ECONOMIC RESEARCH INSTITUTE
BULGARIAN ACADEMY OF SCIENCES

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CONTENTS

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THEORETICAL AND PRACTICAL DIMENSIONS OF THE GREEN ECONOMY TRANSITION[2]

The article presents the results of recent implemented and current research on up-to-day trends, challenges, risks and social and economic consequences of the green transition for economic development on a national and European level discussed at the annual scientific conference, organised by the Economic Research Institute at the Bulgarian Academy of Sciences.
Keywords: green economy; sustainable development; growth; labor market; European Union; financing; sectoral and regional policy; green transformation of companies
JEL: E00; F00; G00; J00; M00; O1; Q00; R1

Economic Research Institute at the Bulgarian Academy of Sciences (ERI-BAS) was an organiser and host of the traditional Annual scientific conference "*Economic Development and Policies: Realities and Prospects"*, held on December 5, 2023, in Sofia. The 2023 edition of the forum was focused on the *National and European challenges of the transition to the green economy*[3].

Over 70 researchers took part in the scientific event where 43 presentations were given. They discussed the problems of economic development of Bulgaria and the European Union (EU) in regional and global contexts in the new conditions of green transition. Conference speakers and guests were distinguished Bulgarian scientists and university professors, including 22 young researchers and doctoral students, representatives of the state administration and non-governmental organisations.

The presentations reflected achieved and intermediate results in recently implemented and current research and applied projects related to up-to-day trends, challenges, risks and social and economic consequences for the development of the economy on a national and European level in the context of the green transition. They were systematised in five panel sessions: Plenary kea speaker session; Sustainable development, economic growth and the labour market in the transition to a green economy; European perspectives and financing of the green

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[3] *The collection of articles presented at the conference is published by the renowned international Prof. Marin Drinov Publishing House of Bulgarian Academy of Sciences* (ERI-BAS, 2024).

transition; Impacts of the transition to a green economy on the regional and sectoral economy; The transition to a green economy and companies.

The Director of the Institute Prof. Irena Zareva opened the forum with a welcome speech. In it, she noted that for years the Institute has been paying special attention to issues related to the transition to a green economy, and in accordance with the new priorities of its research activity, this issue was defined as one of the main directions of work in view of its great importance on a national and European level. During the period 2021-2023, several projects related to green transformation in various areas of economic development were elaborated at the Institute and published, and research in this direction continues. It was emphasised that the transition to a green economy requires combining the efforts and experience of the administration, business, science and education to find practical solutions to increase the efficiency and effectiveness of the country's policy for its successful implementation, and hope was expressed that the conference will contribute in this direction.

The forum started with the **keynote speech** by *Prof. Daniela Bobeva* on the topic "***Theoretical deficits and political illusions of the green transition"***. She underlined that the European Union has set the ambitious goal of reforming its economy and creating a new (green) economy – a low-carbon, resource-efficient efficient and socially inclusive one. The "green transition", sealed in The Green Deal, started optimistically. However, the first three years have outlined some successes and challenges that need reflection in order to right the wrongs and the way the transition happens. In her opinion, the problems of the beginning of the transition could be avoided if the theoretical deficits and political illusions about the transition, explored here, are overcome. A review of the foreign and Bulgarian academic literature was presented, looking for the place of the green transition theory in economic science and the foundations of the policy is built on. The methodologies for assessing the progress of the transition were analysed and their applicability for Bulgaria was tested. Grounds for a reconsideration of the approach to assessing the effects of the transition were discussed. The presentation combined analysis of the theory, the evaluation methodology, and the policies as well as recommendations in these three areas were made on this basis (Bobeva, 2024). The plenary session was finalised by the prof. Bobeva's debates with Prof. Stefan Stefanov from the New Bulgarian University – specially invited discussant on this extremely sinister topic. The exchange of ideas between them set the tone for further lively discussion on all thematic areas included in the conference program. More specifically, the discussion in the plenary session focused on clarifying the issue of balancing in economic theory micro-level opportunities and macro-level dangers in view of upcoming re-industrialisation as well as of the national interest and effects of the green transition in Bulgaria.

The conference proceeded in accordance with the scheduled panel sessions with a wide range of thematic fields of presentations grouped into relevant problem areas.

SUSTAINABLE DEVELOPMENT, ECONOMIC GROWTH AND THE LABOR MARKET IN THE TRANSITION TO A GREEN ECONOMY

The discussions during this session were concentrated around two main thematic areas.

