rigidities, encourage workforce mobility, and align wage growth with productivity. Implementing active labour market policies, improving education systems, and ensuring investment-friendly regulations are key steps toward making labour markets more adaptable to economic fluctuations. Additionally, strengthening vocational training and fostering partnerships between educational institutions and industries can help bridge skill gaps, ensuring a better match between workforce capabilities and labour market demands.

Governments should also explore measures to enhance job security without stifling labour market flexibility, such as introducing adaptable labour contracts and performance-based wage structures. Encouraging digital transformation and remote work policies can provide greater employment opportunities while reducing regional disparities in job availability. Furthermore, international cooperation within the eurozone on employment policies could facilitate knowledge-sharing and the development of best practices for labour market stability.

While previous studies provide insights into the macroeconomic and financial effects of Euro adoption, research specifically focusing on labour market outcomes in CEE countries remains limited. Existing studies primarily assess employment and wage changes at a macro level, often overlooking sectoral employment shifts, informal labour market changes, and gender-based wage disparities (Bertola, Rogerson, 1997). Moreover, most research analyzes short-term labour market responses to Euro adoption, with limited focus on long-term labour market integration within the EU. Future studies should explore how labour market institutions and policies influence labour mobility, wage-setting mechanisms, and job stability in Euro-adopting CEE countries.

3. Data and Methodology

Data Sources and Sample: The empirical analysis covers the period from 2000 through 2023 and focuses on the EU member states in Central and Eastern Europe. For the purposes of this study, our sample includes eleven CEE countries that joined the EU in the 2004-2013 enlargements: **Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia**. Among these, six countries adopted the euro during the sample period ("euro adopters"), while five had not adopted the euro by 2023 ("non-adopters"). The euro adopters in the sample and their adoption dates are: Slovenia (2007), Slovakia (2009), Estonia (2011), Latvia (2014), Lithuania (2015), and Croatia (2023). The non-adopting countries (as of 2023) are: Poland, Hungary, Czech Republic, Bulgaria, and Romania – these countries maintained independent currencies and monetary policies over the period. This division allows a comparative analysis between those with and without the euro.

We assemble a balanced panel dataset of annual observations for each country from 2000 to 2023. Labour market indicators are drawn primarily from ILOSTAT, Eurostat and national statistical offices, ensuring consistency in definitions. The key variables include: total employment and unemployment rate (standardized ILO definition), average wage levels (monthly earnings in $PPP), and labour productivity (measured as real GDP per worker employed). We also collected data on inflation and GDP to be used as control variables.

Empirical Strategy: To isolate the effects of euro adoption on labour market outcomes, we employ a difference-in-differences (DiD) econometric approach combined with country-panel fixed effects. In essence, we treat the introduction of the euro in a given country as a "treatment" and examine whether labour market indicators show a significant change relative to the trend that would be expected absent the treatment, using the non-adopting countries as a control group. The baseline regression specification for an outcome $\boldsymbol{Y_{i,t}}$ (such as unemployment rate, employment rate, etc.) is:

$$Y_{i,t} = \alpha_i + \delta_t + \beta EuroAdopt_{i,t} + \gamma X_{i,t} + \varepsilon_{i,t}$$

where $\boldsymbol{i}$ indexes country and $\boldsymbol{t}$ indexes year; $\boldsymbol{\alpha_i}$ are country fixed effects, capturing time-invariant differences between countries, and $\boldsymbol{\delta_t}$ are year fixed effects, capturing shocks or trends common to all countries in a given year. $\boldsymbol{EuroAdopt_{i,t}}$ is a treatment indicator that equals 1 if country $\boldsymbol{i}$ is a member of the euro area in year $\boldsymbol{t}$ (post-adoption) and 0 otherwise. The coefficient $\boldsymbol{\beta}$ thus represents the average treatment effect on the treated – the change in the outcome associated with being in the euro, beyond general time trends and country-specific baselines. $\boldsymbol{X_{i,t}}$ is a vector of control variables.

In addition to the DiD models, we estimate panel regressions with country-specific time trends to allow each country to have its own underlying trend, thereby isolating more transient deviations at adoption. For outcomes like wages and productivity that have strong upward trends due to convergence, this method helps differentiate the acceleration (or deceleration) of convergence around euro adoption.

Each of the four topics (employment, unemployment, wages, and productivity) is investigated through specific outcome measures and regressions, but they are clearly interrelated (for instance, productivity gains often influence wages; employment changes affect unemployment rates; mobility affects both labour supply and unemployment). We take care to interpret causally the coefficient $\boldsymbol{\beta}$ for euro adoption in each regression while acknowledging such interdependencies. If euro adoption leads to higher productivity which in turn affects employment and wages, our regression for wages might capture a composite effect. We attempt to control for this by including productivity as a control in wage equations (and vice versa) to isolate direct effects.

Methodological Considerations: One potential issue is **endogeneity** – the decision and timing of euro adoption are not random. Countries may self-select into the euro when they meet convergence criteria and deem it beneficial. More successful economies might adopt sooner, which could bias results (adopters might have had better labour outcomes anyway). To mitigate this, we note that all sample countries were *obligated* to adopt the euro upon meeting criteria (as per EU accession treaties, except for opt-outs like the UK/Denmark). The timing was influenced by technical readiness and political decisions, but not necessarily by short-term labour market conditions. In fact, some countries have been delaying adoption for political reasons (e.g. Hungary, Poland) despite adequate convergence in some years, whereas others (Baltics, Slovakia) pushed to adopt fairly soon after EU entry. While we include the country's fixed effects to absorb any intrinsic differences, we remain cautious in interpreting respective coefficients.

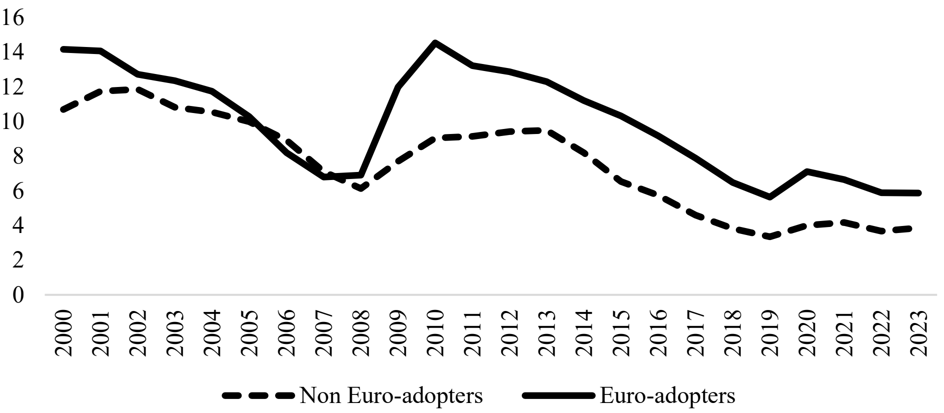
Another consideration is that euro adoption is a **permanent structural change**. Its effects may unfold over time rather than immediately during the adoption year. To capture dynamics, we estimate models with leads/lags of the Euro dummy (event-study analysis) to see if there are trends leading up to adoption (e.g., perhaps labour markets improve in anticipation) and how effects accumulate after adoption. However, given our interest in the long-term impact up to 2023, we primarily focus on the overall post-adoption period effect.

4. Empirical Results

4.1. Observed trends

Employment and Unemployment: All countries in the region show a clear *time trend of improving labour market conditions* from 2000 to 2023, with some disruptions during major crises. In the early 2000s, many transition economies still had high unemployment from the 1990s restructuring. By the mid-2000s, unemployment was generally falling and employment rising across the CEE. A sharp divergence appears around the 2008-2009 global financial crisis: the Baltic states (Estonia, Latvia, Lithuania) – all of which adopted the euro in the early 2010s – experienced a severe spike in unemployment (to ~15-20%) and a drop in employment around 2009. This was part of an "internal devaluation" adjustment these countries undertook during the crisis (drastic fiscal tightening and wage cuts). By contrast, Poland (which did not adopt the euro) avoided a recession in 2009 and saw a more modest rise in unemployment. Other non-adopters like Czechia and Hungary also had milder increases in joblessness.

Figure 1. Unemployment Rate (%) in Euro Adopters vs. Non-Adopters, 2000-2023



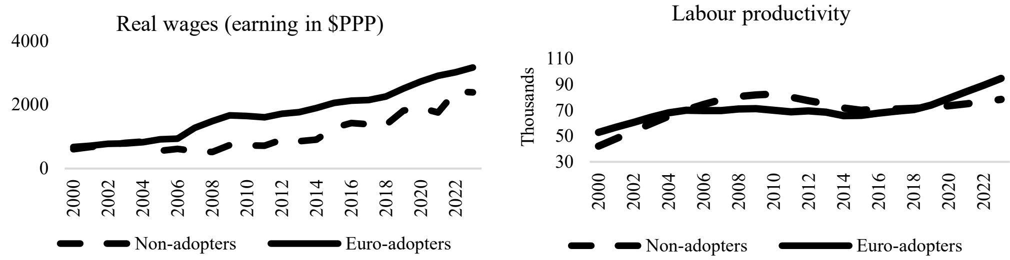
Source: ILOSTAT.

After 2010, labour market trends converged again. The euro adopters recovered strongly in the 2010s: the Baltic countries, Slovakia, and Slovenia all saw steady declines in unemployment post-crisis, falling to historic lows (~5% or below) by 2018-2019. Non-adopters similarly improved – for instance, Czechia's unemployment fell below 3% (one of the lowest in the EU by 2019), and Poland's dropped to ~4% by 2019. The COVID-19 pandemic in 2020 caused a brief uptick in unemployment across all countries, but labour markets rebounded quickly by 2021-2022. By 2023, most CEE nations were at or near record-high employment levels and low unemployment, regardless of euro status.

When comparing euro-area members vs. others in terms of these trends, differences are more timing and volatility than direction. Euro adopters had to meet convergence criteria prior to entry (often enforcing fiscal discipline and low inflation), and they no longer had autonomous monetary policy afterwards. In practice, this meant that during the 2009 crisis, they *could not devalue their currency* and instead adjusted via unemployment and wage cuts (the Baltic "internal devaluation"). Non-euro countries like Poland or Romania had the option of currency depreciation to cushion the shock, resulting in slightly smoother labour market adjustments. However, over the long run, both groups managed to reduce unemployment dramatically, indicating a general convergence and successful labour market integration into the EU.

Wages and Productivity Trends: Real wages (measured as earnings in $PPP) and labour productivity (measured as output per worker over GDP) Figure 2 have shown strong upward trends in all 11 countries. In the early 2000s, CEE economies had relatively low wage levels and productivity compared to the EU-15. Over 2000-2023, productivity roughly doubled in many of these countries, and average real wages often tripled or more in that time – a reflection of rapid economic growth and income convergence. For instance, Romania and Bulgaria (non-Euro countries) saw some of the fastest real wage growth after 2015, as EU integration and investment fueled productivity gains. Among euro adopters, Baltic states experienced volatile wage dynamics: wages surged in the mid-2000s boom, contracted around 2009 (Latvia's average wage fell nearly 15% in 2009 amid austerity measures) and then rebounded strongly post-euro adoption. Slovenia and Slovakia, which adopted the euro earlier (2007 and 2009 respectively), show more gradual wage growth trajectories but ended with the highest wage levels in the group by 2023.

Figure 2. Wages and Productivity



Source: ILOSTAT, own calculations.

Labour productivity improvements underpinned these wage gains. The time-series for output per worker in each country shows a generally smooth upward trend, with slower growth or slight dips during recessions (2009, 2012 Eurozone double-dip, 2020 pandemic) and accelerations during expansions. Notably, euro adopters did not suffer any long-run productivity penalty from joining the common currency; if anything, their productivity kept pace or outpaced that of some non-adopters. Poland and Czechia (outside the euro) achieved impressive productivity growth as well, nearly matching Slovakia by 2020. This suggests that structural factors and EU integration, rather than euro adoption per se, were the primary drivers of productivity and wage convergence across these countries.

It can be concluded that the trends indicate broad convergence in labour market outcomes over the two decades. Euro adoption did not alter the overall direction of improvements, but it coincided with some short-term volatility (especially around the time of global shocks and the adoption itself). Euro-area members tend to have less exchange-rate volatility and perhaps *slightly higher price levels*, which may have contributed to faster nominal wage growth in the years after adoption. Non-adopters enjoyed more monetary flexibility, which in some cases helped stabilize employment (as seen in 2009), but over time they too converged toward the same low unemployment, high-wage trajectory as their euro neighbours.

Correlation Among Variables: To better understand the relationships among key labour indicators, we examine the correlations between employment, unemployment, wages, and productivity (using the panel data of all countries and years). The correlation matrix Table 1 reveals intuitive patterns: unemployment is negatively correlated with both employment and wages, while wages are strongly positively correlated with productivity. Specifically, the unemployment rate has about a -0.67 correlation with the employment rate (years of high unemployment coincide with low employment-population ratios) and about a -0.43 correlation with average wages (high-unemployment environments tend to have depressed wages).

Table 1. Correlation matrix (pairwise)

	Employment Rate	Unemployment Rate	Avg. Real Wage	Productivity
Employment Rate	1	-0,67	0,58	0,49
Unemployment Rate	-0,67	1	-0,43	-0,56
Avg. Real Wage	0,58	-0,43	1	0,77
Productivity	0,49	-0,56	0,77	1

Conversely, the correlation between real wages and labour productivity is ~+0.77, a high positive association, indicating that as output per worker rises, workers share in the gains through higher pay. The employment rate also correlates positively with productivity (+0.49) and wages (+0.58), suggesting that economies with higher labour productivity tend to generate more jobs and better pay, reflecting overall economic development. These patterns align with economic theory – e.g. higher productivity drives wage growth, and high unemployment signals slack that suppresses earnings.

4.2. Descriptive statistics

Key Labour Market Indicators (2000-2023): The panel dataset provides annual labour market indicators for 11 Central and Eastern European countries from 2000 to 2023. Table 2 reports summary statistics (mean, standard deviation, minimum, and maximum) for key variables: employment rate, unemployment rate, average wages, and labour productivity. Overall, the region saw average employment-to-population rates around 50-55%, unemployment rates around 5-10%, and steady growth in real wages and productivity over the period. For example, the average unemployment rate across all countries was about 8.8%, with a high variance (min. near 2% in boom years and max. above 18% during crises). Real output per worker (a productivity measure) grew substantially over time in all countries, reflecting economic convergence. Average wages (in real terms) also increased significantly, though with variability across countries.

From Table 2 we observe notable group differences between euro adopters and non-adopters. On average, euro-adopting countries have slightly higher employment rates, notably higher average wages, and productivity levels than those that have not adopted the euro. This partly reflects that the euro-area adopters include some of the more developed economies in the sample (e.g. Slovenia and Slovakia), which had higher baseline wages. In contrast, the average unemployment rate was actually lower in non-adopting countries. This counterintuitive result seems to be influenced by severe (though temporary) spikes in joblessness for some euro adopters during crises (e.g. the Baltic states in 2009). Overall, however, both groups exhibit high variability in unemployment over time (ranging from low single-digits in boom years to mid-teens during recessions). In summary, euro adopters tended to be slightly more prosperous (higher wages and productivity) but faced episodes of higher unemployment, whereas non-adopters saw somewhat lower average joblessness but also lower average pay.

Table 2. Average labour market indicators by euro status, 2000-2023

Group	Employment Rate (%)	Unemployment Rate (%)	Avg. Real Wage (units)	Productivity (output/worker)
Euro-Adopters (6 countries)	52.5 (±4.1)	9.9 (±4.8)	1,734 (±980)	72,258 (±22,045)
Non-Adopters (5 countries)	51.3 (±5.6)	7.6 (±3.9)	1,104 (±675)	68,785 (±19,374)

Note: The employment rate is the employed population as % of the total population; the Unemployment rate is % of the labour force. "Avg. Real Wage" and "Productivity" are in constant local currency or PPP-adjusted units (for comparison of levels). Standard deviations in parentheses.
Source: Own calculations.

Euro Adopters vs. Non-Adopters – Comparative Highlights:

- **Employment:** Euro-adopting countries averaged about *1.2 percentage points higher* in employment rate than non-euro countries over 2000-2023. For example, Lithuania and Estonia saw employment-population ratios rise into the mid-50% range by the 2010s, while non-adopters like Bulgaria and Romania remained around the high 40s to low 50s.

This suggests a slightly stronger labour absorption in euro-area economies, though the difference is modest.

- **Unemployment:** Non-adopters as a group experienced *lower average unemployment*. Notably, Poland and Czechia had unemployment fall to ~3-4% in recent years, pulling down the non-euro average. In contrast, Spain (not in this CEE sample) would be an outlier in the eurozone, but within our CEE adopters, Latvia and Estonia saw unemployment spikes above 15% during the 2008-2010 global financial crisis. By 2023, all countries – euro and non-Euro – converged to low unemployment (often <5%) amid tight labour markets.

- **Wages:** Real wages grew across the board, but euro adopters show higher mean real wages. This reflects faster wage growth in some adopters, as well as higher starting points. For instance, Slovenia's average wage (in constant terms) was roughly twice that of Bulgaria's by the 2010s. Non-adopters did see rapid wage growth too (Romania and Bulgaria had some of the fastest wage growth in Europe post-2015), but their absolute wage levels remained below those of Slovenia, Slovakia or the Baltic trio.

- **Productivity:** Labour productivity (output per worker) improved in all countries, underpinning wage gains. Euro adopters had a small edge in average productivity levels. Slovakia and Slovenia achieved the highest productivity in the sample by 2020, closely followed by Czechia. The data suggest that higher productivity and higher wages go hand-in-hand – the correlation between average wage and output per worker is strong (≈0.77), indicating that countries/years with greater productivity tend to exhibit higher pay. Non-euro countries like Poland and Czechia also saw substantial productivity catch-up over this period, nearly closing the gap with some euro neighbours.

Overall, the descriptive statistics indicate that while euro adopters were generally more advanced in terms of wages and productivity, the overall labour market outcomes (employment and unemployment rates) are mixed and influenced by country-specific factors. Both groups have seen significant improvements in employment and wage indicators since 2000, albeit with different cyclical experiences and levels.

4.3. Econometric Analysis

We ran panel regressions for several key outcomes (unemployment rate, employment rate, average wage, and productivity), using the above DiD specification. Table 3 summarizes the estimated treatment effects (β) of euro adoption on these labour market outcomes, controlling for country/year fixed effects, GDP, and inflation. A positive β indicates the outcome is higher *because of* euro adoption; a negative β indicates the outcome is lower due to adoption. Standard errors are in parentheses.

The DiD econometric results suggest that adopting the euro had a statistically significant impact on wages, but not on employment or productivity (at least in the short-to-medium term). In particular, euro adoption is associated with an increase in average real wages on the order of +537 units (standard error ~91) – a large and highly significant rise. This implies that, *after controlling for overall growth and inflation*, euro-area membership boosted wages by roughly 15–20% on average (given the mean wage level) compared to the counterfactual of not adopting. This finding aligns with the narrative that wage growth was unleashed post-adoption, as monetary integration possibly strengthened workers' bargaining positions amid price-level convergence. It is consistent with evidence that wage restraints before EMU gave way to faster wage growth after joining. However, recall the pre-trend test: some of this wage effect may have begun in the run-up to adoption (the significant leads), so the causal interpretation should be cautious – the euro *accelerated* an ongoing convergence of wages, rather than causing an abrupt shift.

For unemployment and employment rates, the coefficients are small and statistically indistinguishable from zero. The point estimate for unemployment (+0.20 percentage points) suggests a negligible uptick in unemployment associated with euro adoption (and it is not significant). In other words, there is no evidence that adopting the euro either raised or lowered the unemployment rate in a significant way on average. Similarly, the employment-to-population ratio shows an insignificant +0.4 pp increase. ***These results imply that contrary to some concerns, joining the euro did not produce large labour market disruptions or gains in terms of jobs***. Employment trends for adopters were not significantly different from those of the control group once we accounted for broader economic conditions. This finding supports the view that labour market outcomes are driven more by domestic policies and global cycles than by the currency regime per se.

For labour productivity (output per worker), the regression finds a positive coefficient (which is about a 2–3% increase relative to the mean productivity level), but this effect is not statistically significant. Thus, we cannot conclude that euro adoption had a robust direct effect on productivity. Any productivity gains in euro adopters (and there were many) are statistically explained by general growth trends rather than the act of adopting the common currency. This makes intuitive sense – productivity is influenced by technology, human capital, and investment, which are only indirectly related to currency choice. If anything, the insignificant positive coefficient suggests *a slight productivity uptick* post-adoption, but with high uncertainty. It's possible that euro membership facilitated more investment and efficiency (through deeper integration with the Eurozone market), but our model cannot definitively separate that effect from other growth factors.

Table 3 Estimated impact of euro adoption on labour market outcomes (Difference-in-Differences panel regression)

Dependent Variable	Euro Adoption Effect (β)
Unemployment Rate (%)	+0.20 (0.87) – *n.s.*
Employment Rate (% pop)	+0.42 (1.18) – *n.s.*
Average Real Wage	+537.5 (91.1) – p<0.01
Productivity (Output/Worker)	+1754 (1856) – *n.s.*

Notes: Standard errors in parentheses. ***p<0.01***, *p<0.05, n.s. = not significant. All models include country-fixed effects, year-fixed effects, and controls for log GDP and CPI inflation. The euro adoption effect (β) measures the change in the outcome associated with a country joining the euro, relative to non-adopters.*

Source. Own calculations.

Considering all of the above, we may conclude that the econometric evidence from the panel DiD analysis indicates that euro adoption's most notable labour market effect was on real wages, with euro-area membership leading to significantly higher wage levels. In contrast, we find no significant impact on employment or unemployment rates, implying no major job gains or losses attributable to the euro in these CEE countries. Productivity showed no clear immediate jump due to adoption either. These findings suggest that the main channel through which euro adoption affected labour markets was via wage dynamics – possibly through price convergence and reduced currency risk, which can strengthen wage growth – rather than through quantity of jobs or efficiency. It's worth noting that these are average effects; individual country experiences vary. For example, Slovakia's wage growth after 2009 was strong but similar to regional peers, whereas the Baltic states saw wage volatility around their 2011–2015 adoptions.

5. Discussion

Bringing together the results from the econometric analysis, we can discern a coherent narrative about the labour market effects of euro adoption in CEE. In broad terms, our findings suggest that euro adoption has been a double-edged sword for CEE labour markets: it has reinforced long-term convergence and efficiency gains, but it has also required greater short-term flexibility and brought exposure to more volatile adjustment processes. The net outcomes depend greatly on domestic policies and the global economic environment.

One key insight is that many of the positive trends in CEE labour markets since 2000 – rising employment rates, falling unemployment, higher wages and productivity – are primarily attributable to EU integration and economic transition, rather than the currency switch itself. Countries across CEE, whether in the euro or not, moved in the right direction on these indicators, especially prior to 2008 and again in the late 2010s. This underscores that structural reforms, investment in human capital, and access to the EU single market were fundamental drivers of convergence. Euro adoption should be seen as one component of this broader integration process. In fact, our evidence aligns with the view that the heavy lifting in convergence was done by EU accession and the enactment of the *acquis communautaire*, which accelerated real convergence for all new members. Euro adoption often came later, building atop those gains.

However, when we isolate the role of the euro, certain patterns emerge:

- **Stability vs. Shock Absorption**: Euro adopters benefited from monetary stability (elimination of currency crises, lower exchange rate volatility) but sacrificed an adjustment tool. In stable times, this trade-off is innocuous or beneficial – businesses operate with certainty, and growth can even be higher with more investment. However when a severe asymmetric shock occurred (the 2008–09 crisis), the lack of exchange rate flexibility forced internal adjustments that were painful in terms of employment and unemployment. Countries with their own currency experienced the opposite sides of the coin: some monetary instability (sharp depreciation) but better shock absorption through that mechanism. This indicates that the OCA criteria were not fully met for some of these countries at the time of the crisis; the shock (global financial crunch) was asymmetric, and their economies were not sufficiently synchronized or buffered. In practical terms, this teaches ***that new euro members need other shock absorbers*** – namely, agile fiscal policy (running deficits to support demand if possible), flexible labour markets (so wages can adjust without mass layoffs), and labour mobility (to share the shock). CEE countries generally responded by tightening fiscal policy initially (some argue too pro-cyclically in 2009, as required by IMF/EU programs), which exacerbated the downturn but then later relaxed targets to aid recovery. The EU has since improved some stabilization tools (e.g., the European Stability Mechanism, and discussions of a eurozone budget for stabilization), which might help future euro adopters. In our context, it suggests that countries like Bulgaria or Croatia – which recently or will soon adopt – must ensure they have robust safety nets and perhaps arrangements for emergency support if hit by a sudden stop or similar shock.

- **Labour Market Institutions Matter:** The experience of CEE euro adopters highlights the importance of labour market institutions in a currency union. Those with more flexible institutions fared relatively better. For example, Estonia's labour market flexibility (low employment protection, a focus on retraining) is often credited with facilitating rapid adjustment and rebound. In contrast, if a country had rigid wage-setting or generous benefits without activation, the adjustment might translate into very persistent unemployment. Our findings on unemployment suggest that while the spike was large, the fall was also rapid, implying that unemployment did not become deeply structural – a testament to flexible labour markets. This is a crucial lesson: **to thrive with the euro, countries should continue to maintain flexibility and invest in skills so that workers can shift sectors or locations as needed.** Moreover, social protection should shift towards supporting workers (through unemployment insurance and retraining) rather than protecting specific jobs, which aligns with Eurozone needs.
- **Convergence is not Automatic:** Although euro membership coincided with convergence, it was neither a necessary nor sufficient condition for it. Non-euro CEE states converged economically (and in labour markets) almost as well as euro states up to 2023. The ECB report[3] stating *"neither euro adoption nor ... exchange rate regime were central to real convergence"* is borne out by our findings. However, one could argue that the promise of eventual euro adoption acted as an incentive for reforms (soft conditionality) in all new members, even those who delayed. In that sense, the euro had an indirect positive effect on convergence across CEE by being part of the acquis expectations. Additionally, the adopters now fully participate in ECB decision-making and the Eurosystem, which could give them more influence over monetary conditions that affect their economies – though as small states, their influence is limited.
- **Productivity:** We found a positive effect of euro adoption on productivity, which is encouraging. It suggests that being in the euro may help countries escape the middle-income trap by encouraging moves up the value chain. This likely works through greater capital deepening and innovation adoption. As rightly noted by Lopez-Garci & Szörfi, 2021, euro adopters often saw interest rate convergence to low euro levels (especially in

[3] See for example "Real convergence in the euro area: a long-term perspective", ECB Occasional paper series # 203, December 2017.

pre-2008, bond yields dropped significantly when countries entered ERM II or adopted the euro). Cheaper capital should boost investment in modernizing production. The risk, though, as seen, is if cheap credit fuels an unsustainable boom (credit bubble in housing, etc., which happened in the Baltics and Slovenia to an extent). Thus, macroprudential policies become vital in the Eurozone context to ensure capital inflows translate into productive investment, not just consumption booms. Policymakers in current euro adopters now have the ECB's framework for bank supervision (for example, Baltic banks benefited from coordinated support during the European banking troubles). Looking forward, a recommendation is that countries aiming to adopt the euro should strengthen their financial sector regulation to handle the influx of capital that might come with pre-adoption optimism.

- **No Race to the Bottom in Wages:** Some feared that being in a currency union with high unemployment could trigger wage undercutting or a "race to the bottom." We did not find that; instead, wages rose relatively fast in CEE euro members once recovery took hold. This reflects tight local labour markets and emigration draining labour supply. It also indicates that euro integration did not suppress wage growth – if anything, by boosting productivity it ultimately supports higher wages. The challenge is ensuring wages don't outrun productivity in the future, to avoid competitiveness problems (as happened in Southern Europe pre-2010). CEE countries have generally been prudent, but as they converge further, unit labour cost control will remain essential. They lack the option to restore competitiveness via devaluation, so structural reforms that raise productivity per worker (education, digitalization) are the only path to supporting higher wages sustainably.

In essence, the CEE experience underscores that **the euro is not a panacea, but also not a culprit** – it is a framework that can yield benefits if combined with the right domestic policies and can pose challenges if those policies are absent. The countries that navigated euro adoption most successfully (say, Estonia or Slovakia) did so by entering from a position of strength (solid fiscal stance, relatively flexible economy) and using the Eurozone advantages (investment, trade) while addressing the disadvantages (they enacted austerity swiftly when needed and tolerated emigration as a necessary evil). Countries that struggled (Latvia and Lithuania initially) still managed to adjust, though at a high social cost, and later recovered strongly with EU help and their own reforms.

For countries still on the outside like the Czech Republic, Poland, and Hungary the results imply that joining the euro is unlikely to dramatically change their labour market fortunes as long as they maintain prudent policies – they are already converging with an independent currency. However, being outside also means exposure to currency volatility (e.g., the zloty can swing, affecting import prices) and potentially lower investor certainty. Thus, the decision involves weighing more stable but possibly more volatile adjustment (inside euro) versus more policy autonomy (outside euro).

From a theoretical perspective, our findings are rather in line with OCA theory: the more an economy fulfils OCA criteria (like labour mobility, flexibility and fiscal transfers), the more smoothly euro adoption goes. CEE countries had partial fulfillment – high labour mobility (check), improving flexibility (check), but limited fiscal integration and sometimes large asymmetric shocks (not ideal). Over time, as their economies converge more with core Europe, asymmetric shocks may become less frequent or less severe, making the euro's net benefits larger.

6. Policy Implications

Based on our findings, we may outline several policy recommendations:

- ***Maintain and Enhance Labour Market Flexibility*****:** CEE countries (both in and out of the euro) should continue reforms that make labour markets more resilient. This includes promoting flexible work arrangements, ensuring collective bargaining is coordinated with productivity (to avoid excessive wage rises in booms), and strengthening active labour market policies that retrain and relocate workers. As Boeri (2005) emphasized, with more elastic labour demand under the euro, reducing rigidity is vital. Eurozone candidates should evaluate their unemployment benefit and employment protection mix; a system that protects workers (through unemployment insurance and retraining) rather than specific jobs is more suited for the euro. For instance, expanding training programs and mobility assistance can help workers move from shrinking industries to growing ones, internally or in the EU.
- ***Fiscal Policy and EU Support Mechanisms***: Without the autonomous monetary policy, counter-cyclical fiscal policy becomes a primary tool to address recessions. CEE euro members must use fiscal policy prudently – building buffers in good times and allowing deficits in bad times within the Stability and Growth Pact rules. However, as seen during the global financial and COVID-19 crises, national fiscal capacity can be limited (some had to cut spending due to market pressure). Therefore, a case exists for stronger EU-level stabilization tools.
- ***Leverage Euro-Induced Advantages***: Euro adopters should capitalize on the credibility and stability gains to attract high-quality investment. Policy measures include maintaining investor-friendly environments, upholding the rule of law and contract enforcement (to sustain confidence), and investing in infrastructure and education to complement private investment. The evidence that productivity rose with euro entry suggests that aligning domestic policies to fully utilize lower capital costs is important. For example, if euro adoption lowers government borrowing rates, savings should be channelled into productive public investments (digital infrastructure, R&D) that boost productivity and, eventually, job creation. In contrast, credit booms for consumption or housing should be monitored and managed via macroprudential rules to avoid hard landings.
- ***Address Labour Mobility and Demographics***: Policymakers need strategies to mitigate the negative side effects of high labour mobility. One approach is implementing policies to encourage return migration: facilitating recognition of skills gained abroad, providing information and recruitment for jobs back home, and perhaps tax incentives or housing support for returnees. Some countries have started such programs (the Polish government, for example, launched campaigns to lure Poles back from the UK after Brexit).

Additionally, improving domestic working conditions, healthcare, and housing can make staying or returning more attractive. Another avenue is productivity-led wage increases – as wages at home approach those in destination countries, the incentive to emigrate falls. Thus, many recommendations are tied together: by boosting productivity via investment and training, wages rise and brain drain slows. Meanwhile, for those who do emigrate, governments should engage their diasporas – making it easier for them to invest or eventually retire back home. At the EU level, continued support for freedom of movement is essential, but it should be coupled with cohesion policies that reduce the vast economic disparities driving one-way migration.

- ***Prepare for Euro Adoption*** (for non-members): For CEE countries that have yet to adopt the euro, the lessons from their neighbours are instructive. Before joining, it is crucial to meet not just the nominal Maastricht criteria ***but also to achieve a degree of real convergence and institutional readiness***. This means entering at a time of economic strength, with low deficits and stable growth, and ideally when their business cycle is aligned with the eurozone to avoid joining on the eve of a downturn. They should also strengthen safety nets and have plans for managing potential asymmetric shocks (perhaps securing precautionary credit lines, etc.). The convergence reports often emphasize sustainable inflation and sound public finances; we add that sustainable labour market convergence (moderate unemployment, flexible institutions) should be seen as equally important.

- ***Foster Wage Coordination and Productivity Linkage***: Within the euro area, it could be beneficial to improve the coordination of wage policies to prevent imbalances. The European Semester can play a role by highlighting if wages are growing too fast relative to productivity in any member. This is particularly relevant as CEE wages catch up; if they overshoot significantly without productivity, those economies could overheat or run into current account deficits. Conversely, if some countries suppress wages too much, it could harm demand and convergence. A balanced approach, possibly guided by social dialogue at the European level, would help. The goal is to ensure wage convergence continues, but hand-in-hand with productivity convergence – a principle echoed in many EU policy documents.

Finaly, our empirical evidence paints a generally positive picture of long-term outcomes (higher productivity, integrated labour markets, rising wages and living standards) while also cautioning about short-term pains (unemployment spikes, emigration) that need careful management. For policymakers in the region, the experience to date suggests that joining the euro can bolster the convergence process, but it is not a substitute for sound economic management – rather, it heightens the premium on it. Countries must be proactive in making their labour markets shock-proof and dynamic, through flexibility, education, and mobility support. For European policymakers, the CEE experience reinforces the importance of solidarity mechanisms in the monetary union: helping each other during crises and facilitating the flow of workers and capital to where they are needed.

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ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ
ECONOMIC STUDIES
Volume 34(6), 2025

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THE EFFECT OF CONSUMER'S INTENTION AND FEEDBACK FOR THE USE OF MOBILE NFC PAYMENT TECHNOLOGY[5]

To better understand how Consumer intention and Consumer feedback affect Near Field Communication (NFC), and the consumer's perspective on using NFC and a mobile payment method in Stockholm, this study investigates the relationship. Since no sophisticated notations of measurements were used in this study, while many other studies had measured the effect of consumer feedback statistically, the effect of both the consumer's intention and consumer's feedback on the NFC are examined. A questionnaire was utilized to collect Fifty-five rows of respondents' answers of consumers' perspectives aligned with the research aim and to fulfil the research questions, people who had experience with NFC were questioned to analyze their answers. The number of variables was minimized based on principle component analysis to get the best factors that represent the NFC, consumer's attention and feedback. In this paper, two hypotheses were evaluated to measure the significance of the two variables association (consumer feedback and intention) with NFC usage. The tool used to analyze the data in partial least squares-structural equation modelling (PLS-SEM) using WarpPLS. The results show that there is a strong relationship and a strong positive link between the variables (consumer's feedback and consumer's intention) and the NFC is correlated with consumer's intention and feedback. The results showed that the consumer's intention has a direct impact on the NFC. Finally, the study recommends enhancing the consumer's feedback notation with the NFC. The results may help the managerial, social, and economic staff with their intentions to adopt NFC technology.
Keywords: Consumer's intention; Consumer's feedback; Near Field Communication (NFC); Constructs' Correlation; WarpPLS.
JEL: O1; O14; O33; N7

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[5] This paper should be cited as: *Shareiyat, A., Al-hashimy, H. N. H., Hamoud, A. K., Alshawki, M. (2025). The Effect of Consumer's Intention and Feedback for the Use of Mobile NFC Payment Technology. – Economic Studies (Ikonomicheski Izsledvania), 34(6), pp. 163-178.*

1. Introduction

Due to rapid development in communication technologies, payment methods are developing accordingly. Many payment methods are followed, starting from credits, debit cards, checks, wire transfers, email payments, mobile wallets and banking. Many newly developed methods had been emerged to help in exchanging services, and goods between sellers and customers (Alrawad et al., 2023; Świecka et al., 2021). Various communication technologies are integrated into modern mobile devices the everyday life in numerous ways. The current mobile devices, compared to early devices, are used not only for text and voice communication, but also for digital audio listening, social media browsing, digital payment, and so on (Daponte et al., 2013).