The first one treated a series of issues related to ***sustainable development, economic security and competitiveness of the economy***. *Gergana Slavova* and *Teodorina Turlakova* studied *sustainable development through green investments.* They pointed out that recent years have seen not only higher average temperatures and global warming on planet Earth, but also a significant increase in the percentage of air, water and soil pollution in Europe. Prompted by this and by the EU's desire to direct not only people's thinking but also their actions towards the application of renewable energy sources, eco-mobility, the development of environmentally friendly agriculture and the improvement of energy efficiency, their presentation aimed to define what sustainable development is and how it can be achieved through the application and use of different types of green investments, using good real practices implemented in Bulgaria and Europe (Slavova and Turlakova, 2024). *Ivan Tsanov* described, analysed and interpreted the issue of *green economy, economic security and the relationship that exists between them*. The thesis was argued that the relation a green economy – economic security is available but underestimated in Bulgaria. The fundamental conclusion was drawn that the improvement of the green economy in the Bulgarian economy can be completed successfully only if they are built based on a universal managerial model, tailored to the local specifics, while not neglecting the problematic connection with economic security (Tsanov, 2024). *Lyubomira Gancheva* studied *challenges in achieving the objectives of the Green Deal in the EU and Bulgaria and the opportunities that modern technologies provide to preserve the competitiveness of the economy.* She indicated that the EU Industrial Plan for the Green Deal together with the adopted higher target of reducing emissions are a big topic not only for the energy sector, but also for the business and for the general economic development of Bulgaria which faces many challenges under the transformation to low-carbon emissions. Both the EU and Bulgaria are threatened with a loss of competitiveness but the Green Deal should be seen not as a threat, but as an opportunity for our country being a catalyst for accelerated economic growth and technological improvement. There are several proven technologies for carbon capture and recovery, thanks to which the local specifics of the industry in our country, the security of the energy system and the possibility of sufficient flexibility in decision-making will also be considered when achieving the European climate goals. Through them, the Bulgarian economy can not only maintain its competitiveness, but also increase it, especially in the part of implementing innovative business models and technological transformation (Gancheva, 2024).

The second thematic area was refered to ***new challenges facing the labour market and the necessary changes in social security and social protection***. *Iskra Beleva* discussed *the main challenges to the structure of employment by sectors and branches of the economy, resulting from the transition to the green and digital transformation of the economy*. She underlined that the expected structural transformations will impose significant changes in the employment distribution by main sectors and branches and new requirements for the labour force skills to participate effectively in this process. The author tried to answer questions like to what extent the Bulgarian economy is ready for these changes and what policies and instruments will be implemented (Beleva, 2024). The focus of the presentation by *Pobeda Loukanova* was on *green jobs and their requirements for changes in vocational education and training.* The main challenges in the preparation of the labour force in connection with the forthcoming deployment of the green transition in Bulgaria were discussed (Loukanova, 2024). *The educational structure of the population in Bulgaria and the EU in the context of* *the transition to a green economy* was an object of the presentation by *Kristina Stefanova.* In it, she stated that the education system is an important part of the toolkit for meeting the challenges of the transition to a green economy and the long-term labour market changes that will result. An education system providing a higher overall share of the population with secondary vocational and tertiary education can be an asset in the transition to a green economy and in reducing youth unemployment (Stefanova, 2024). *Silvia Toneva* continued with the analysis of the *dual vet system and the transition to a green economy*. An overview of the new requirements for the implementation of dual training in the transition to a green economy was presented and the conclusion was made that the widespread implementation of this specific form of training can contribute to the development of the necessary sustainability-related competencies. The expectations of education and training systems, their ability to prepare learners for the future and their crucial role in the green transition were examined (Toneva, 2024). *Yordan Hristoskov* examined *the minimum monthly incomes from social security and social assistance, their relevance and synchronicity in dynamics in the context of the Recovery and resilience plan as well as their role in reducing poverty and inequality*. Based on an empirical analysis, it was concluded that the minimum income policy lacks rules for measuring these incomes with the poverty line and the minimum wage. There is also no practice of annual indexation of these incomes, which is why their purchasing power decreases. The author recommended mechanisms for tying the minimum income from social security to the poverty line and the minimum wage, and for the income from social assistance – only to the poverty line. It was proposed to use the Swiss rule for the annual update of all minimum incomes. Decisions were also made to limit access to social benefits to persons who are not really in need. To achieve a greater effect of social benefits, it was recommended to provide them in kind or through vouchers for families where women and children are at risk of violence (Hristoskov, 2024). The purpose of the presentation by *Georgi Shopov* and *Teodora Peneva* was to evaluate *mechanisms for the social protection of households in the conditions of energy transition*. The research tasks were to prepare a synthesized analytical review of the programs for financial support for energy renovation of residential buildings, to provide compensations in a liberalized electricity market and to provide targeted subsidies for heating in the winter season, on the one hand, and to offer assessments and recommendations to optimize social protection mechanisms in the conditions of energy transition, on the other (Shopov and Peneva, 2024).

The ensuing discussion turned to the issues raised by the speakers related to costs-benefits of the green transition in Bulgaria; the need for specialised national statistical information in this area; the impact of wars on ecology and green transition policies.

EUROPEAN PERSPECTIVES AND FINANCING THE GREEN TRANSITION

The presentations in the second-panel session mainly concerned three groups of questions.