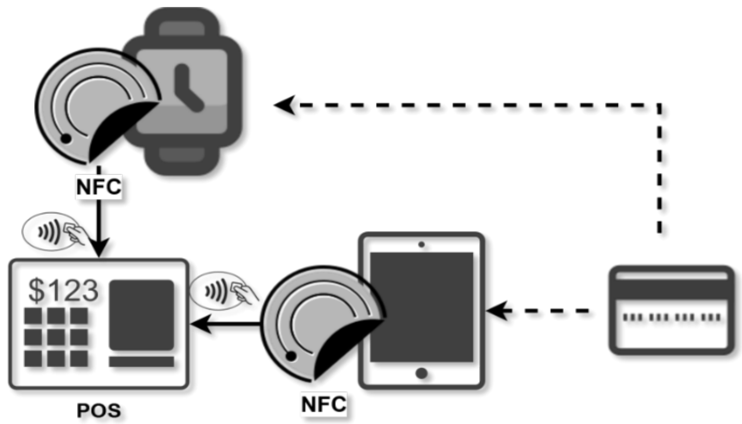
Among the commination technologies in mobile devices, Near Field Communication (NFC) plays a significant role in introducing an effective communication ability for the users. NFC communication can be used for data transmission between two nearby devices. One type of data transmission is the transmission of transaction data between the smartphone and a given payment device, such as Point of Sale (PoS) (Tan et al., 2014). To do so, the smartphone user needs to insert and store the bank card information in the mobile device. Later, using the integrated NFC technology in the mobile device (e.g. smartphone, smartwatch, etc.), the device can be used as a replacement for the bank card.

Despite its great features, the NFC payment is not widespread. There might be many reasons, including security concerns (Mehrnezhad et al., 2016), that cause this issue. In this paper, the consumers' perspectives in Stockholm will be investigated based on using NFC as a mobile payment in the retail store. Due to the availability of NFC in most payment terminals in shopping centres and retail stores, this technique will be investigated. Consumers can use NFC by either smart mobiles or physical cards, where this research will focus on using NFC on the electronic wallet or on the mobile device itself as a payment method. The answers to the questionnaire will be utilized and analyzed to explore the research objectives.

NFC is based on RFID technology with a significantly lower transmission range. NFC chips are used as part of a wireless link to transmit a small amount of data between two devices, over a physical distance of a few centimetres (Kolev, 2021). As illustrated in Figure 1, NFC communication between the smart device and the PoS will be used to perform the transaction. Since the allowed physical distance between two devices is only a few centimetres, no pairing code is required to perform the data transmission. This property of establishing a connection in less than a second is considered one of the features of the NFC, compared to Bluetooth data transmission which needs a prior pairing process that requires additional time.

The importance of using NFC as a payment method makes it urgent to examine the relationship between consumers' feedback and intention on the future adoption of using this technology as a payment method. This model aims to examine the relationship and effect of consumer feedback and intention of using NFC technology as a payment method. The results of this model can help in understanding the consumer's behaviour, improve the user experience of using NFC, enhance the adoption of NFC technology, enhance the consumer's satisfaction, and highlight the consumer's compliance.

Figure 1. An illustration of NFC payment.



The rest of the paper is organized based on three main sections – the literature review section discusses the related works in the field of using NFC and the challenges that faced the researchers. The process of examining the relationship between the feedback and intention to use NFC technology is presented in the methodology section, while the final section lists the concluded points after implementing the model.

2. Literature Review

Regarding NFC technology, the basis of NFC technology is the concept of short-range wireless networking based on magnetic field induction, which enables touch-based communication between two devices. There are several benefits for NFC for both users and industry, where the academics and professionals started to explore these benefits and the impact of this technology on industries and individuals. The benefits, such as the low power consumption, simple setup of communication, and ease of use, are the main benefits. NFC technology based on standardization, will improve the public sector in many fields, such as (social security and health) sectors, reduce the infrastructure cost, allow many consumers choices, and increase financial transparency. The NFC technology can also increase the scale economies, help transparent business, and reduce risks. Many challenges need to be studied and overcome in NFC technology, such as the technical challenges that inherited the denial-of-service attack which is one of RFID technology attacks. Managing the applications on the same device and managing the applications over the air are considered challenges (Csapodi and Nagy, 2007; Madlmayr et al., 2008; Benyó et al., 2009; Dutot, 2015; Li, Zhang and Kearney, 2023; Silveira, Ferreira and Miranda, 2023).

The effect of both consumers' intention and consumer feedback on NFC is examined in many studies. The study (Liébana-Cabanillas et al., 2021) discussed the effect of intention on using

NFC technology, where 1840 experienced respondents' record data were collected. The SEM model is utilized in the study to find mobile payment acceptance predictors, besides analyzing the effect moderators' factors such as user age, and gender. A Neural Network is utilized to find the impact of predictors based on SEM analysis. The findings obtained from the model show that many factors, such as customer brand engagement, risk, trust, and perceived usefulness, affect the NFC payment intention. Next in (Liébana-Cabanillas, Molinillo and Ruiz-Montañez, 2019), a survey is conducted to collect a response of 180 experienced users with NFC. Factors such as service quality, subjective norms, effort expectancy, perceived risk, and satisfaction determine the intention to use NFC. The study (Ramos-de-Luna, Montoro-Ríos and Liébana-Cabanillas, 2016) focuses on finding the user acceptance analysis of the NFC where many variables are used such as individual mobility, security, personal innovation, and compatibility. The data of 191 respondents are utilized as the basis of the SEM model. Subjective norms, innovation, and attitude are the determinants of the factor of intention for using this technology.

In (Christian et al., 2019; Tseng et al., 2023), the studies evaluate NFC technology usage for mobile payment in Indonesia. Factors such as the quality of E-service and the NFC were examined to measure the importance of NFC usage as a payment method in Indonesia. The questionnaire held about 100 answers out of 207 samples to perform the study, where SEM-PLS-based smartPLS were utilized as a tool to analyze the sample data. The results showed that the quality of E-Service affected the perceived usefulness, while the perceived usefulness affected the intention to use. The results also showed that the NFC affected the perceived usefulness and ease of use. The comparison of the framework variables with the related works is shown in Table (1).

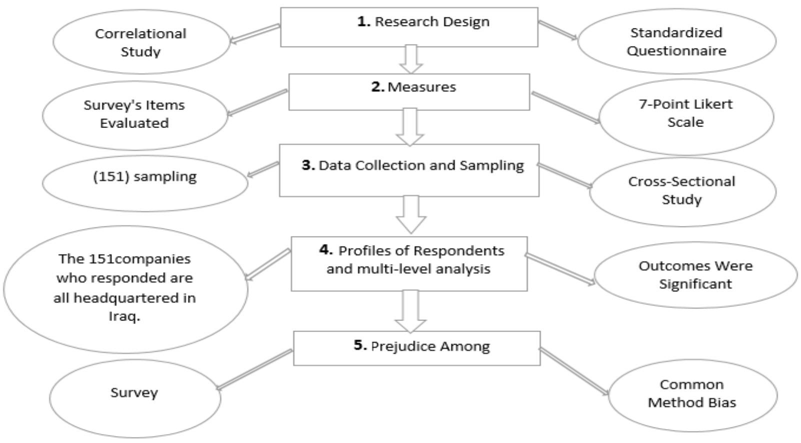
Table 1. Comparison of the Theoretical Framework Variable with the Related Works.

Reference	Variables		
	Consumer's intention	Consumer's feedbacks	Near Field Communication
(de Luna et al., 2019)	√	*	√
(Zhao et al., 2019)	√	*	√
(Jeon et al., 2019)	√	*	√
(Kumar & Tripathi, 2019)	*	*	√
(Cao et al., 2019)	√	*	√
Our theoretical framework	√	√	√

3. Methodology

The overall framework methodology to conduct the research study is shown in Figure 2. The framework consists mainly of five steps (research design, measures, data collection and sampling, profiles of respondents and analysis, and evaluation). The research design step includes implementing the standard questionnaire and measuring the correlation. The second step includes implementing (7-Point Likert Scale) and evaluating the items in the questionnaire. Next, the sample data of respondents (151) is collected to implement the cross-sectional study. The fourth step includes the analysis of the data to measure the outcome's significance and find the effectiveness of the variables and hence the constructs. The final step includes the evaluation process of the model.

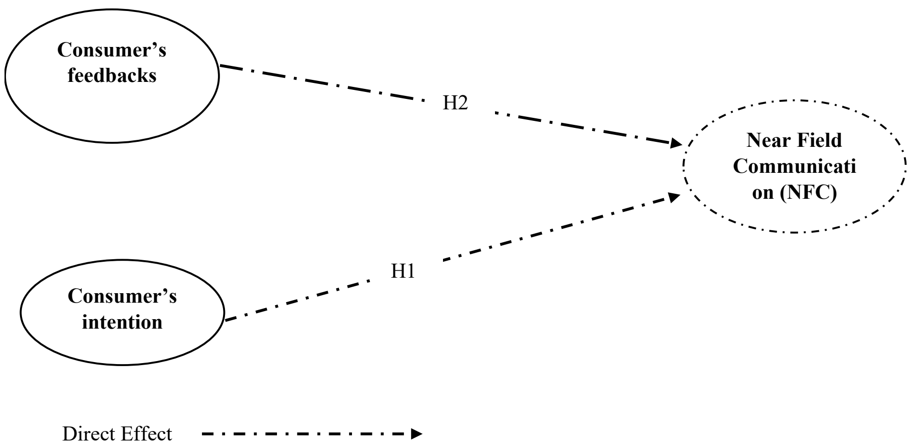
***Figure 2. The Methodology Framework*.**



3.1. Research Design

The study is designed as a correlational study due to the objectives of the study and the hypotheses are implemented to find if there is a link or relationship between the variables (Onubi et al., 2021), as shown in Figure 3. The relational study objective is to find if there is any correlation between specific variables (Seeram, 2019).

***Figure 3. The Relationships of the Conceptual Model*.**



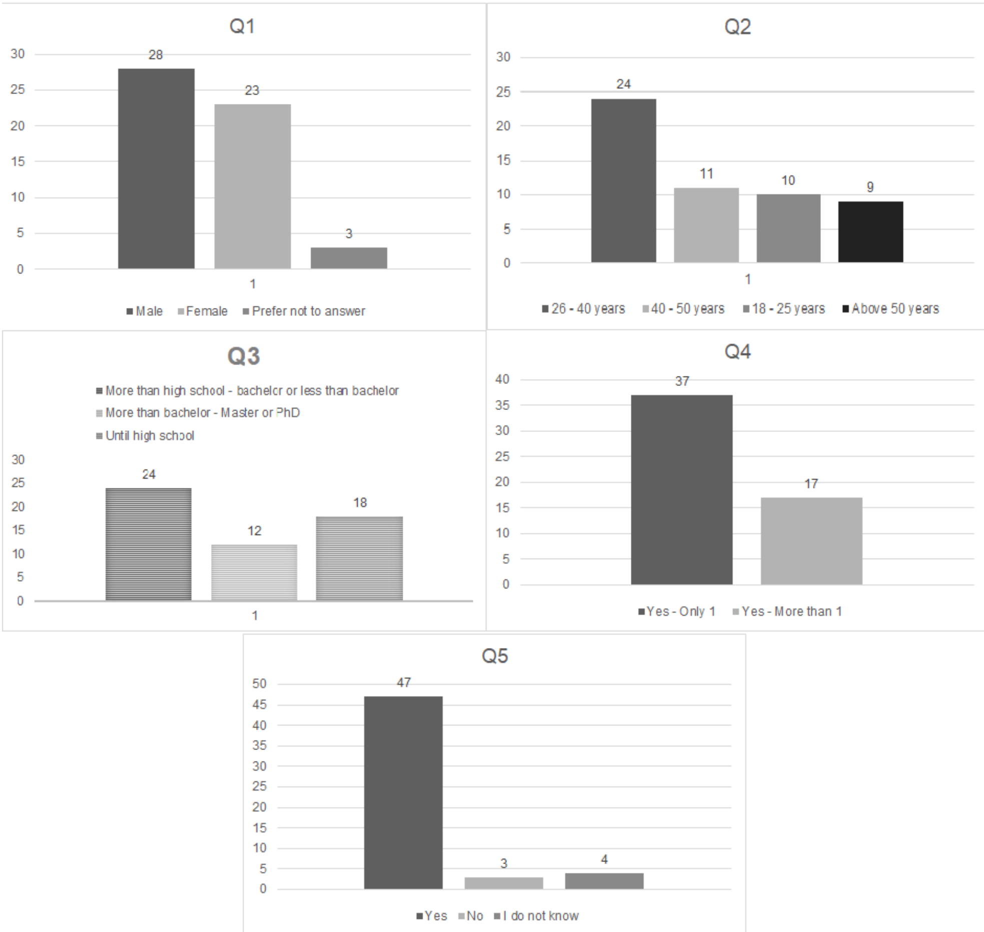
The correlation design is adopted in this study, while constructor responses are based on the project overseen. The data that has been utilized are based on a predesigned questionnaire. A standardized questionnaire was created to collect data from the consumers' perspective on using NFC payment. Various types of questions were asked throughout the questionnaire; age, gender, education, and personal mobility are examples of personal questions. Additionally, as indicated in the first portion of table (2), we included more questions to assist in determining the factors that impact consumers. These questions helped us determine how age, gender, education, and mobility affect when NFC technology is used by individuals. Besides that, in order to accomplish our study aims, we included several questions relating to consumer feedback on the convenience, security, and reliability of NFC technology. By analyzing the obtained data, we were able to assess customers' feedback and identify the answer to our study question. In order to assess consumer intentions and address other research questions, we included a question concerning consumers' intentions to employ NFC technology as another major component of our questionnaire, see Table 2. The questionnaire is implemented according to questions listed in Table 2 with the answer domain based on a Google form.

Table 2. Questionnaire and Answers Domains.

	Question	Answer Domain
Q1	I identify as?	Male, Female, and Prefer not to answer.
Q2	What is your age range?	18 – 25 years, 26 – 40 years, 40 – 50 years, Above 50
Q3	What is your educational level?	Until high school, (More than high school – bachelor or less than bachelor), (More than bachelor – Master or PhD).
Q4	Do you have a smart mobile device?	Yes One, Yes More, No.
Q5	Does your smartphone have an NFC payment function?	Yes, No.
Q6	Do you have a clear understanding of NFC mobile payment?	Yes – somehow, No – It is not obvious, No at all
Q7	How often do you use NFC mobile in retail stores?	Sometimes, Always, Sometimes, Often, Rarely.
Q8	NFC mobile payment is NOT convenient to use.	Strongly disagree, Disagree, Strongly disagree, Neither agree nor disagree, Agree.
Q9	I think that NFC payment is NOT a completely secure way to pay.	Strongly disagree, Disagree, Strongly disagree, Neither agree nor disagree, Agree.
Q10	NFC Mobile payment is NOT reliable and we always need to have always bank card in case NFC mobile doesn't work	Strongly disagree, Disagree, Strongly disagree, Neither agree nor disagree, Agree.
Q11	NFC mobile payment can NOT be as main way for payment and it will be used as a secondary way of payment	Strongly disagree, Disagree, Strongly disagree, Neither agree nor disagree, Agree.
Q12	Does your bank have an NFC mobile function for the bank cards?	Yes, I don't know, No.
Q13	NFC mobile payment will cause financial or personal information loss	Strongly disagree, Disagree, Strongly disagree, Neither agree nor disagree, Agree.
Q14	How much intention to use do you feel with NFC mobile?	I like to use NFC mobile payment in retail stores and feel satisfied., When see more people using NFC mobile payment, then I will start using it., If the retail store has NFC mobile payment, I will use that for sure., I refuse to use NFC mobile payment in retail stores.
Q15	How much is your pure income level, per month?	More than 30,000 SEK/Per month, 20,000 – 30,000 SEK/Per month, Less than 20,000 SEK/Per month

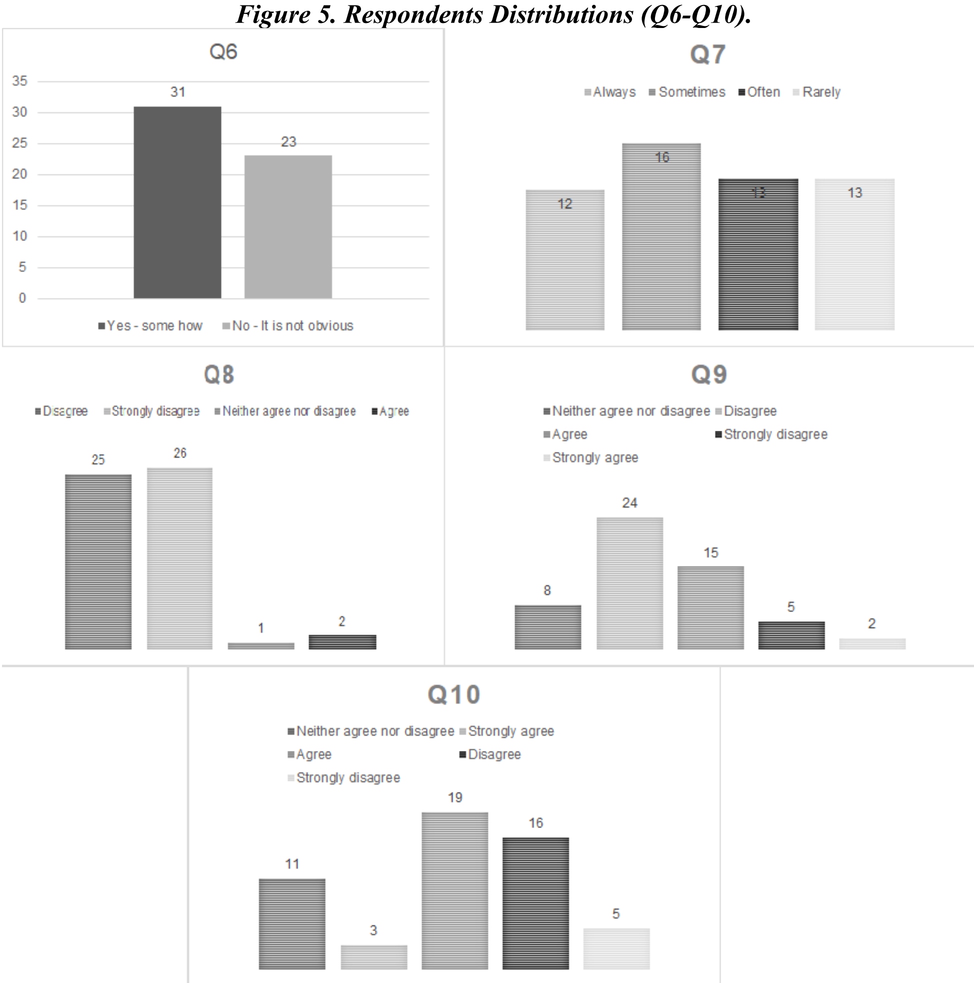
According to the respondents' answers, the data visualization is shown in Figures 4, 5, and 6. Figure 4 shows the responses to the first five questions conducted in the questionnaire. The respondents were distributed (28 males, 23 females, and 3 prefer not to answer) according to the first question. The age categories of the respondents fall among (24 for 26-40 years, 11 for 40-50 years, 10 for 18-25 years, and 9 for those above 50 years). The academic qualification of the respondents varies (24 with a bachelor's and less than a bachelor's, 12 with Master's and PhD degrees, and 18 until high school). The number of devices is distributed between respondents (37 with only one device, and 17 with more than one device), while the number of respondents with devices that have NFC technology (47 with NFC, 3 without NFC, and 4 did not know if their device supported NFC).

Figure 4. Respondents Distributions (Q1-Q5).



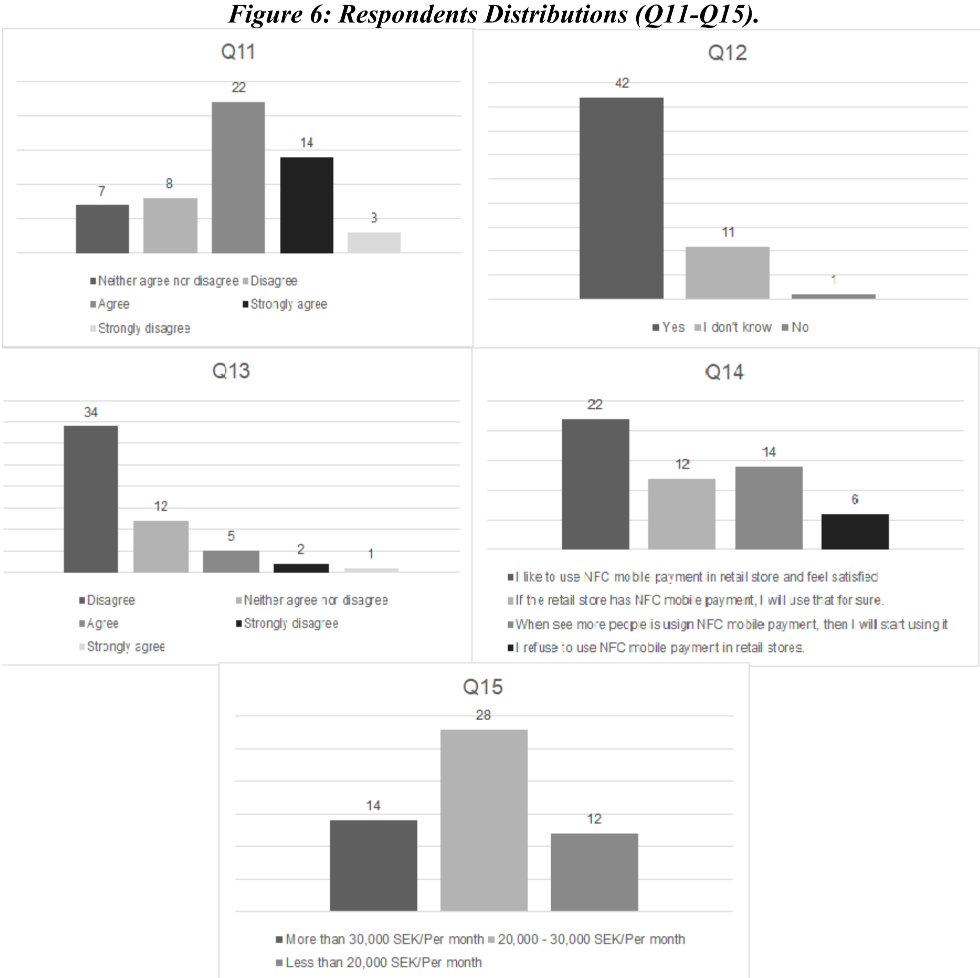
Next in Figure 5, according to the NFC understanding from the respondents, (31 answered (Yes somehow), while the others answered (No it is not obvious). Next, according to using the NFC technique in retail stores, the answers vary from (16 with Sometimes, 12 with Always, and 13 with (Often, and Rarely)). The respondents that find the NFC is not convenient are 2, while 51 either disagree or strongly disagree. According to NFC security, 17 find that NFC is not secure, while 26 find it secure (24 disagree, and 2 strongly disagree). Related to NFC reliability, and how many respondents find to have a bank card in case the NFC technique does not work, 24 answered with (either agree or strongly agree), while 16 answered with either (disagree, or strongly disagree).

Figure 5. Respondents Distributions (Q6-Q10).



The answers in Figure (6) show that the respondents who feel that NFC can not be the main payment method are (36 with either agree or strongly agree), while 11 feel that NFC can be the main payment method. 42 respondents' answers showed that the bank has an NFC technique, while 11 did not know if the bank has an NFC technique. 36 of the answers felt that the NFC would not cause personal and financial information loss, while only 6 felt that the NFC would cause information loss. The number of respondents that find it is possible to use NFC is (22 liked to use it, 12 will use it if it is available in the store, and 14 will use it when they see more people will use it), while the others refuse to use it in the retail store. The final section showed that the respondents with (20000-30000 SEK/per month) are 28, while 14 are above (30000 SEK/month), and the others are less than (20000 SEK/month).

Figure 6: Respondents Distributions (Q11-Q15).



3.2. Measures, Data Collection, and Sampling

Based on the research hypotheses, there are three research variables (intention, feedback, and NFC) that are identified to measure how consumer's intention and consumer feedback affect

NFC. Each variable has its component constructs that will be examined in this study. Intention as the consumer feels about using NFC on the mobile and the factors affecting it will be explored. The variable (feedback performance based on five items) was adopted from (Mahmud, 2021),(Onubi et al., 2021; Hultman et al., 2022) and the intention variable (based on six items) was adapted from (Doanh and van Munawar, 2019)(Aji, Nadhila and Sanny, 2020). Formative constructs were used to measure all the constructs. Table 1 lists the constructs that were measured as well as their sources. A 5-point Likert scale was adopted to assess the items in the questionnaire, while a 7-point Likert scale was utilized to assess the NFC. The choice of (5 and 7 point) scale was selected in order to reduce the common source bias in the study as proposed by (AL-Hashimy, 2019; Testa et al., 2020).

3.3. Multi-Level Analysis

WapPLS 8.0-based PLS-SEM is utilized to test the hypotheses in the study. The reason behind using this tool compared with covariance-based structural equation modelling (CB-SEM) is the formative constructs and the predictive standpoint of the theoretical framework of the study (Al-hashimy, 2019; Chin et al., 2020). The normality of the data was determined by using the Shapiro-Wilk test where the results showed a significance of 0.000, which shows that the data are not normal in distribution (Asniarti et al., 2019; Nur et al., 2019). The PLS-SEM technique justifies the absence of the data distribution normality where this technique is a nonparametric technique, besides, the constructors are comprised by the structural model. Many variables are needed for future investigation, such as the latent variable scores and the model linkages. In (Sarstedt & Cheah, 2019), the transmittal technique was used to theorize and hypothesize about the mediation effect, as advised (Rasoolimanesh et al., 2021). As a result, only the indirect influence is evaluated in the mediator analysis, as stated (Chaudhary, 2020). As a result, prior to the mediation analysis, the direct effect does not have to be considerable (Suhartanto et al., 2019). Figure (2) shows a flowchart demonstrating the research technique. The path coefficients for NFC-MPA, intention, and feedback were 0.753, 0.833, and 0.731, respectively; thus, the constructs' convergent validity is sufficient (Alghamdi et al., 2020). The collinearity of the indicators was evaluated, and the variance inflation factor (VIF) was less than 3.3 for all indicators for the variables depicted in Table 3 (Ramli et al., 2019). A flowchart illustrating the research methodology is presented in Figure 2.

3.4. Model Evaluation

The model evaluation measurements showed that all the variables in the study were formative constructs. The measurement model was assessed based on the significance of relevance, indicator weight, indicator collinearity, and convergent validity. The global item was utilized to perform the redundancy test (Hair et al., 2020). The construct's convergent validity of the intention is (0.732), for feedback (0.677), and for NFC (0.761), where these results showed that the indicators are satisfactory. After evaluating the collinearity of the indicators, it was found that the VIF is less than 3.3 for all indicators. Furthermore, the significance and relevance of the weights of the indicators were evaluated (Hair et al., 2019).

Table 3. Factors Affect the Consumers' Using of NFC Mobile Payment

Factor	References
Do you have a clear understanding of NFC mobile payment?	(Zhao et al., 2019)
How often do you use NFC mobile in retail stores?	(Shankar et al., 2021)(Zhao et al., 2019)
Consumer's feedbacks	(Esfahani & Bulent Ozturk, 2019)
NFC mobile payment is NOT convenient to use.	(de Luna et al., 2019)
I think that NFC payment is NOT a completely secure way to pay.	(Zhao et al., 2019)
NFC Mobile payment is NOT reliable, and we need to have always a bank card in case NFC Mobile doesn't work.	(Doanh & van Munawar, 2019)
NFC mobile payment can NOT be as main way for payment, and it will be used as a secondary way for payment.	(Faccia et al., 2019)
NFC mobile payment effect on losing the personal and financial information.	(Gambo & Musonda, n.d.)
Consumer's intention	(Asadi et al., 2021)
How much intention to use do you feel with NFC mobile?	(Liébana-Cabanillas et al., 2021)
Factor	References
Do you have a clear understanding of NFC mobile payment?	(Zhao et al., 2019)
How often do you use NFC mobile in retail stores?	(Shankar et al., 2021)(Zhao et al., 2019)
Consumer's feedbacks	(Esfahani & Bulent Ozturk, 2019)
NFC mobile payment is NOT convenient to use.	(de Luna et al., 2019)
I think that NFC payment is NOT a completely secure way to pay.	(Zhao et al., 2019)
NFC Mobile payment is NOT reliable, and we need to have always a bank card in case NFC Mobile doesn't work.	(Doanh & van Munawar, 2019)
NFC mobile payment can NOT be as main way for payment, and it will be used as a secondary way for payment.	(Faccia et al., 2019)
NFC mobile payment effect on losing the personal and financial information.	(Gambo & Musonda, n.d.)
Consumer's intention	(Asadi et al., 2021)
How much intention to use do you feel with NFC mobile?	(Liébana-Cabanillas et al., 2021)
Factor	References
Do you have a clear understanding of NFC mobile payment?	(Zhao et al., 2019)
How often do you use NFC mobile in retail stores?	(Shankar et al., 2021)(Zhao et al., 2019)
Consumer's feedbacks	(Esfahani & Bulent Ozturk, 2019)
NFC mobile payment is NOT convenient to use.	(de Luna et al., 2019)
I think that NFC payment is NOT a completely secure way to pay.	(Zhao et al., 2019)
NFC Mobile payment is NOT reliable, and we need to have always a bank card in case NFC Mobile doesn't work.	(Doanh & van Munawar, 2019)
NFC mobile payment can NOT be as main way for payment, and it will be used as a secondary way for payment.	(Faccia et al., 2019)
NFC mobile payment effect on losing the personal and financial information.	(Gambo & Musonda, n.d.)
Consumer's intention	(Asadi et al., 2021)
How much intention to use do you feel with NFC mobile?	(Liébana-Cabanillas et al., 2021)
Factor	References
Do you have a clear understanding of NFC mobile payment?	(Zhao et al., 2019)
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Consumer's feedbacks	(Esfahani & Bulent Ozturk, 2019)
NFC mobile payment is NOT convenient to use.	(de Luna et al., 2019)
I think that NFC payment is NOT a completely secure way to pay.	(Zhao et al., 2019)
NFC Mobile payment is NOT reliable, and we need to have always a bank card in case NFC Mobile doesn't work.	(Doanh & van Munawar, 2019)
NFC mobile payment can NOT be as main way for payment, and it will be used as a secondary way for payment.	(Faccia et al., 2019)
NFC mobile payment effect on losing the personal and financial information.	(Gambo & Musonda, n.d.)
Consumer's intention	(Asadi et al., 2021)
How much intention to use do you feel with NFC mobile?	(Liébana-Cabanillas et al., 2021)

The overall evaluation process of the formative model was evaluated using the PLS-SEM technique, where this evaluation measured the relationship importance in the structural model, examined the lateral collinearity, and found the coefficient determination evaluation (R2), the evaluation of the effect size (f2), and the evaluation of the predictive relevance among variables (Q2) (A Kassem et al., 2020).

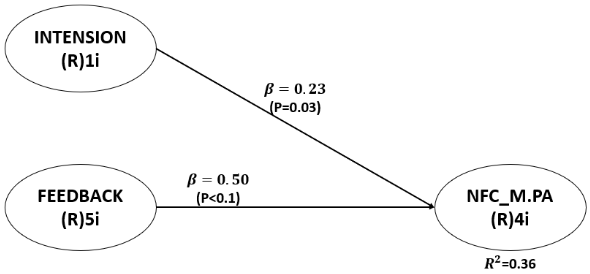
Table (4) shows the lateral collinearity of the constructs that have been utilized in this study, where it shows that there is no problem in the multicollinearity among constructs (Hair et al., 2021; Purwanto & Sudargini, 2021). According to (0.02, 0.14, and 0.31), R2 values are considered (weak, moderate, and significant), respectively, after implementing the evaluation process, where it demonstrates a sufficient explanation of the correlations among constructs. When the evaluation process of the significance process was implemented, Q2 yielded a value of 0.614, which represents that the model has good predictive relevance. Additionally, the model fit and quality indices were derived using the (Gambo & Musonda, 2021) standards to further confirm the findings of this study based on the statistical nonlinear bivariate causality direction ratio (NLBCDR).

Table 4. Lateral Collinearity Result Test for the Three Constructs

Constructs	Convergent validity	Weights	P-value	VIF	Loadings	t-value of weights
INTENTION	0.811					
IN1			0.007	1.115	0.884	2.045
FEEDBACK	0.893					
F1			<0.001	1.176	0.776	0.943
F2			0.345	1.231	0.984	1.260
F3			<0.001	1.212	0.768	4.097
F4			<0.001	1.173	0.912	0.403
F5			0.036	1.557	0.875	1.237
NFC	0.876					
N1			0.046	2.039	0.861	3.244
N2			0.008	1.619	0.881	7.890
N3			0.102	1.343	0.964	1.807
N4			<0.001	1.612	0.999	0.888
N5			0.007	1.876	0.977	0.789

Based on Figure 7, the suppression ratio values were all more than the minimum required 0.7 threshold value of 1.000. Furthermore, the value of the R-squared contribution ratio (RSCR) was 1.000 which exceeded the 0.89 threshold limit. The score of the Tenenhaus goodness of fit (GoT) was (0.31), which was considered (medium), while the Simpsons paradox ratio is (1.000) (higher than 0.7), which was considered satisfactory. The value of both the standardized mean absolute residual (SMAR) and the standardized root mean residual (SRMR) was 0.100, which is equal to the threshold value of 0.1. The standardized chi-squared (SChS) with 315 degrees of freedom was (20.917), while P is (0.001) which indicated that they are significant. The obtained value (0.911) of the standardized threshold difference count ratio (STDCR), which was higher than the 0.7 threshold value. These indices demonstrate the model's great predictive power and model fit, hence validating the study's findings.

Figure 7. Examination Results of the Conceptual Model Relationships



Through the single stochastic variation sharing provided by Kock, the endogeneity of the data acquired using the instrumental variable approach (Pereira et al., 2022) was examined to show the results' robustness by using the instrumental variable approach (Bosi et al., 2020). As a result, we conclude that no endogeneity exists in our investigation, confirming the model's robustness (Madkhan & Charoensukmongkol, 2022).

4. Conclusion and Future Works

NFC is one of the most used technologies that is utilized for communicating between smartphones and electronic devices. This technology is used as an alternative system for credit cards and smart cards. This paper will investigate using this technology and how the consumers' intentions and feedback affect the use of this technology. A standardized questionnaire was created to collect data from the consumers' perspective on using NFC payment. Various types of questions were asked throughout the questionnaire; age, gender, education, and personal mobility are examples of personal questions. PLS-SEM 7.0 was used to analyze the questionnaire responses and to implement six tests to evaluate structural models for formative models. The model's robustness is evaluated to investigate the effects of (consumers' feedback and intention) on NFC utilization in mobile devices. After examining the model based on (suppression ratio, R2, Simpson's paradox ratio, SRMR, SMAR, SChS, and STDCT), the results showed that the model is robust and valid. The future directions of research can include expanding the geographical focus and collecting data from new countries. The results showed that the consumers' intentions have an impact on using NFC technology. Hence, adding more participants for the questionnaire or adding different questions to address specific fields of the NFC payment technology could also be considered as a future direction. Studying other payment methods such as "QR scanning" or mobile payment using applications such as "Swish" in Europe is another research direction for future works. The results can help in improving the adoption of NFC technology, improving user experience, and understanding the consumer's behaviour. The results can also help in improving marketing strategies, gaining competitive advantage, and enhancing consumer satisfaction.