Firstly, a series of issues related to the ***implementation of the European Green Deal*** were argued. *Emil Panusheff* examined *the challenges for the Bulgarian economy to achieve the European green goals in the conditions of global fragmentation.* He argued that adopting the approach to achieve climate neutrality and support for the technological renewal of European industry is a significant challenge for Bulgaria's participation in the integration mechanism.

The openness of the Bulgarian economy is affected by global fragmentation and poses significant challenges for participation in European global value chains. The pursuit of "strategic autonomy" in the common trade policy of the European Union gives rise to measures with protectionist solutions, which are extended by the European Economic Security Strategy. At the same time, the green transition conditions the application of instruments of a non-market nature, which reinforces the need for enhanced cooperation between countries, following the principles of the World Trade Organisation (Panusheff, 2024). *Eduard Marinov* and *Milena Ivanova* emphasised on *the connection of the European Green Pact with the Global sustainability initiative.* Their presentation explored the intricate interplay between the European Green Deal (EGD) and the United Nations' Sustainable Development Goals (SDGs). The EGD, a transformative initiative by the EU, aims to propel Europe towards climate neutrality while fostering economic growth. Aligned with a significant portion of the SDGs, the EGD represents a dynamic force for global leadership in addressing climate change. The connections, synergies, and disparities between these two programs, shedding light on their impact on global sustainable development were examined. Through this analysis, the potential of the European Green Deal and the SDGs to chart a course for a more sustainable and interconnected world was revealed (Marinov and Ivanova, 2024). *Simeon Stoilov* analysed *projected economic burdens for the private sector at the implementation of the green transition*. The study aimed to analyze the impact on the private sector and individual commercial companies in the member states, as a result of the implementation of the EU Green Deal. The author stated that an overview of the activation processes, the scale and the impact of all components of the transition to a green economy, through an assessment of the economic effect on individual companies is a necessary approach to prepare the process and ensure an effective and smooth operational transition to the new requirements set and the new economic framework of the green transition. In parallel, the trends, requirements and expected economic structure of the rest of the world market were considered, given the looming irreversible changes in the developed markets worldwide (Stoilov, 2024). *Annie Dimitrova* and *Atanas Pavlov* investigated *migration in the green transition context.* They pointed out that the European Green Deal does not explicitly address the issues related to inclusion and integration of migrants, but the interrelationship between climate change and human mobility is undoubtedly critical to achieving the goals of the green transition. Such a thesis foregrounds the questions of whether and how human mobility and labour migration can contribute to the transition to a low-carbon, ecological and sustainable future. The main objective of their study was to analyse the potential of the migrants in the context of achieving green transition and developing green skills, as well as to identify good examples for supporting the achievement of environmental goals (Dimitrova and Pavlov, 2024).

The next thematic area was devoted to the ***European green industrial policy***. *Iskra Christova-Balkanska* discussed *the EU's new industrial policy and the member states from Central and Eastern Europe.* She noted that in the post-crisis post-pandemic conditions in the EU, a new industrial policy is consistently being developed, aimed at overcoming the decrease in the importance of industry in the countries of Western Europe and building strategies for the development of environmentally friendly policies, energy-saving innovative policies and digitalisation of the economy in Europe. In this context, the focus of the study was on the specialisation of industrial production in the Member States of Central and Eastern

Europe and how these countries are adapting to the development of innovative industrial sectors within the EU (Christova-Balkanska, 2024). *Elena Spasova* conducted a *comparative analysis of the green industrial policies in the automotive sectors of the EU and the US focusing on electric vehicles* (EVs). Her study explored key initiatives, regulations, and incentives. Specific criteria for the comparative analysis were outlined and the latest data on the scope and application of the respective measures were provided (Spasova, 2024).

The last round of problems discussed the ***financial aspects of the green transition***. *Iana Paliova* presented *public finance reform in the green transformation of the EU.* The study explored green public finances with European financing as a key element of governments' integrated strategies for the green transition and combating climate change. Public finance reforms in the EU were analysed to enable nationally determined contributions, arising from the 2015 Paris Agreement and the Green Deal's initiatives of the EU, to be translated into detailed government policies. Similarly, approaches were proposed in the medium-term budgetary planning and annual budget allocation decisions to reflect countries' development priorities related to the climate dimensions of the Sustainable Development Goals. New approaches to public financial management in the EU Member States were explored to be supported by robust processes and frameworks for the effective implementation of green transition policies (Paliova, 2024). *Svetlana Aleksandrova-Zlatanska* examined *the green transformation as a driving force for making the capital markets green*. She stated that achieving green transformation goals by 2050 would require significant amounts of investment. These investments can be provided by the capital markets; this expands traditional finance with new ones such as green bonds. The need for investment is expanding traditional finance with new ones like green bonds. The study provided a survey, focusing on green bonds market development, green loans and green securitisation. It showed that the green bonds issues currently constitute a smaller share in comparison to the traditional bonds in the international capital markets. International capital market dynamics show an increase in both supply and demand for green bonds. Bulgaria is one of those countries that do not mobilise private resources for green activities from the capital market (Aleksandrova-Zlatanska, 2024). *Virginia Zhelyazkova* presented the issue of the *exposure to climate transition risks – insights from the Bulgarian banking system in perspective*. She argued that climate change is currently an undisputed phenomenon of anthropogenic nature. Globally, there is a consensus on the need to undertake and carry out a systematic policy to limit their negative consequences. This is evident from the decisions contained in the Paris Agreement, as well as in the policies of the EU and, in recent months, of the United States. Global uncertainty, which has grown enormously as a result of the COVID-19 pandemic and then the war in Ukraine and the subsequent geopolitical tensions, are intensifying the global recession and raising the question of the need to modify the agenda on which to implement climate policies. The author provided her own perspective on this important issue based on an analysis of the exposure of the Bulgarian banking system to climate transition risks for the period of 2009-2022 (Zhelyazkova, 2024). *Sonya Georgieva* and *Petya Branzova* analysed *sources of funding for green deal projects*. They indicated that financing projects related to the European Green Deal could be provided through various sources and financial mechanisms. The European Green Deal is an initiative of the European Commission that aims to achieve climate neutrality and support sustainability in the EU. Therefore, the underlying aim of their study was to outline some of how projects can be funded under the

Green Deal (Georgieva and Branzova, 2024). *Liliya Rangelova* discussed *accounting issues and challenges in relation to the new Environmental, Social and Governance (ESG) risks disclosure requirements by banks*. According to her in today's economic environment, ESG is at the heart of sustainable and responsible investing and will be critical to governance in the future. Banks have an important role and responsibilities, because they can channel investments to more sustainable technologies and businesses, finance growth in a sustainable way over the long term and contribute to the creation of a low-carbon, climate-resilient and circular economy. The purpose of her presentation was to provide a brief overview of the new regulations in the area of non-financial reporting and the disclosure of information related to environmental, social and governance risks by banks. In it, she argued that gaps in the reporting of these risks could become a real risk to the financial system if banks do not integrate them into their business model, strategy and governance as soon as possible (Rangelova, 2024).

The main theses advocated in the following discussions were: impact assessment of global green transition initiatives shows unsatisfactory progress; the lack of common understanding by regional powers in the world cannot lead to a common policy; the question of economic security in the conditions of global uncertainty; pursued policies as green are often not so in practice and are sometimes at odds with the understanding of effective economic development.

IMPACTS OF THE TRANSITION TO A GREEN ECONOMY ON THE REGIONAL AND SECTORAL ECONOMY

The participants in this panel treated highly topical issues related to the problems in individual economic sectors and regions with an emphasis on the green transition and the reforms related to it from the perspective of sustainable development.

The session began with ***analyses of the development of a number of economic sectors in the country***. *Stoyan Totev presented changes in the industry branch structure and their impact on its energy intensity*. A general picture of the changes in the indicators characterizing the energy consumption of the industry of the EU countries was demonstrated, with an emphasis on those in Bulgaria. The change in the energy efficiency of the manufacturing industry because of the alteration of the participation of energy-intensive branches was investigated. An analysis has been carried out of the economic reflection of the differences in the energy intensity of the manufacturing industry for selected European countries. The study, along with taking into account the influence of other factors such as comparative advantages, allowed outlining the possibilities for favourable changes in the branch structure of the manufacturing industry leading to an increase in its energy efficiency (Totev, 2024). *Anton Ivanov* settled on *achieving national priorities in the implementation of the green transition in Bulgaria's electricity sector.* He underlined that electricity has a major role to play in decarbonising the economy by 2030. The sector can maintain a leading role in the Balkans by developing a mix of renewable, hydro and nuclear projects. Financing conditions and the market environment favour renewable energy projects, putting the sustainability of the electricity system at risk. Strategic decisions require the explicit involvement of the State to guarantee the electricity balance (Ivanov, 2024). *Dimitar Sabev* discussed the *European experience and Bulgarian perspectives of the coal regions.* He stated that the share of solid fossil fuels in the energy balance of the EU has sharply declined since 2015, yet even before the Paris Agreement, several European regions had abandoned coal mining for economic reasons. The imminent energy transformation in Bulgaria often faces opposition with the argument that the social price for the coal regions will be unbearable. So the experience of certain European areas abandoning coal mining fully or partially, with a wrapping up of recommendable approaches for the affected Bulgarian coal regions was examined (Sabev, 2024). *Plamena Yovchevska* considered the *challenges and risks facing Bulgarian agriculture in the transition to the green economy.* She emphasised that after the macro-social transformation, complex processes with ambiguous social and economic results took place in Bulgarian agriculture as well as the development of the primary sector is strongly influenced by the state and development of land relations. Trends with complex connotations and ambiguous economic results are registered in social relations arising in connection with the use of land. The "green policy" has a significant impact on the economic use of land as the main production factor. The transition to a green economy highlights a number of challenges and outlines certain impacts with the rank of risks for Bulgarian agriculture (Yovchevska, 2024). *Ognian Boyukliev* continued with the topic related to *the green transition and the food production and trade sectors in Bulgaria.* He said that food security in harmony with nature is a central goal of the Green Transition that gathers pace among the European Union member states. In this context, calculations and estimations of the expected price changes in the food production and trade sectors resulting from the implementation of the Green Transition goals and technologies in Bulgaria were presented. It was proved that dedicated public economic policies in food production and trade sectors are of central importance (Boyukliev, 2024).