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ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ
ECONOMIC STUDIES
Volume 34(6), 2025

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UNPACKING THE GOVERNANCE OF LAND SUPPLY IN BULGARIAN FARMS[3]

The goal of this article is to identify dominating modes and factors of land supply in Bulgarian farms. It is based on the incorporation of New Institutional Economics methodology and analysis of new representative data collected from the managers of farms of different types and locations. The study has found that rent and lease contracts are the most common forms of farms' land supply, followed by the ownership mode and joint cultivation. The importance of different governance modes, forms of supply contracts, intensity of transactions, types of partners, and kinds of land rent and price varies considerably depending on the juridical type, size, specialization, and geographical and ecological locations of holdings. Major factors for the governance choice are frequency, uncertainty, asset specificity of transactions, and professional experience of farm managers. The amount of transaction costs for finding needed lands and natural resources is among the critical factors strongly restricting the development of many Bulgarian farms, particularly of sole traders and cooperatives, farms with large sizes, holdings specialized in permanent crops and mix crops, those located in plain regions, protected zones, and near big cities, and enterprises in North-east, North-central, and South-central regions of the country. Most problems and costs for land (purchase, rent, and lease) deals of farms are caused by the lack of available lands, high prices, big fragmentation of land plots, and needs for deals with numerous (co)owners. A comparative analysis with a similar study demonstrated enormous modernization in land supply and overall governance of farms in the last two decades.
Keywords: land supply; farms; governance; transaction costs
JEL: Q12; Q13; Q15

1. Introduction

Land tenure in agriculture has been among the central topics of analysis in Economic science since its classical period up to the present days (Babajanov et al., 2023; Beingessner, 2023; Bigelow et. Al, 2016; Currie, 1981; Daudu et al., 2022; Georgiev, 2024; Guo et al., 2023; Hayami and Otsuka, 1993; He and Collins, 2021; Léger-Bosch, 2019; Mdoda and Gidi, 2023;

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[3] This paper should be cited as: *Bachev, H., Ivanov, B. (2025). Unpacking the Governance of Land Supply in Bulgarian Farms. – Economic Studies (Ikonomicheski Izsledvania), 34(6), pp. 179-205.*

Mihailova, 2023; Murken and Gornott, 2022; Onofri et al., 2023; Otsuka et al., 1992; Shouying, 2019; Singirankabo, 2022; Sykuta and Cook, 2001; Zang et al., 2022; Yovchevska et al., 2021). Lands and associated water, ecosystem services etc. are the most important resources in agriculture and therefore the (type and efficiency of) governance of their supply is crucial for the overall development.

In the models of Neoclassical Economics, the market (price) competition is the only mechanism for governing relations between land owners and farm entrepreneurs. The maximum efficiency is easily reached since property rights on lands and other resources are well defined and costlessly transferred. The farm is studied as a "production function" while the efficiency of land management is largely determined by technological parameters (selecting profitable products, exploration of economies of scale and scope, etc.). In that "institutions and transaction costs free world", the most important decision for the farm managers related to land supply is to "buy or lease land", and it is easily calculated depending on the market prices of land, rent and capital (Reiss, 1972; Onofri et al., 2023). That approach, ignoring the comparative efficiency of diverse governing modes for land supply, still dominates in most textbooks on farm (agri-business) management (Royer, 2014).

In more sophisticated models of Agency Theory, acknowledging the importance of behavioural characteristics and transaction costs, the central issue related to land supply is to design an "optimal contract" between land owner and user (farmer) (Bigelow, Borchers, and Hubbs, 2016; Hayami and Otsuka, 1993; He and Collins, 2021; Liu et al., 2020; Roumasset and Uy 1986). Depending on information asymmetry and risk preferences of parties either fixed rent, sharecropping and hybrid contract is selected to protect the principal (the owner of land) interests, and it is easily formally enforced by a third party. At the same time, alternative and efficient for all party's modes of governance of land supply (short-term or long-term lease, ownership, cooperation, private ordering, etc.), and significant transaction costs for contract enforcement during the implementation stage are largely ignored.

In the advanced models of New Property Rights theory, the focus is put on creating ex-ante incentives for performance and innovation through efficient distribution of property rights in the firm (farm) as core assets supply (such as firm-specific land plots) is governed by ownership ("residual rights") while universal assets by short or longer term contracts (Daudu et al., 2022; Feeny and Feder, 1990; Léger-Bosch, 2018; Zang, Yang, and Li, 2022). However, the assumptions of "self-fulfilment of contracts" and the simplified notion of the firm as "a nexus of contracts" do not pass the realty check. In the modern agrarian economy, most contracts are "incomplete", and there are diverse mechanisms for ex-post governance (credible commitment, control, trust) as well as other modes for governing transactions such as public regulations, relation (framework) contracts, trilateral modes, collective forms, etc. Besides, there are various types of farms (individual, family, cooperative, corporative, hybrid) evolving as a distinct mode of governance and different ("something more") than a simple mix (nexus) of contracts (Bachev, 2022; Ménard and Shirley, 2022).

The New Institutional Economics overcomes the deficiency of other approaches and gives more realistic insights into diverse mechanisms, modes and factors governing the distribution (supply) of agrarian resources and activities in the modern economy (Bachev, 2022, 2023; Guo et al., 2023; James et al., 2011; Sykuta and Cook, 2001). It identifies behavioural, institutional, technological, natural, and transaction cost factors for choice of governance mode, and assesses the comparative efficiency of alternative (practically possible) modes of governance in the specific socio-economic and natural environment. For instance, it demonstrated why in the conditions of unspecified private property rights during the post-communist transition in Bulgaria, the short-term (seasonal) rent and production cooperation were the most effective form for land supply and extension of farm size (Bachev and Tsuji, 2001). This framework also helps understand the "logic" of the development of contemporary (new) forms of land supply such as lease to buy, lease of the entire farm, simultaneous lease-in/purchase and lease out/sell deals, interlinking land supply with inputs and/or credit supply and marketing, ownership integration outside the farm gates, hybrid (public-private) organizations, etc. (Bachev, 2024).

There are few comprehensive studies on dominating governance forms of land supply in Bulgarian farms during EU integration and CAP implementation (Bachev and Terziev, 2001; Ivanova, 2023; Georgiev, 2013, 2024; Georgiev et al., 2023; Kirechev, 2024; Marinov, 2020; Mihailova, 2022; Yovchevska et al., 2021). Most publications focus on land supply in a particular type of farm (family, cooperative), a specific type of contract (long-term lease, sells), formal modes (written forms, registered deals), only direct (rather than the overall[4]) transaction costs, and are predominantly not representative. At the same time, real factors, modes and efficiency of land supply in a country's farms are not properly identified. Consequently, there is no adequate knowledge of the contemporary system of land governance in Bulgarian agriculture and the driving factors and trends of its development.

The goal of this article is to fill the existing gap and identify the modes and factors of land supply in Bulgarian farms. This study is based on the incorporation of interdisciplinary New Institutional Economics methodology (Bachev, 2010; Bachev and Ivanov, 2024; Coase, 2009; Furubotn and Richter, 2005; Ménard and Shirley, 2022; Ostrom, 2009; Williamson, 2005) and analysis of new first-hand data collected from the managers of farms of different type and locations.

2. Methodology of the Study

The New Institutional Economics puts individual transactions (in our case land supply) in the centre of analysis, identifies feasible modes of its governance (e.g. lease, ownership, etc.) in the specific institutional, market, technological and natural environment, and assesses their comparative efficiency in a discriminating (predominately transaction costs minimizing) way (Williamson, 2005). Typically, agents can choose between a range of alternative forms for governing a particular transaction, generic among them being the free market (e.g. seasonal rent, spot purchase-sell deal), a special contract mode (e.g. long-term lease, interlinked land supply against marketing of output), and internal organization (e.g. land ownership, partnership, etc.). Usually, the process of changing the system of agrarian governance is very slow (Bachev, 2023). Therefore, domination of certain modes of governance of particular

[4] For instance, transaction costs for land supply could be low but the high costs for external finance supply (e.g. bank credit) deter farm expansion (Bachev, 2022).

agrarian activity and transactions means that they are the most efficient[5] For participating agents in the specific conditions of carrying farming activities and exchanges (Bachev, 2010).

In the specific socio-economic and natural environment, the choice of governance form principally depends on the agents' characteristics (preferences, capability, bounded rationality, opportunism[6], etc.) and "critical dimensions" of transactions (such as frequency, uncertainty and asset specificity)[7] . For instance, when uncertainty and asset specificity of transactions are high, a special (contract or internal) mode of governance is needed to increase rationality and safeguard specific investments from possible opportunism. Repetition of transactions between the same agents reduces bounded rationality and opportunistic behaviour and justifies costs for special governance ("regime of bilateral trade"). Universal transactions are more effectively governed by the "invisible hand of the market" (high competition, partners can be changed at low costs). A high uncertainty, occasional exchanges between parties, and relation-specific investment increase transaction costs and can block otherwise mutually beneficial exchange (needs for a third party and public intervention in private transactions).

Unspecified or badly specified and enforced property rights, and an imperfect institutional environment also increase agents' transaction costs. When transaction costs for supply of needed resources and/or marketing of output are significant the potential of exploration of technological economies of scale and scope cannot be realized within a farm, and there is a need for a special external organization. When there is a need for third-party involvement but required public or private intervention does not come then the evolution of agriculture is strongly deformed (fewer exchanges, low efficiency, missing markets, grey structures, unsustainable development). Detailed adaptation and operationalization of the New Institutional Economics methodology into the analysis of agrarian structures is presented by Bachev (2010, 2022, 2024).

There is no available statistical or other data for a comprehensive analysis of governance structures in Bulgarian agriculture.[8] and that requires collection of new micro-economic data about agents, critical dimensions, dominating modes, factors and costs of carrying out farming activities and transactions.

The main agents who govern agrarian transactions and activities are the managers of different types of farms – individual, family, cooperative, corporative etc. Nobody knows better than farm managers the status and conditions of resources, activities and relations, the actual reasons for managerial choices, practically used governing forms (for resource supply, marketing, etc.), specific and overall costs and benefits for the enterprise, key factors facilitating or restricting the development of farms, etc. That is why this study is based on first-hand data provided by the farm managers.

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[5] in terms of transaction and production costs and benefits.

[6] transaction costs have behavioural origins – bounded rationality and the tendency for opportunism of agents (Williamson, 2005).

[7] They cause variations in transaction costs among principal governing modes (Williamson, 2005).

[8] That is also true for other countries despite enormous progress in data collection in that respect in the last decades.

During November-December 2023 a large-scale survey was carried out with the managers of 345 commercial farms[9] of different juridical types, sizes, product specializations, and ecological and geographical locations. Farmers were interviewed by the local experts of the National Agricultural Advisory Service and selected as typical for the relevant region of the country. Surveyed farms account for 0,26% of all farms in Bulgaria (MAF, 2023). The majority of studied farms (94,2%) are "Registered Agricultural Producers" comprising 0,5% of all registered agricultural producers in the country (Agrarian Paper, 2023). The structure of the interviewed farms approximately corresponds to the contemporary structure of Bulgarian farms. The summary of the major characteristics of surveyed farms is presented in Table 1.

Table 1. Characteristics of surveyed farms (%)

Type of farm	Field crops	Vegetables, flowers, mushrooms	Permanent crops	Grazing livestock	Pigs, poultry and rabbits	Mix crops	Mix livestock	Crops-livestock	Beekeepers	Share in total
Physical persons	23,9	90,4	76,8	67,8	50	60,4	57,1	54,6	85,7	67.8
Sole traders	17,4	7,7	9,8	11,3	0	12,5	28,6	15,2	10,7	11.3
Cooperatives	13	0	0,9	4,4	12,5	6,2	0	12,1	0	4.4
Corporations	43,5	1,9	11,6	15,4	37,5	20,8	14,3	18,2	1,8	15.7
Associations	2,2	0	0,9	0,6	0	0	0	0	1,8	0.6
Mostly subsistence	0	2	1,8	2,1	12,5	0	0	0,0	1,9	2.1
Small size	11,6	71,4	60,6	47	25	44,4	50	34,4	43,4	47
Middle size	58,1	26,5	33,9	42,8	62,5	44,4	50	59,4	52,8	42.8
Big size	30,2	0	3,7	8,1	0	11,1	0	6,2	1,9	8.1
Plain regions	88,4	70	67	68,3	75	76,1	85,7	46,4	61,1	68.3
Mountainous regions	11,6	30	33	31,7	25	23,9	14,3	53,6	38,9	31.7
Protected zones	1,2	1,7	3,8	9	0	0,9	0,3	1,2	2,6	9
Near big cities	0,9	2,3	7	13	0	1,4	0	0,9	0,9	13
North-west region	32,6	7,7	7,1	20,3	50	18,8	0	27,3	23,2	20.3
North-central region	15,2	7,7	9,8	9	25	6,2	14,3	12,1	8,9	9
North-east region	17,4	17,3	19,6	19,7	12,5	35,4	57,1	21,2	32,1	19.7
South-west region	15,2	34,6	27,7	19,7	0,00	12,5	0	18,2	8,9	19.7
South-central region	10,9	26,9	22,3	21,7	0,00	16,7	14,3	21,2	17,9	21.7
Soth-east region	8,7	5,8	13,4	9,6	12,50	10,4	14,3	0	8,9	9.6
Share in total	13.3	15.1	32.5	9.9	2.32	13.9	2	9.6	16.2	

Source: Interviews with farm managers, 2023.

[9] Authors express their graduate to all farm managers and experts who participated in the survey

The questionnaire contained 29 main questions and multiple sub-questions on general characteristics of the farm (juridical status, size, specialization, location, etc.) and farm manager/owner (age, gender, education, experiences, etc.), specific modes and factors of governance of all major type farm transactions (supply of land, water, labour, services, short-term and long-term material and biological assets, finance, knowledge and innovation; marketing of farm output and services, and risk management), and factors facilitating and restricting farm development. The questions and possible responses were designed after an extensive literature review and numerous in-depth interviews with farm managers. It was discussed with leading experts in the area, tested with managers of different types of farms in two regions of the country (Plovdiv and Blagoevgrad), and further improved. An option is also given for a new response and comments to all questions.

The goal was to "translate" the basics of New Institutional Economics categories (governance, bounded rationality, opportunism, transaction costs, institutional regulations and restrictions, etc.) to the everyday language of the managers in order to avoid any confusion and make a proper analysis. Both formal and informal arrangements, including interlinked, complex and hybrid modes are taken into account. All critical institutional, market, personal, technological, natural, etc. factors for governance choice are accounted for. Total institutionally and personally determined transaction costs are included in the analysis (information, learning, pre-contractual, post-contractual, coalition management and development, etc.). The governance of agrarian transactions (land supply included) is studied holistically since not only specific (direct) but the overall costs of the farm are taken into consideration.[10]

In order to improve the precision and avoid misunderstandings, the interviewers were trained by authors and constantly consulted throughout the survey process in person or by telephone. The honesty of farmers' responses was ensured by guaranteeing anonymity since some concerns were raised about detailed questionnaires and leaking individuals' data to other interested parties (government and tax authorities, competitors, etc.).

The land supply section of the questionnaire includes agricultural lands and water governance issues. It comprises five principal questions (with a number of sub-questions): Amount of managed land, Frequency of deals with agricultural lands, Type of contract and partner in land and water deals, Type of land price and rent, Problems in land and water supply deals.

Agricultural land is a natural resource and the principal modes of its supply to the farm are external (purchase or lease) and internal (individual or collective ownership)[11]. Therefore, the alternative forms of land governance identified and studied are: a short-term (seasonal) rent contract, a long-term lease contract, farm ownership, and collective cultivation with other farms (coalition contract). For instance, renting from another agent a pasture for one or more seasons for grazing the farm's livestock is studied as a lease-in contract. On the other hand, buying the grass harvest from another agent's land by a livestock farmer is classified as an inputs supply contract. Similarly, a contract for transferring land's farming rights to

[10] In fact, the manager optimizes not the individual (e.g. land supply) transactions but the governance of entire farm – all activities and transactions of the enterprise.

[11] Unlike rights on other material and biological assets which could be bought, leased but also "produced" on the farm.

another farm (or solar panel installation rights on farmland) is considered as a lease-out contract, while the contract for harvesting the farm's yield by another agent (e.g. self-picking cherries by customers) is studied as a marketing contract.[12]

The questionnaire used in this survey was an updated version of an old questionnaire from a similar large-scale study carried out during the pre-accession period to the EU in 2001. The latter gave the extraordinary opportunity to compare the results from both studies and analyze the evolution of modes and factors of land supply governance in the last two decades (before and during EU CAP implementation).

The responses of farm managers were summarized and grouped according to the farms' type and personal characteristics of managers. In addition, the correlation between important indicators was determined (e.g. between gender, age, education, and professional experience of manager, and form of contract) in order to specify the importance of certain factors on the type and costs of governance.

For checking the survey representativeness, an estimation of the statistical error is performed indicating a discrepancy between the survey results and the whole population. The statistical test for measuring the error is carried out using a two-step procedure and equations suggested by Ivanov et al. (2022):

$$SS = \frac{Z*(1+CV*p)}{C^2} \quad (1)$$

$$SS_{FN} = \frac{SS}{1+\frac{(SS-\sqrt{P})}{(SS+\sqrt{P})}} \quad (2)$$

where:

SS is sample size;

SS_{FN} – final sample size;

Z – Z-test statistics for sample confidence level;

CV – coefficient of variation;

p – probability for appearance;

P – population set;

C – statistical error.

The sample size is counted on 345 questionnaires and the statistical error is estimated for a confidence level of 95%, where the p-value is 0,05 for a two-tail sample and the z-test statistic score is equal to 1,96. The population set is taken up to 132742, which is the number of farms in Bulgaria according to the last 2020 Census. The statistical error of the field survey is obtained to 0,106 meaning that there is a 10,6% chance the generated results from the field survey to be different from the real results of the entire population. The size of the statistical

[12] Similarly, the contract for pay or free access to the farm's territory or assets (e.g. for collecting pollen by bees of another farmer, hunting, trespassing, organizing events, etc.) is considered as provision of agro-ecosystem services rather than as a land lease-out contract.

error is quite acceptable for the purpose of this study and therefore demonstrates survey facts and figures can be accepted with high confidence and reliability.[13]

A hypothesis test is also implemented, where based on the sample error, the Z test and confidence level estimation are pursued to verify the level of reliability and significance of the received answers and figures by the survey respondents. The results from the hypothesis test carried out on the question "Frequency of land deals" are shown in Table 2. That question covers several subtopics with a total number of possible answers of up to 5. In order to implement the hypothesis test different standard methods are used to estimate the confidence level of the sample survey, along with determining the confidence interval of the results, including carrying out z-test statistics.