Bioeconomy and circular economy were the subject of two presentations. *Maria Kotseva-Tikova* and *Milkana Mochurova-Georgieva* treated *bioeconomy and sustainable development*. They pointed out that the move towards sustainable approaches to the development of modern society, which cover the economy, the environment and the society requires looking for indicators to assess and measure the state each year and to show the direction of change. The global sustainable goals are wide-ranging and sometimes contradictory, requiring balancing between them. Various policies aim at realising improvements in individual objectives. The contribution of the bioeconomy to the realisation of some of the goals was assessed: Goal 2 Zero hunger and Goal 12 Responsible consumption and production. The channels for influencing them and the results of support for the development of the bioeconomy have been identified (Kotseva-Tikova and Mochurova-Georgieva, 2024). *Yana Kirilova* and *Dochka Velkova* considered *bio-waste management in Bulgaria in the circular economy transition context*. According to their statement, bio-waste landfilling poses social, economic and environmental consequences. Food waste forms 60% of bio-waste and its management is considered a global challenge. Assessment of the available data on bio-waste and the bio-waste treatment capacity in Bulgaria in the context of these global challenges was presented (Kirilova and Velkova, 2024).

The experience of EU countries in planning and implementing the principles of green restoration of regions and the possibilities of its realization in Ukraine was in the focus of the study by *Vira Lebedchenko*. The priorities of development in accordance with international obligations, with the goals and limitations systematically established at the national level, according to which Ukraine should develop for green reconstruction, and which should be embodied in regional development plans and serve as a framework for planning the development of local communities were highlighted. It has been found that at the regional level, it is necessary to develop clear reconstruction plans based on the principles of sustainable development. They should be based on national-level recommendations and take into account local conditions and needs. Such regional development plans require awareness of the economic, social and environmental challenges of the regions, the solution to which should be based on the priority of sustainable long-term use and preservation of local resources (Lebedchenko, 2024).

The panel concluded with *Yani Dimitrov's* presentation of several ***municipal development plans and the needs of local communities***. The aim of his study was to assess the degree of compliance of the municipal development plans' goals, priorities and measures with the needs of local communities. He underlined that in recent years, there has been an irrational, accelerated absorption of European funds by the municipalities and the implementation of projects of all kinds without a detailed study of the need and rationale for their implementation, at the expense of municipal budgets. As a result of the study, the quantitative discrepancy based on the performance ratio corresponding to the performance evaluation has been demonstrated. The results for the various municipalities are indicative from the point of view that they planned poorly, did not follow the real needs of the population, and were guided by the funding that the funds provided (Dimitrov, 2024).

THE TRANSITION TO A GREEN ECONOMY AND COMPANIES

The last panel session was dedicated to various problems and challenges facing Bulgarian companies due to the green transition.

The first one concerned issues of ***management and strategies of the companies*** in the new conditions. *Adelina Milanova* and *Pavlinka Naydenova* presented the *organisational capacity for transition to the green economy*. Their purpose was to highlight and formulate organisational prerequisites in a social and cultural aspect, necessary for building a modern business attitude and behaviour, oriented towards a fair transition of companies to a green economy, to a conscious and responsible ecological change in their activity. They emphasised the need to focus on the identification of long-term trends and perspectives for the ecologically functioning and communication of the companies in the respective ecosystem. To guarantee this type of longevity, it is necessary to have a methodically and consistently built own potential and capacity to change, whose foundations should logically be sought in the creation of educated and modern human capital (Milanova and Naydenova, 2024). *Plamen Tchipev* has considered a *theory of property rights, firms and the green transition* aiming to look at how some of the goals of the green transition from the perspective of economic theory are being implemented. Of particular interest was to what extent the Emissions Trading Scheme (ETS) fits into the theoretical framework of requirements of some of the most important theories governing property rights, their infringements, and any compensation to be paid by the perpetrators to the sufferers. Based on a theoretical model, the characteristics that such a tool must possess in order to achieve an effective result were highlighted, and then their presence in the ETS was evaluated (Tchipev, 2024). *Radostina*