Table 2. Test of sample hypothesis of the obtained results on the question related to frequency of deals with agricultural land

Hypothesis sample statistics	Observations	Sample average $\bar{X}$	Standard deviation σ	Sample error	Lower confidence limit X-X*%CI	Upper confidence limit	Confidence level	Z score	Z critical value
Purchase	331	20%	3,55%	0,41%	2,56%	2,58%	99%	0,75	2,63
Sale	324	20%	2,65%	0,1%	1,98%	1,99%	99,2%	0,38	2,69
Short-term lease-in	328	20%	4,67%	0,91%	3,18%	3,24%	98,7%	1,66	2,50
Long-term lease-in	326	20%	4,26%	0,01%	2,95%	2,95%	98,9%	0,76	2,53
Lease-out	310	20%	2,66%	0,59%	1,89%	1,91%	99,3%	1,21	2,68

Source: authors' calculations.

The results designated to test on the significance and reliability of obtained responses by farm managers demonstrate that figures are quite consistent. This test is done by dividing the whole sample into two subgroups randomly with preliminary structuring of questionnaires by criteria of legal status and localization. The confidence levels in the covered 5 sub-questions are ranged between 98,7% to 99,3%, which testifies to an almost full coverage of the possible cases. The z-test shows that there is no principal difference between those two subgroups and despite little divergences between they have the same meaning and root results. Such analysis proves with a high level of confidence that estimated results and distribution between optional answers are quite reliable which means that it can be assumed that a similar distribution of responses can be seen in the whole population.

Therefore, with high confidence can be suggested that survey results give realistic insights into the dominating modes, factors and trends in land supply governance of Bulgarian farms. Statistical representativeness of the sample is significant; the trust of farmers was ensured by guaranteeing anonymity; the data collection and processing were implemented professionally; and the large number of surveyed farms diminished the importance of cases

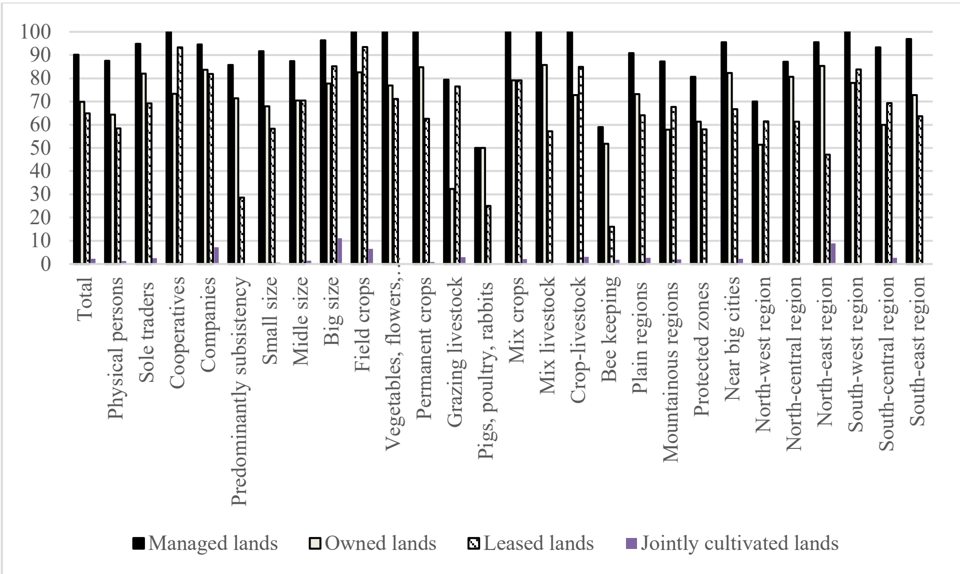
[13] Conducted survey works with a good representativeness and moderate statistical error, which does not mean that given responses by the managers are plausible and truly correct (some information concerns personal preferences and perceptions, and responses can vary in different situation and environment).

of misunderstanding or misinforming. Besides, similar results have been demonstrated with multiple in-depth case studies of different types of farms in recent years (Agro-Governance Project, 2024).

3. Agents and Modes of Land Governance in Bulgarian Agriculture

A great majority of Bulgarian farms manage agricultural lands and participate in some type of land supply governance and transactions (90,1%) (Figure 1). The main forms of land supply in farms are (available or acquired by purchase) ownership, some type of (short, long-term, hybrid) lease contract, and coalition contract for joint cultivation. Land ownership and lease contracts are dominant modes of land governance – almost 70% of all holdings in the country are farming their own lands, and a significant share are leasing lands (65%). On the other hand, only a small proportion of holdings (2,3%) apply collective mode cultivating land jointly with other farms.

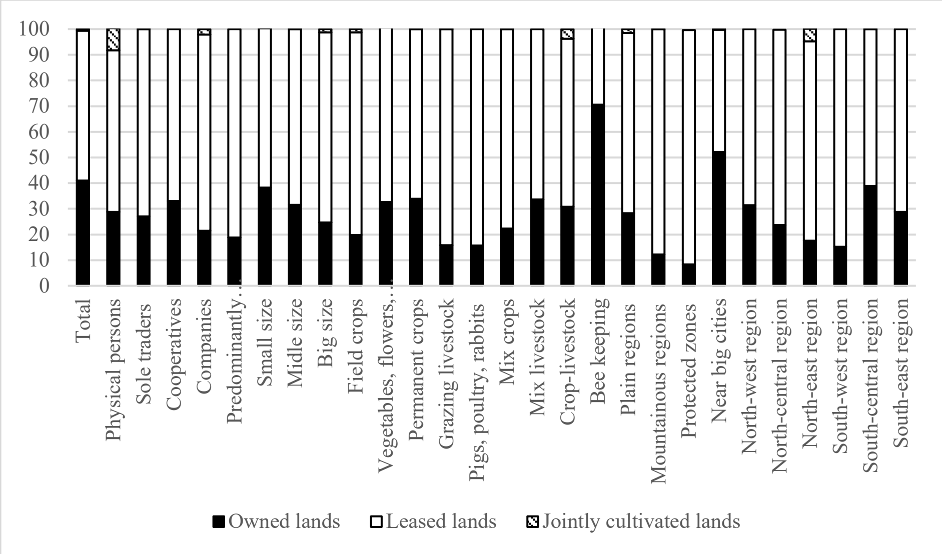
Figure 1. Share of farms with managed, owned, leased and jointly cultivated lands in Bulgaria (per cent)



Source: Interviews with farm managers, 2023.

The lease contract is the most important form of land supply in agriculture accounting for 58,3% of total lands used by Bulgarian farms (Figure 2). The average size of leased lands in farms using that mode is 193,8 ha (Figure 3). It is also much higher than the average size of owned lands (126,9 ha) indicating even greater importance for applying holdings. At the same time, merely a tiny portion of overall lands in the country (0,7%) are jointly used by farmers and the average operational size is much smaller than the other two modes (75,4 ha).

Figure 2. Share of owned, leased and jointly cultivated lands in total managed lands of Bulgarian farms (per cent)



Source: Interviews with farm managers, 2023.

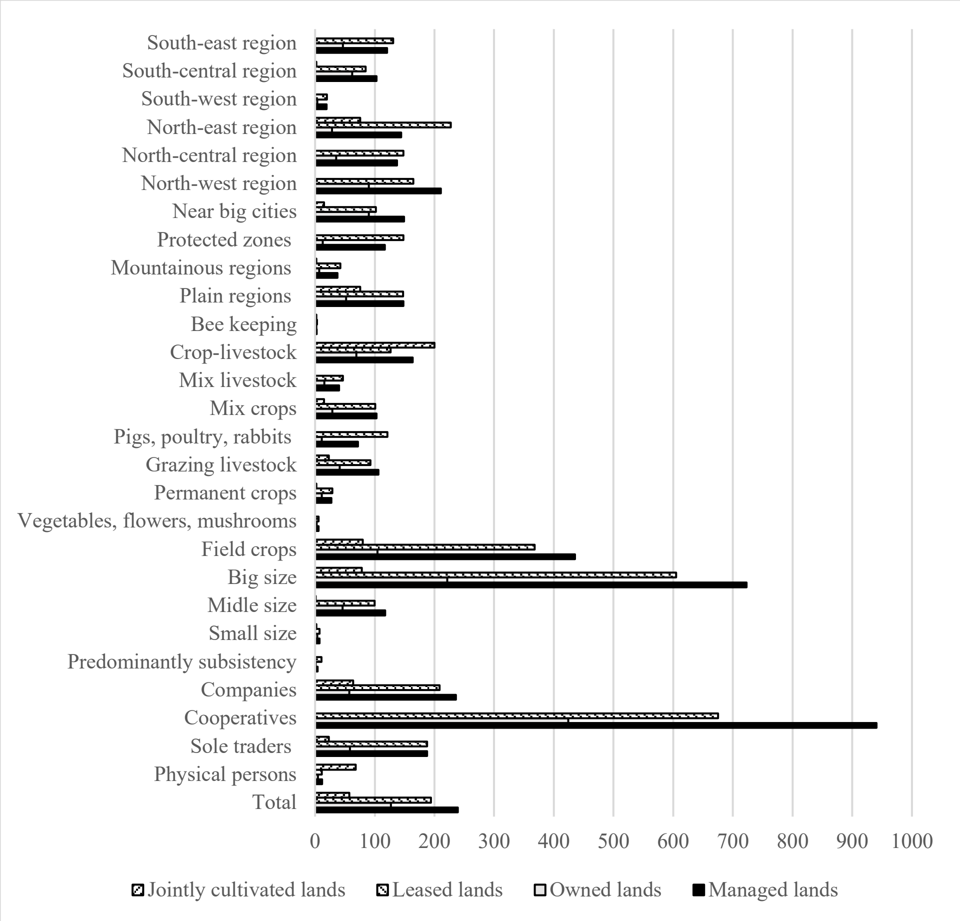
Individual modes of land supply governance are of different importance for different types of farms. The biggest proportion of farms with owned lands are among firms (sole traders and companies[14]), and with leased lands among the cooperatives and companies. Jointly cultivated land is more important for companies and is practised by just over 7% of them.

There is a correlation between the farm size and the applications of three modes of land supply governance as all forms are used by a larger proportion of holdings with a big size. Most subsistence holdings are farming their owned land, relatively few leased lands, and none practice joint cultivation.

A relatively smaller number of farms in pigs, poultry and rabbits and in beekeeping participate in land supply management, and they mostly employ the ownership mode. That is a result of smaller needs for lands in these operations, mostly for installing other specialized assets like buildings for livestock, beehives, etc. The largest proportion of farms in permanent crops use ownership mode due to the need to safeguard a long-term investment in wine yards, fruit trees, and other specialized assets such as irrigation, plat supporting constructions, fans, etc. On the other hand, a larger share of farms in field crops and grazing livestock employ lease mode to effectively supply needed (universal) plots of arable lands and pastures. That mode allows easy optimization of farm size, change of land plots according to needs of crop rotation, land consolidation, moving to high quality (unexhausted, less eroded, etc.) lands, and replacing costly or unreliable land suppliers.

[14] Companies include both Corporations and Associations, registered under the Trade Law of Bulgaria.

Figure 3. Average size of managed, owned, leased and jointly cultivated lands in Bulgaria (ha)

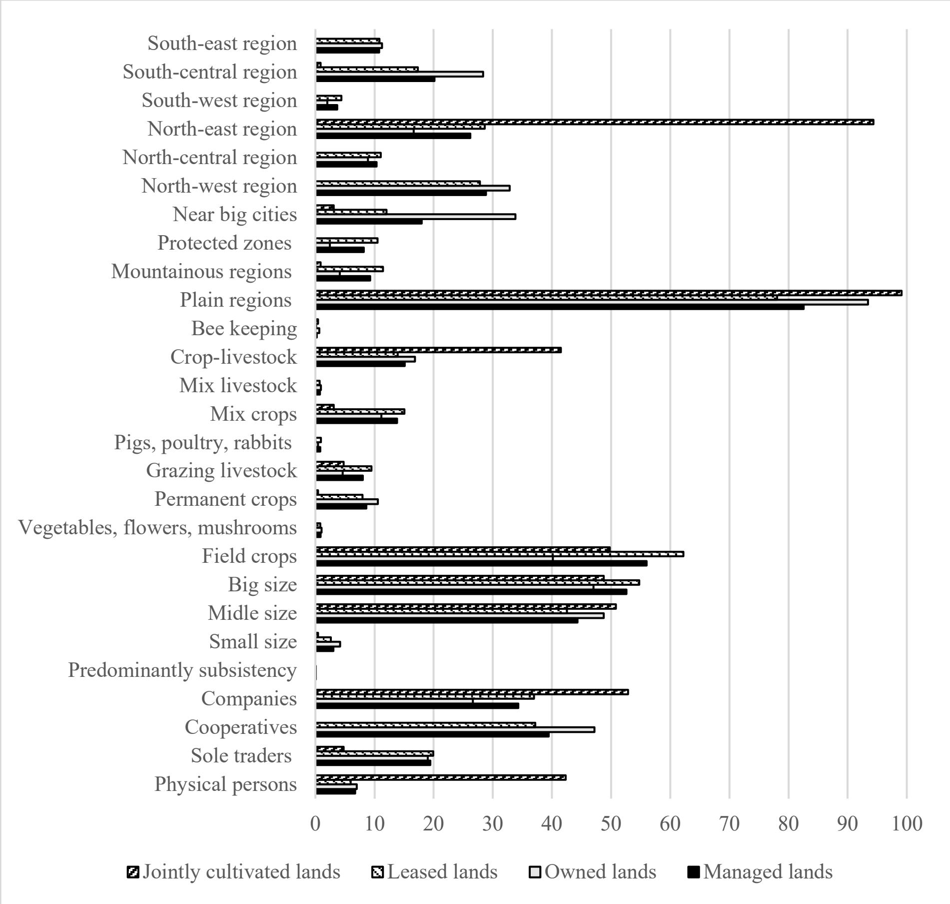


Source: Interviews with farm managers, 2023.

A smaller proportion of farms in mountainous regions and in protected zones use land supply governance compared to the holdings in plain regions and around big cities. At the same, time, the share of farms leasing land in mountainous regions and around big cities is higher because most landowners in these areas are not farmers and lease out lands to professional operators.

The smaller proportion of farms in the North-west region are involved in land supply governance and apply ownership mode compared to the rest of the country. In the North-east region is located the biggest proportion of holdings, using ownership and joint cultivation modes, and the smallest fraction employing lease contracts. On the other hand, the South-West region comprises the greatest proportion of farms involved in land lease deals.

Figure 4. Share of different types of farms in total managed, owned, leased and jointly cultivated lands in Bulgaria (per cent)



Source: Interviews with farm managers, 2023.

The distribution of agricultural lands between different types of farms indicates their comparative importance (and efficiency) in land governance. The biggest amount of agricultural land in the county is currently under cooperative (39,5%) and corporative (34,3%) governance (Figure 4). The most part of leased lands is also under cooperative (37,2%) and corporative (37%) management. A significant proportion of owned land is in the cooperative structures (47,2%) and firms – companies (26,6%) and sole traders (19%). That proves that cooperatives and firms demonstrate higher comparative advantages in land governance compared to physical persons due to their greater capability to integrate and manage more resources (land, labour, finance, etc.), introduce innovation and explore economies of scale and scope, effective marketing of products and services, bigger lobbying capability for public support, etc.[15]

The share of leased lands is much higher than the owned lands for all juridical type of enterprises accounting from 63% of the managed lands in physical persons up to 76,5% in companies (Figure 2). The average size of leased land by all type of farms is considerably higher than the owned land – from 11,1 ha in physical persons up to 675 ha in cooperatives (Figure 3).

Almost all jointly cultivated land in the sector is done by the companies (52,9%) and physical persons (42,3%). That type of governance accounts for 8,5% of the managed land of the physical persons and 2,1% in companies. The latter indicates that applying that mode holdings have some needs and mutual interests (benefits) to cooperate with other farms in land management in order to explore certain production and/or transaction opportunities. The most common reasons for joint cultivation are increasing operational size, sharing investments and risks, jointly using available machinery, labour, and know-how, participating in public support programs, etc. The importance of this type of land supply governance is most significant for applying physical persons where the average size of land under joint cultivation (68 ha) exceeds significantly owned and leased lands. For companies, the size of jointly cultivated lands (63,7 ha) is also higher than the owned lands.

Basically, the mode of joint land cultivation with other farms is efficient for highly mechanized and standardized operations where fewer labour inputs are required and individuals' performance is easily verified. In more complex operations information asymmetry is significant and opportunism ("free riding") can occur. That requires the building of a special (and costly) governance for collective organization preventing a wider use of such mode in the farming sector.

The biggest proportions of all types (managed, owned, leased, and jointly used) of lands in the country are governed by big and middle-size enterprises, demonstrating their greater comparative efficiency in land supply and operational management. The average size of lands under different types of governance varies considerably from a few single digits in subsistent and small farms to hundreds of hectares in big enterprises. The lease lands account for the greatest part of the total lands in all-size enterprises, being highest for predominantly subsistent holdings (81%) and companies (74%).

The governance of the greatest amount of the country's agricultural lands (56%), and leased lands (62,2%) as well as half of jointly cultivated lands and 40% of owned lands is done by farming enterprises specialized in field crops. In the contemporary market, institutional, technological, etc. environment (possibilities to apply mechanization and explore economies of scale/scope, favourable price dynamics and profit margin, area-based and other supports from CAP, etc.) field crop farms continue to demonstrate the highest efficiency in all type of land governance. The average land size in all types of governance is highest in these farms with exceptions of jointly cultivated lands in which crop-livestock holdings are superior (200 ha) to all other specializations. On the other hand, holdings specialized in vegetables, flowers

[15] Governance advantages and disadvantages of different type of farms in Bulgarian conditions are analyzed in detail by Bachev and Tsuji (2000) and Bachev (2010, 2022).

and mushrooms and in beekeeping have much smaller average size of lands under overall management and the three major modes of governance.