Bakardjieva treated *environmental taxonomy as an instrument of the green transformation of companies*. Theoretical and institutional approaches to the disclosure of environmental information on sustainability were systematised. Environmental taxonomy was presented as the core of the Green Deal and the foundation of the disclosure of the sustainability of the firms. The main stages and directions of ecological taxonomy have been analysed. Up-to-date statistical information on the ecological results of Bulgarian firms in a sectoral dimension was presented and recommendations to businesses and institutions have been formulated (Bakardjieva, 2024). *Mariya Ivanova* analysed the issue of *employer branding as a strategic people management approach to a green economy*. She emphasised that employer brand management is closely related to organisational change management strategies. This correlation requires a structured approach to employer brand change and development, rather than random one-off activities and initiatives. The methodological toolkit of the study included surveys and questionnaires to measure employee satisfaction, analysis of managerial abilities and the influence of the specifics of the business context. The author proposed a different from the established approach to creating an employer brand management strategy – it starts with building a new organisational culture oriented to the ideas of a green economy and ends with appropriate marketing activities (Ivanova, 2024).

The challenges of the green transition for ***small and medium-sized enterprises*** (SMEs) were within the scope of the next thematic area. *Milena Angelova* discussed *the green transition effects on SMEs in view of their access to finance and administrative burdens*. It was underlined that the green transition requires adopting a completely new approach to making business – motivated by the market requirements, but at the same time – by the unprecedented by its scope and number of acts regulatory framework that requires from businesses to disclose wide-ranging and diverse information. Although initially left out of the scope of these regulations, SMEs still must comply with them – if are part of the value chains and if searching for funding. The risks in case of failure are enormous, including loss of markets and impeded access to finance, while their resources in terms of funds, administration, time and human resources, are growingly scarce, exhausted by the multiple recent crises. These challenges and aims at identifying the problem areas with the view to suggest possible strategies and solutions for coping with them were studied (Angelova, 2024). *Yuliyan Mollov* and *Aygun Erturk-Mincheva* examined *the role of investments in technological modernization for the transition of SMEs into a green and circular economy*. Their study focused on the realised investments under the technological modernization procedure under the Recovery and Resilience Plan in the South-Central Planning Region and their role in orienting the activities of SMEs towards the green transition and achieving corporate sustainability. An empirical study was conducted to assess the impact of the Recovery and Resilience Plan on the transition of enterprises in Bulgaria into a green and circular economy (Mollov and Erturk-Mincheva, 2024).

In the last thematic area, some problems of the ***companies in individual sectors*** were touched upon. *Spartak Keremidchiev* substantiated the *application of circular economy principles in the use of water resources*. He informed that in March 2020, the EC adopted the new circular economy action plan as one of the main building blocks of the European Green Deal. The EU's transition to a circular economy is expected to reduce pressure on natural resources and create sustainable growth and jobs in EU countries. Water is at the heart of sustainable development and is critical to social and economic development, energy and food production, as well as sustainable ecosystems and the benefits they bring to people. The recycling and reuse of water as the main principles of the circular economy were the focus of his study. The author dealt with the current situation of applying the circular economy concept in the water sector of Bulgaria, Romania, Slovenia and Hungary. His aim was not only to present the current state, but also to reveal what the main deficits are and how they can be overcome through future projects and programs. The study revealed a weak application of the circular economy concept in the surveyed countries. It was concluded that the implementation of programs for energy efficiency and reduction of water losses, the recycling of wastewater, the storage of rainwater and its use for irrigation and the use of sediments in agriculture and construction are initiatives in the direction of applying the principles of the circular economy, which should be realised (Keremidchiev, 2024). *Katerina Vojcheska-Nikodinoska* presented *opportunities and challenges for shared investment companies in photovoltaic power plants*. She characterised the nature and potential of renewable electricity source projects in the context of the economic situation in Bulgaria and the world. The financial benefits of an investment through a newly created company offering services related to remote own production of electrical energy through photovoltaic power plants have been analysed. The financial effect of the different scenarios for the realization of the produced energy was substantiated: sale of all energy at market prices and use of the produced energy. Regarding the financial effect on customers, it was said that regardless of whether they invest only in generation or also in storage of the electricity, as well as the way in which it will be realized, they will receive a long-term and sustainable return. Moreover, all this is generated in an environmentally friendly and sustainable way, contributing to the achievement of the "green" goals and the commitments made by the state in connection with the sustainable development of the economy and the decentralization of the electricity system (Vojcheska-Nikodinoska, 2024). *Shteryo Nozharov* and *Petya Koralova-Nozharova* focused on the *economic aspects of climate transformation of the tourism sector in Bulgaria*. They noted that climate change is an exogenous risk for the tourism sector and its nature is related to the expected long-term irreversibility, which exists, concerning the economic aspects of this phenomenon. Bulgaria is a region with high vulnerability to climate change: increased temperatures and extreme rainfall, droughts, and intense floods. In this regard, vulnerability and adaptation turn into an important issue in assessing the extent to which the tourism sector has the potential to cope with the risks and threats posed by climate change. The purpose of the presentation was to identify the opportunities for efficient climate transformation of the tourism sector in Bulgaria (Nozharov and Koralova-Nozharova, 2024).

The participants and guests of the conference appreciated the high scientific level and the exceptional relevance and significance of the presented theses and research results, as well as scientifically based and reasoned methodological and practical proposals for improving policies and measures for the implementation of the green transition and for evaluating its effects on the economy, the population and society as a whole.

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ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ
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THE ROLE OF INSTITUTIONS IN ENERGY TRANSITION AND ECONOMIC GROWTH IN WEST BALKAN COUNTRIES[4]

This article investigates the impact of institutional quality on accelerating the energy transition in the Western Balkans. The region's heavy dependence on energy means the transition to cleaner energy sources will affect GDP growth. However, improving institutional quality can speed up the process by increasing energy efficiency, reducing pollution, and decreasing reliance on energy imports. The Western Balkan countries must adopt the EU's goal of energy transition and reducing CO2 emissions as part of their path to joining the European Union. However, institutional factors such as corruption, weak governance, political instability, and the rule of law have hindered individual countries' progress. This study used data from the World Development Indicator and the International Energy Agency from 2005 to 2020 to investigate the relationship between institutions, energy transition, and economic growth in the Western Balkans. The study employed four econometric models using random and fixed effects regression methods. The results revealed a positive and statistically significant impact from CO2 emissions, governance effectiveness, final consumption expenditures, and trade openness in total energy consumption. Conversely, GDP per capita, the deterioration of controlling corruption and political stability have a negative impact on total energy consumption. In contrast, control of corruption significantly impacts renewable energy growth. The findings also revealed that, even though the increase in total energy consumption raises GDP, it negatively impacts GDP per capita due to energy inefficiency and a large portion of the energy expenses from individual incomes. In contrast, renewable energy consumption positively impacts GDP and GDP per capita.

Keywords: Economic Growth; Institutions; Energy Transition; Renewable energy; CO2
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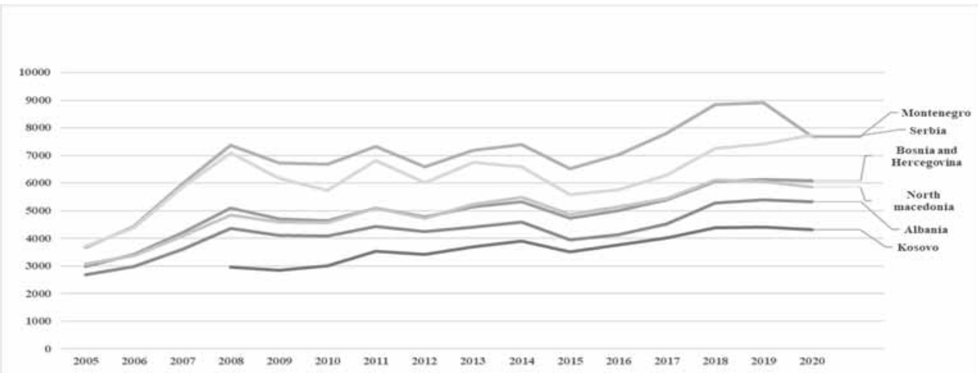
1. Introduction

The aim of this study is to find out how the quality of institutions affects the rate of energy shift and economic growth in Western Balkan countries, which covers a period of 16 years, from 2005 to 2020. This period corresponds to the signing in October 2005 of the Energy Community Treaty, whereby the states of the Western Balkans become contracting parties with the European Union along with other countries of the Black Sea region and Southeast Europe. This treaty aimed to create an integrated energy market, with clear objectives for the parties. They will benefit from the implementation of unique EU energy market rules and encouraging investments in the production of energy (European Union, 2006).

The epicentre of this study is the Western Balkans region, which is a geopolitical definition of European policymakers, to identify the countries of the Southeast European region with a socialist past that have not yet completed the EU integration process. This region is composed of six countries: Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia, and Serbia (European Union, 2023). The economies in this area are very dependent on energy use, especially fossil fuels. Given that lately has been an increasing interest of economists and policymakers on the energy transition, which involves shifting from fossil fuel-based energy production and consumption to renewable sources to mitigate the socioeconomic and environmental impact of carbon emissions. This transition has far-reaching effects on the climate, economic growth, and development (Sovacool, 2021; Siciliano et al., 2021). Since 2009, it passed a directive to help the process, and the European Union has been at the forefront of this incentive. However, during this period looks like formal and informal institutions in the area of West Balkans, have resisted this change.

The Western Balkans (WB) countries have experienced significant economic growth over the past 15 years. Figure 1 below illustrates trends in per capita income during the period of study, per capita income has a continuously increasing trend, with Montenegro having the highest and Kosovo having the lowest GDP per capita.