The owned land comprises the biggest fraction of managed land in beekeepers (71%) and around a third of the managed lands in farms specialized in vegetables, flowers and mushrooms, permanent crops, and mix-livestock, where a high assets dependency with other assets (greenhouses, beehives, buildings, etc.) prevails. At the same time, in more standardized operations in farms specialized in field crops, grazing livestock, pigs, poultry and rabbits, the amount of the lease lands accounts for the major share in the overall managed lands.

The greatest proportion of the total managed, owned, leased and jointly cultivated lands is in the farms in plain regions since most of the agricultural lands in located in such regions. The average size of lands under all types of governance is much higher in plain regions compared to farms in mountainous regions and in protected zones. The exception is the average size of leased lands in protected zones which is the biggest. The share of leased lands in managed lands of farms in all regions is higher reaching up to 91,4% in the protected zones.

The managed and owned lands in farms close to big cities average higher than in more remote regions, while leased and jointly cultivated land is lower. The share of owned land in total managed lands of farms is also much greater in these areas overpassing the fraction of leased lands. All these indicate preferences for ownership modes by farmers in such areas which is a consequence of easy (and cheap) access to big markets and critical (services, know-how, labour, capital, etc.) resources, smaller land availability and offers on markets, higher agricultural and non-agricultural demands, faster growth in land prices and rents, possibilities to live in the city and work in a nearby farm, etc.

The largest land governance is carried in the North-West, North-East and South-central regions of the country. The farms in the North-West and North-East regions have the biggest average size of managed and leased lands, while in the South-West region with the smallest sizes for overall and specific land supply governance (due to restricted agricultural lands in the region). The owned lands account for the greatest share (38,9%) of managed lands in farms of the South-central region while the leased lands reach 84,8% in the total lands of holdings in the South-West region.

4. Frequency of Land Deals of Farms

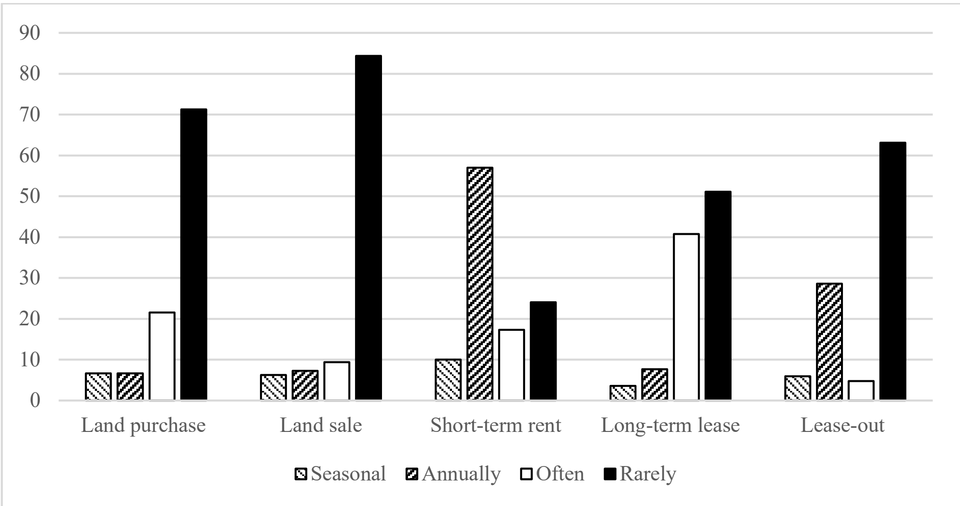
A good proportion of Bulgarian farms do not participate in land supply deals since they either possess needed lands (individual, family or collective ownership) for effective farm operations or face a high transaction cost to supply needed lands. Just above 37% of farm managers reported not purchasing lands, 27,8% not selling lands, 51,9% not practising short-term rent and 64,1% long-term lease, and 65,2% not leasing out lands. That is often a consequence of high market and private costs to find partners, negotiate effective deals, enforce contracts, and/or insufficient capability to expend operations and resources use.

However, a significant part of all farms participate in some kind of land supply deal in order to expand or optimize farm size and operations. Major forms for land supply in farms are:

(1) purchase or sells deals by which permanent transfer of ownership rights on land is negotiated and concluded, and (2) rent or lease contract by which certain (user, income generation, etc.) rights are partially or fully transferred for a particular period of time – a short-term (seasonal, one calendar or agronomical year) rent or a long-term (two and more years) lease contract (Bachev, 2024).

Most Bulgarian farms practising in land purchase and sale, and long-term lease-in and lease-out deals do it rarely (Figure 5). Agricultural lands are usually in high mutual and longer-term dependencies (e.g. a high site, assets or knowledge specificity) with other capital of the enterprises – managerial, organizational, know-know, material and biological investments[16]. Therefore, there is no need for frequent changes in the size or locations of utilized land plots through new deals. That is why effective (long-term) land supply is ensured by the ownership or long-term lease modes saving costs on repeated contracting, frequent renegotiations, minimizing uncertainty, and safeguarding specialized investments from possible opportunism (e.g. not renewing short-term rent contracts before the end of the lifespan of highly specific to the particular plot(s) investments), and needs to dispute and enforce contractual terms though a court or another way.

Figure 5. Frequency of participation in land deals by Bulgarian farms (per cent of farms)



Source: Interviews with farm managers, 2023.

[16] Specific assets have a lower value in transactions with alternative agents (Williamson). For instance, the long-term investment of a tenant farmer for improving the quality of a rented land plot (irrigation equipment, fruit trees, etc.) becomes highly specific to the transaction with the owner of the particular land plot. If the rent contract is not renewed the specific assets cannot be easily (causelessly) redeployed to transaction with the owner of another land plot. On the other hand, a tractor is not a specific to transaction with a particular partner asset since it can be effectively used in any land plot.

Furthermore, the majority of farms (57%) practice short-term contracting annually. The preference for the short-term rent contract is determined by the strategy of farm managers in seasonal or one-year crops and pastures not to enter into "less flexible" long-term agreements.[17] Short-term rent allows an easy adjustment of farm size, and plot location and consolidations with appropriate or more productive lands, open options for negotiating new terms according to dynamic market conditions (yield and rent prices), etc. Larger operations have specialized staff while smaller-scale holdings do not apply multiple contracts, and usually, rent agreements are with the same terms and between the same agents. Therefore, a high repetition of contracting does not impose considerable transaction costs while keeping options for flexibility.

In addition, a short-term rent contract is often determined by preferences or unwillingness of landowners to sign a long-term contract due to other plans for lands in future, the expectation for better contracting offers, etc. In certain cases, that mode of governance is a consequence of the formal institutional requirements – e.g. in renting municipal or state lands (e.g. pastures), farming operations in protected zones, etc. Basically, when a high mutual dependency between parties exists (e.g. neighbouring to a farmland plot for rent) there are strong incentives to continue (repeat) relations and renovate the contract – thus the annual mode of contract works well.

A good proportion of farms (40,7%) also indicate they apply for long-term leases often. The latter are mostly bigger-size operators (cooperatives, companies, etc.) with intensive and land-specific investments in multiple areas requiring frequent long-term land supply deals. Besides, a long-term land lease contract is mandatory for cooperatives (Cooperative Law) while a minimum 5-year duration of lease is regulated by the Agricultural Land Lease Law. Furthermore, the not compliance with formal regulations is easily detected ("public knowledge" in rural communities) for big operations renting lands from dozens, hundreds or thousands of small landowners.

On the other hand, smaller-scale holdings usually have few and the same suppliers and that mode allows a rapid expansion of farm size with insignificant production (investment for purchase of land) and transaction costs. Besides, most investments in farming (fertilizer inputs, land improvements, greenhouses, etc.) and agronomic principles (e.g. crop rotation requirement) require a longer period of land management to pay back on capital investments – commonly 3-5 or more years. Furthermore, terms of many land supply deals interlinked with other critical assets such as greenhouses, permanent crops, etc. (high assets and site dependencies) are (pre)determined by the lifespan of related material and/or biological assets.

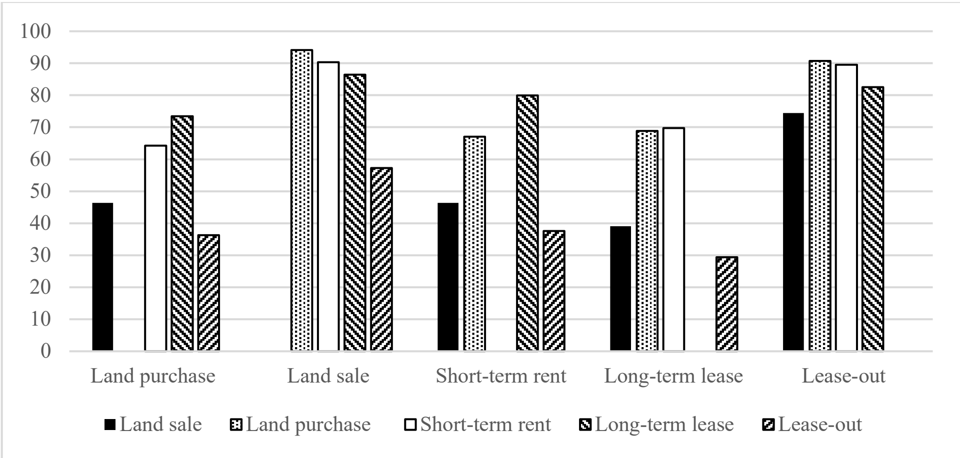
Finally, the share of farms applying lease-out deals annually is also considerable (28,6%). Some farms use sale and lease-out deals to reduce farm size due to the shift to other agricultural or non-agricultural activities and diminished capabilities (e.g. lack of finance, workforce, advanced age, forthcoming retirement, etc.).

However, a good proportion of holdings apply regularly opposite land deals both integrating new lands in the farm (buying or leasing-in lands) and simultaneously excluding (selling or

[17] The minimal period of rent contract is determined by technological factors ranging from few days in mobile beekeeping, 1-2 months for vegetables, up to 6-8 and more months for grains and other crops.

leasing out) other land plots from farm operations (Figure 6). It means that a significant proportion of enterprises employ diverse opposite forms of land supply governance to optimize rather than to reduce farm size – shifting to land-intensive agriculture, changing the quality or locations of farmed plots, changing the permanent with a temporary transfer of land rights, transitioning to new "collective" modes of land supply or farm organization, etc.

Figure 6. Share of farms with simultaneous land deals in Bulgaria (per cent)



Source: Interviews with farm managers, 2023.

5. Type of land supply contracts, partners and prices

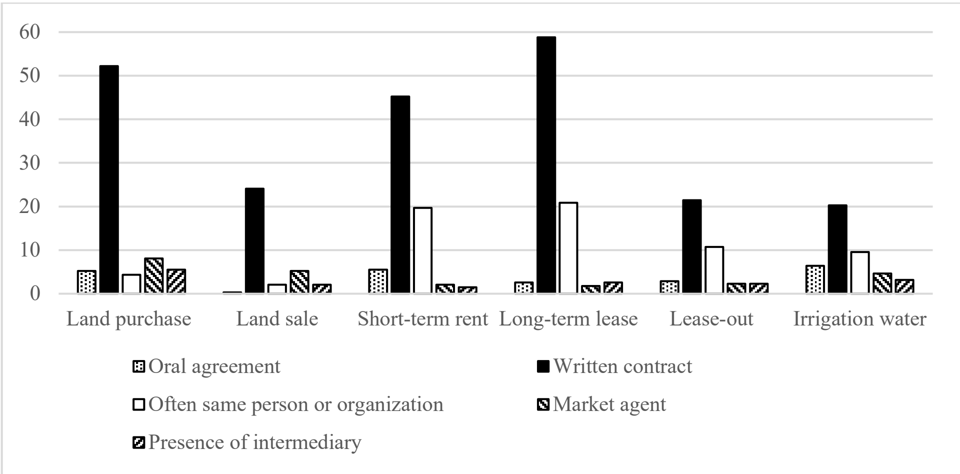
A written contract is used by most farms in different types of agreements related to land and water supply (Figure 7). The written form of contracts is often imposed by formal regulations (Contract Law, Land Lease Law, Cooperative Law, Trade Law, etc.)[18] or are required by funding (e.g. commercial banks), supporting (subsidizing public, private, international) or supplying (municipality, public institutions, etc.) agencies.

The written form imposes additional costs for formulating and specifying contractual terms, hiring experts, formal registration, requires fees and tax payments, etc. However, it has also a number of transacting advantages such as facile proof of ownership (title), dispute and enforce contracted terms including through a third party (court, authority, independent expert), possibilities to participate in other deals (e.g. register a firm or cooperative, join the collective organization, use land as a collateral against bank credit), interlinked and hybrid forms (e.g. contract for land with or against service and inputs supply, marketing, etc.), legitimate transfer of ownership or contracted rights to heirs or other (including remote, international, institutional) parties, etc. Besides, the written form is mandatory for registered

[18] According to Contract Law all contracts must be is a written form, while Agricultural Land Lease Law further require registration in local authority. However, the formal requirements are very difficult (very costly) to enforce and informal (oral) agreements are widespread in agricultural and rural sector.

organizations and enforced strictly by members and shareholders of cooperatives and companies with complex governance and separation of ownership from management (and the possibility to misuse organization in the interests of hired managers, administration or associates). Most (irrigation) water suppliers are also state (e.g. Irrigation system), private or collective organizations (e.g. Water supply associations) requiring or obliged to use written contracts for services.

Figure 7. Type of contract and partner in land deals of Bulgarian farms (per cent of farms)



Source: Interviews with farm managers, 2023.

Large lease land users are usually big enterprises having great capability (internal experts, means) and applying a standard contract form for identical transitions with multiple land owners every year. Therefore, they have no significant costs for preparing written land supply contracts. That is why the written form of contract in purchase-sale deals and lease agreements is the preferred governing mode for a good fraction of farms.

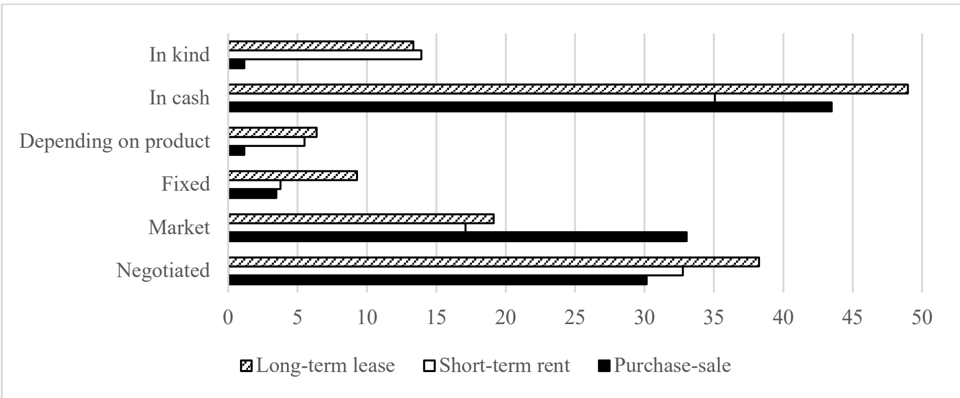
Nevertheless, due to high costs for occasional transactions and low efficiency of outside (e.g. court system) enforcement, some farms practice oral ("gentlemen") agreements in land supply deals. Besides, often there is mutual interest to hide and not formalize agreements in order to avoid paying income tax or other reasons. Oral contracts are efficient for remote rural communities, often concern standard land plots, and are properly enforced by private modes (family, business and friendships), interlinked deals or economic hostages, good reputation, power positions, community pressure or other means.

An important factor in reducing the costs of land deals is the repetition of transactions between the same counterparts. Here, both sides of transactions develop "close" relations, get to know each other, build trust and mechanisms to adapt transactions and resolve disputes. Besides, both sides are interested in continuing relations in the long term, they avoid opportunism and cooperate in the adaptation of contractual terms along with changing conditions of exchange. The situation of frequent land deals with the same person or organization ("personality of partner matters") is reported in a considerable fraction of farms in short-term rent and long-term lease-in contracts, and a good part of lease-out deals.

Furthermore, in the last two decades sale markets for agricultural lands have evolved and many farmers use market agents ("faceless exchange") in the purchase and sale of land deals, and to a lesser extent in other land and water supply transactions. In addition, some farms indicate a "presence of intermediary" is land-supply deals, and that trilateral mode is more important for facilitating transactions between seller and buyer of agricultural lands.

The price of land supply transactions is an important parameter governing land relations. Land sale markets have developed significantly during EU membership and market prices are widely applied by a third of farms for purchase-sale deals (Figure 8). Nevertheless, a great proportion of farms also negotiate the price for purchase-sale transactions due to the high specificity of land plots in terms of quality, locality, complementary biological and material assets, ecosystem services, access to infrastructure (roads, electricity, irrigation), market positioning, geographical location, etc.

Figure 8. Type of price and rent in land deals of Bulgarian farms (per cent of farms)



Source: Interviews with farm managers, 2023.

For short-term rent and long-term lease contracts for lands, the negotiated price is the dominant form. In such transactions general market prices do not work well since only certain rights of lands are transferred for a particular period of time, different terms of contract can be specified according to the needs of counterparts, and many important characteristics of a particular land plot can be priced. Besides, leased land prices often change annually in all directions and negotiated prices reduce uncertainty and risk for both sides.

Crop-sharing is a major form of the negotiated price of rent as different ratios of participation of land owners in the yield are used – e.g. 50:50, 30:70, etc. This mode connects the rent level with the land productivity and it is widely used when it is easy to verify (observe, measure, control, etc.) the quality of land by leasing farmers and the farm output by the land owner (opportunism, no place for disputes).

For more standard land plots (arable, pasture, etc.) a market price of lease contracts is applied since it is "taken" (found) easily and governs relations effectively during the contract period. Here bounded rationality of the land owner (e.g. a non-farmer, living away or abroad) or renting farmer (e.g. inexperienced farmer, land plots in unknown areas) does not matter, nor does opportunism and disputes occur – rent price simply reflect market fluctuations during the lease period. However, for certain long-term lease deals a fixed price is used reducing risk and uncertainty and facilitating transactions. In other instances, the land deal price depends on the product reflecting the value of yields, pressure on land quality (agro-technic, erosion, nutrition uptake, etc.) or other factors.

For all land supply transactions payment in cash is the preferred choice. Nevertheless, in rural communities, some landowners give priority to rent in kind. That is either because the land owners get the needed amount of farm product(s) for household consumption and domestic livestock, or receive a higher quality of local fresh or processed (e.g. fruits, cheese, vine etc.) products, or receive the rent faster (immediately after harvest) instead of waiting for completion of marketing and cash transfers. Another reason for choosing this mode of payment is that farmers and land owners are interested in sharing the surplus (income, not paying value-added tax) rather than paying it to the authority (like in monetary transactions).

6. Factors and Evolution of Land Governance in Bulgarian Farms

The study has found that a good proportion of Bulgarian farms do not have any significant problems in land deals, including 19,7% for sale-purchase, 16,8% for short-term rent, 16,2% for long-term lease, and 11,3% for irrigation water. Most farms with no important issues in land supply governance are among physical persons, small-scale holdings, specialized in permanent crops, and located in plain regions. It means that for these farms, the system of land market, private, collective, public and hybrid governance works well.

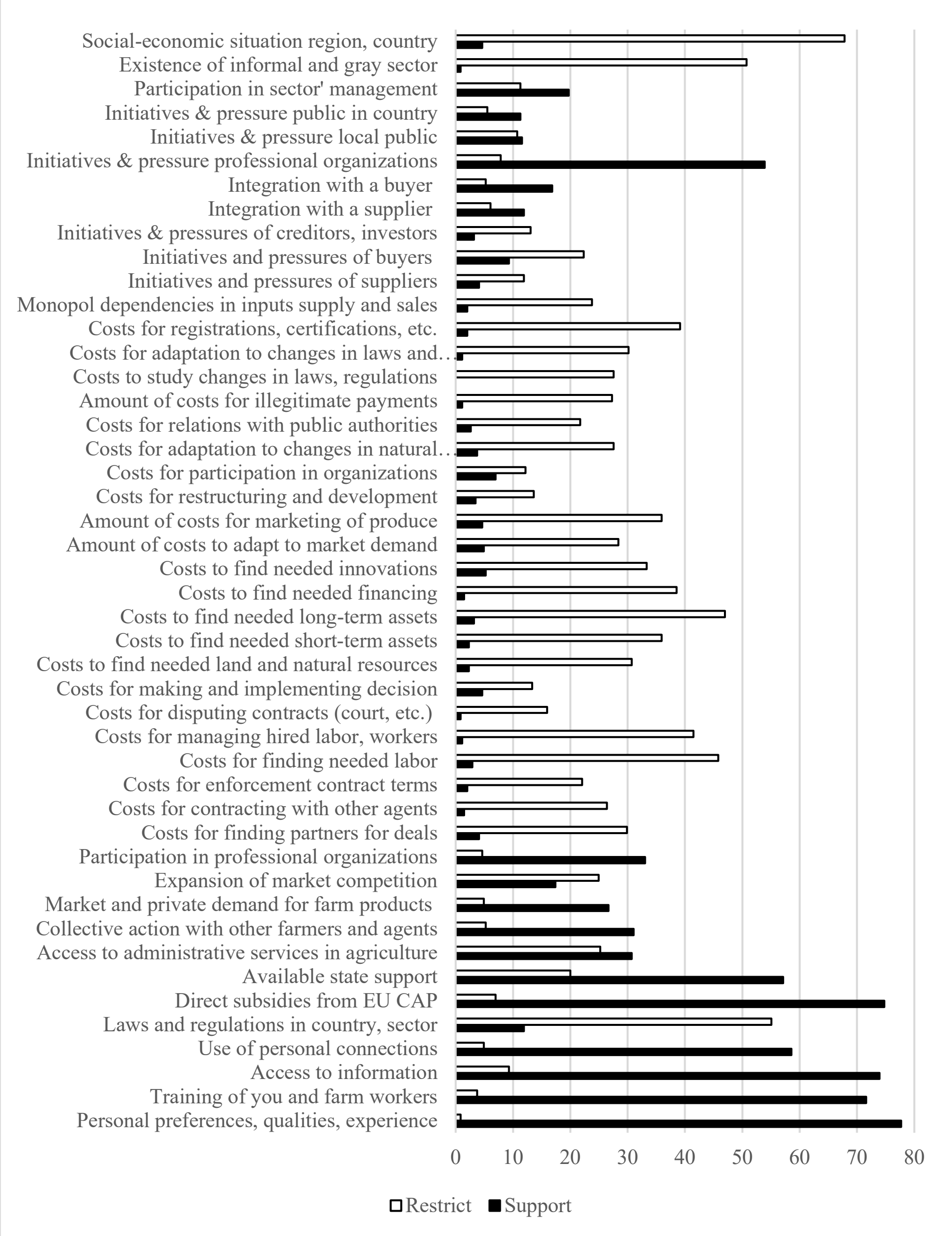
However, for a significant number of Bulgarian farms (30,7%) the amount of costs for finding needed lands and natural resources is a critical factor strongly restricting the development of their enterprise (Figure 9). The latter is particularly important for a good proportion of sole traders and cooperatives, farms with large size, holdings specialized in permanent crops and mix crops, those located in plain regions, protected zones, and near big cities, and enterprises in North-east, North-central, and South-central regions of the country.

The major factors creating problems and costs for land purchase and sale transactions of most Bulgarian farms are lack of available agricultural lands (for every third one), high prices (33%), big fragmentation of land plots (24,9%), and need for deals with numerous (co)owners (25,5%) (Figure 10).

In the short-term rent transactions, the main issues relate to the lack of vacant agricultural lands (20,1%), and big fragmentation of land plots (22,4%), while in the long-term leasing deals to lack of available agricultural lands (for every third farm), high prices (30,7%), big fragmentation of land plots (26,4%), and need for deals with numerous (co)owners (26,7%).

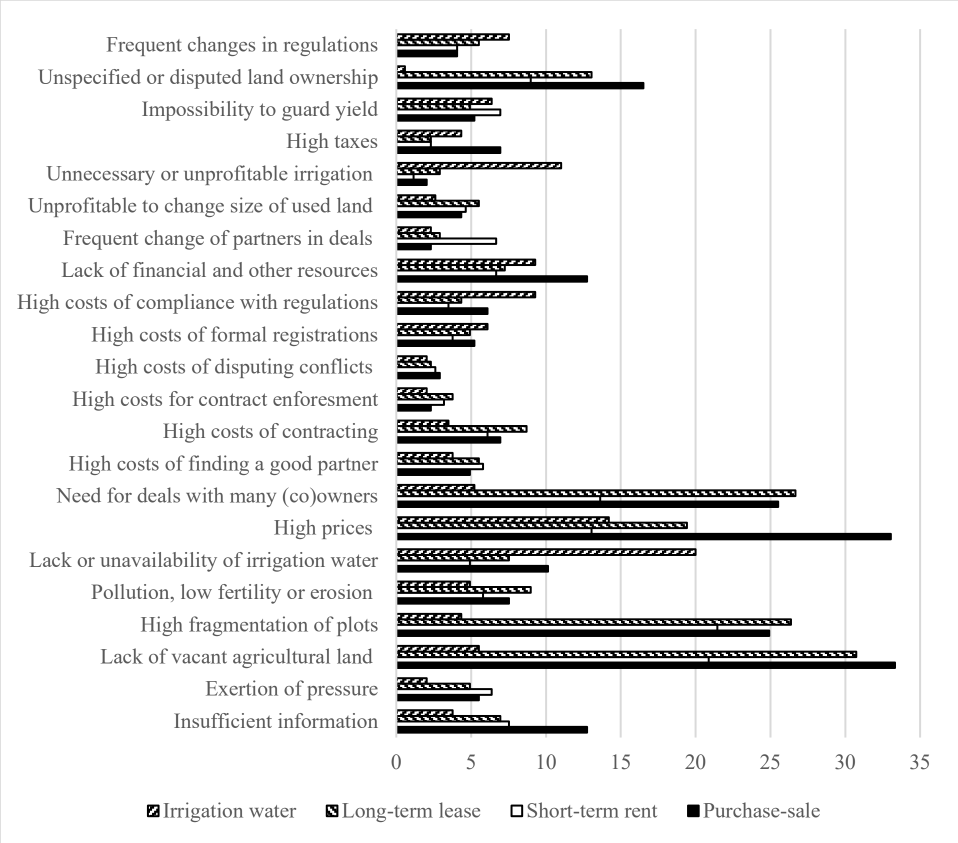
In irrigation water supply major problems of most Bulgarian farms are caused by the lack of availability or access to water for irrigation (for one-fifth of all) and a high price (14,2%).

Figure 9. Factors strongly supporting or restricting the development of Bulgarian farms (per cent of farms)



Source: Interviews with farm managers, 2023

Figure 10. Problems in deals with agricultural lands and waters of Bulgarian farms (per cent of farms)



Source: Interviews with farm managers, 2023.

In addition to effective land supply, other personal, social, economic, institutional, etc. factors are (even more) important for the overall development of farms. The critical factors (and transaction costs) strongly restricting the development of many Bulgarian farms at the present stage are: the legislation and regulation environment in the country and sector, amount of costs for finding the needed labour force, amount of costs for managing the hired labour and workers in the farm, amount of costs for finding needed short-term and long-term assets, amount of costs for finding needed finance for the farms, amount of costs for finding needed innovations, amount of costs for marketing of output, amount of costs for registration, certification, etc., existence of informal and gray sector in agriculture, and socio-economic situation in the region and in the country (Figure 9).

The study has not found any significant variations in the applied modes, intensity and problems (costs) in land supply transactions depending on the gender, age and education of farm managers (owners). However, there is a strong correlation between the period of professional experience and the land supply intensity and efficiency, and exploitation of the potential for farm development.

The study has not found any strong relations (interdependency, interlinking, correlation) between dominant modes of land supply with the governance of other types of farm transactions such as a supply of labour, services, material and biological assets, and innovation, financing, marketing of output, ecosystem services, and risk management.

The application of an identical framework (methodology, questionnaires) in this and a previous 2001 study gives a real possibility to assess the fundamental evolution of land governance in Bulgarian agriculture during the last two decades. The major forms of land supply in farms changed enormously during the period of pre-accession and EU membership (Table 3). At the beginning of the century, there were a huge number of smaller-scale farms, including enormous "semi-market" and subsistence sectors, mostly operating with small family resources and dispersed plots of owned lands (Bachev and Treziev, 2001). The main mode of acquiring land ownership was restitution (privatization) of agricultural lands, consequence of liquidation and privatization of ancient public farms. Private property rights on lands (and other resources, services, waters, etc.) were not completely defined, and restored in real borders, disputed and properly enforced. Therefore, the seasonal (annual) rent contracts with hundreds and thousands of landowners, and small member partnerships (joint cultivation of lands) were dominant (the most effective) modes for farm extension.

Most markets were undeveloped and dynamic while governing structures were highly unsustainable (part-time farming, multiple failures, bankruptcies, mergers, takeovers, temporary organizations under privatization, short-term contracts, cash and carry deals, etc.). There appeared many new agents with no history, reputation or strategy to stay in agriculture. Market, institutional and behavioural uncertainty were enormous deterring potential mutual exchanges between entrepreneurs, resource owners, and consumers.

There was no efficient public system for law and contract enforcement and less formal private (inwritten, unregistered, illegitimate) modes were widespread to govern land supply and safeguard transactions – interlinked modes (e.g. land supply against marketing), barters deals, personalized (instead of faceless market) exchanges, private enforcement modes, illegitimate use of private and public lands, etc. Land sale and long-term lease markets were practically missing and application of such modes of land supply were very rare.

Transaction (information, implementation, enforcement, learning from mistakes, etc.) costs associated with external land supply (and other farm transactions) were very high due to rapid modernization of institutional environment (introduction and enforcement of EU laws and regulations, multiple changes and amendments), markets liberalization, inadequate market infrastructure, low efficiency of the system for enforcement of private contracts, restructuring of farming structures and production, little managerial experience of farmers, primitive technologies, insufficient public support (training, advice, subsidies), monopoly positions of state or private agents, widespread corruption, etc. Furthermore, the effective optimization of farm size was severely restricted by the high enforcement costs of contracts in general and enormous credit supply and marketing costs.

Table 3. Evolution of Land supply governance in Bulgarian farms

Characteristics	Pre-accession period (2001)	Present (2023)
Private ownership	Unspecified, provisional, disputed, individual and family ownership, small scale, only Bulgarian citizens, major form for land supply, no private rights on waters and other natural resources, big entities without land ownership, large share of under or unused agricultural lands, unregulated access to public lands	Established, legally enforced, open to foreign agents, diverse ownership (entities, non-agrarian agents, international), concentration in small and large structures, one of alternative forms of land supply, new private rights on waters, ecosystem services, intellectual products, geographical indications, deficiency of lands in certain regions, land contract for use of public lands
Farming structures	Numerous, under development, low efficiency and sustainability, small scale, owned and family (land, labour, savings) resources, high cooperation in land use, high subsistence, strategy for survival, widespread part-time farming	Decreased number of farms, more formally registered farms, smaller importance of unregistered and cooperative farms, established, highly efficient and competitive, intensive external market and private (lands, labour, finance, innovation) supply of resources, inputs and services, diverse type of coalitions, strategy for long-term development, professional farmers
Markets	Undeveloped, missing, fragmented, informal, lack of adequate infrastructure, primitive and personalize exchanges, monopoly positions, insufficient and asymmetric information, no public support and regulations	Well-developed resource and products markets, competitive, modernized infrastructure, open to EU, formally registered and accounted transactions, publicly supported, regulated and enforced (standards, rules, etc.), intensive faceless exchanges, specialized agents, reduced market information asymmetry.
Modes of land supply	Own land, provisional titles, seasonal and annual rent contract, joint cultivation of land, quasi and fully integrated, restriction for maximum land ownerships and land lease size, no incentives for long-term investment in land, occasional deals between friends, family and close communities, illegitimate use of private and public lands	Ownership, purchase and sale, short-term rent, long-term lease, lease out, collective cultivation, pure and simple forms, strong incentive for investments for land improvements, protected zones specificity, intensive contracting depending on asset specificity and needs for farm extension, informal forms in smaller scale and remote areas
Form of contract and rent	Informal, standard (“classical”), complex and hybrid (interlinked) forms, privately enforced, rent in kind, delayed, reduced or no payment of promised rent	Written, registered, legally enforced, publicly regulated (form, terms, period, registration), tailored to needs of agents (special, “neoclassical”), cash payments, governed by trust and reputation, supported and enforced by a third (private or public) parties
Institutional environment	In the process of harmonization with the EU, high (institutional, market, behavioural) uncertainty, dynamic and (often) controversial changes, outdated and badly enforced environmental standards, lack of sufficient public support, high corruption	Modernized according to the EU, huge CAP public support (subsidies, crediting, training, market intimation, etc.), area-based CAP payments, cross-compliance requirements (including environment and biodiversity protection, etc.), improved enforcement and punishment of offenders
Transaction costs and factors for farm development	Low transaction costs for land supply, very high transaction costs in general, most critical factors – high costs for contract enforcement, credit supply and marketing of produce	Moderate or low transaction costs for land supply, critical factors – legislation and regulation environment, high costs for labour supply, high costs for inputs and finance supply, marketing, registration and certification, existence of informal sector, socio-economic situation

Source: authors.

7. Conclusion

There has been enormous development in land supply governance in Bulgarian farms during the last two decades. However, due to insufficient (statistical, official, etc.) information and traditional inadequate (Neo-classical economics, Agency theory, etc.) approaches to analysis, there is no complete knowledge of dominating modes and driving factors of land governance. That impedes decision-making at all levels – from farm and agri-business management and strategy formation to collective actions, third-party (local authority, NGO, etc.) involvement, and government and EU policies design and implementation.

This study has proved that the New Institutional Economics methodology allows us to better study and understand the real agents, modes, processes, resulting order, efficiency and progress of the (land and overall) governance in the agrarian sphere. Particularly, it revealed the formal and informal modes of land supply governance applied by Bulgarian farms of different types and locations and critical factors for their development. Therefore, it has to be more widely and periodically used in economic analysis at different levels – farms of different types, sizes and locations, international comparisons, etc.

The study has found that rent and lease contracts are the most common forms of farms' land supply in Bulgaria, followed by ownership mode and joint cultivation. The importance of different governance modes, forms of supply contracts, the intensity of transactions, types of partners, and kinds of land rent and price varies considerably depending on the juridical type, size, specialization, and geographical and ecological locations of holdings. Major factors for the governance choice are frequency, uncertainty, asset specificity of transactions, and professional experience of farm managers. The amount of transaction costs for finding needed lands and natural resources is among the critical factors strongly restricting the development of many Bulgarian farms, particularly of sole traders and cooperatives, farms with large sizes, holdings specialized in permanent crops and mix crops, those located in plain regions, protected zones, and near big cities, and enterprises in North-east, North-central, and South-central regions of the country. Most problems and costs for land (purchase, rent, and lease) deals of farms are caused by the lack of available lands, high prices, big fragmentation of land plots, and needs for deals with numerous (co)owners. A comparative analysis with a similar study demonstrated enormous modernization in land supply and overall governance of farms during EU accession and integration.

Application of the suggested holistic framework requires the collection of new types of (micro) economic data about important characteristics of agrarian agents, diverse modes of governance of their relations, and critical dimensions and costs of transactions. That calls for significant changes in the official data collection system in the country and EU (national and international agro-statistics), bigger cooperation of various interested parties (farm managers, professional organizations, National Agricultural Advisory Service, government and international agencies), and application of more holistic and interdisciplinary approaches in the economic analysis of scholars, experts, professional organizations and public agencies.

Funding
This study is funded by the Bulgarian Science Fund, the project "The Mechanisms and the Modes of Agrarian Governance in Bulgaria", Contract № КП-06-Н56/5 from 11.11.2021.

Contribution of individual authors
Hrabrin Bachev elaborated methodology and questionnaire, organized and carried out interviews, processed and analyzed data, and wrote the manuscript.
Bozhidar Ivanov was responsible for the statistical analysis.

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