Figure 1. GDP per capita 2005-2020 by country

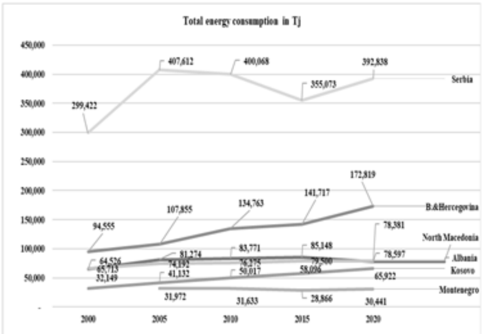


Source: WDI (2023).

However, despite this positiv trend, they remain Europe's weakest region, with a population of 17.5 million and a GDP per capita of $5,189 (World Bank, 2023).

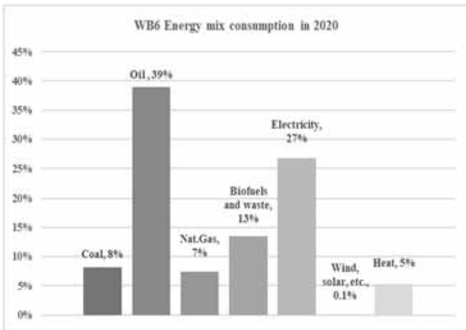
The region is heavily dependent on imports to fulfil their needs for energy. It consumes 818,998 Terajoules of energy, with an average of only 30% coming from renewable sources. While Albania has the highest renewable energy consumption at 40.2%, North Macedonia has the lowest at 16.3% compared to its total energy consumption (International Energy Agency, 2023).

Figure 2. Energy consumption based on its source



Source: IEA (2023).

Figure 3. WB6 energy consumption source



Source: IEA (2023).

As seen in Figure 2 Serbia leads in total energy consumption, while Montenegro and Kosovo are the last based on their size of economy and population which is positively linked to energy consumption. The total energy consumption of these countries, based on the source of their production (no matter if imported or produced internally) is compounded by oil, electricity, biofuels and waste, coal, wind, water and heat. By examining the country's energy mix graphs as total in Fig. 3. above and detailed in the annexe, we may conclude the predominant reliance on oil with around 39% of total energy consumption, followed by electricity at 27%, and then smaller contributions from biofuels and waste with 13%, coal 8%, heat 5%. The worst development is seen in wind and solar energy by 2020. Bosnia and Herzegovina uniquely spiked in biofuel usage from 5% to 30% between 2010 and 2020, while in other countries of WB is not seen any significant change during this period (see figures in annexe).

As the Western Balkan countries move towards accession to the European Union, they must undertake significant structural changes to their political, economic, and institutional systems (Ziberi, Zylfiu-Alili, 2021; Dabrowski, Myachenkova, 2018). One key area of focus for these changes is environmental pollution, particularly in light of commitments made under international agreements such as the Kyoto Protocol of 1997 and the Paris Agreement of 2015. Following these accords, the EU has set ambitious goals to reduce CO_2 emissions by 55% by 2030 compared to 1990 (European Commission, 2021), with member states and prospective members expected to align their energy policies accordingly (Topolewski, 2021). Through the enforcement of which, it seeks to increase the production and consumption of renewable energies, reduce CO2 emissions, and lessen reliance on energy imports (European Union, 2009). To this end, the directive aims to improve energy efficiency, where countries still need to complete economic reforms that may face challenges that negatively impact economic growth (Carvalho, 2018).

Despite the imperative to transition towards renewable energy, some resistance to change has been attributed mainly to institutional factors (Stefes & Hager, 2020). The weak institutions, high informality, low governance quality, political instability, high corruption, inefficiency in resource usage and distribution and insufficient investments in renewable energy (RE) technology, are a bunch of factors that keep the slow pace of energy transition, and contribute to the issue of energy scarcity in the Western Balkans (Vasquez et al., 2018; Ziberi, Alili, 2021; Williams, Gashi, 2022).

To provide a comparison of the role of institutions, the paper presents a comparison of four institutional indicators in the Western Balkan countries (see figures in annexes). The government effectiveness index reveals differing trends across countries: Albania and Serbia exhibit more positive trends in government effectiveness, whereas Bosnia and Herzegovina and Montenegro display negative trends; the Republic of Kosovo maintains a government effectiveness score of around -0.5, indicating no clear positive or negative trend.

The results presented in Figure 11 in the annex, indicate that Kosovo and Montenegro are experiencing positive trends in the fight against corruption, whereas Macedonia and Serbia are seeing negative trends. This factor correlates with the political stability in these nations; the data underscores a history of political instability in the involved Western Balkan countries throughout the 2005-2020 research period.

The final indicator, the rule of law index, demonstrates that all the Western Balkan countries have shown positive trends over the research period, according to the data involved.

As evidenced by data for Kosovo, Albania, Macedonia, and Montenegro, the region is a net importer of energy, resulting from countries' inability to meet their domestic demand. Also, their internal part of production heavily relies on their natural resources, mainly fossil fuels. Moreover, the region's energy sector could be more efficient, leading to substantial losses or needing better management. Only for heating in buildings, possible savings are estimated at €805 million up to 2020 (Vasquez et al., 2018), hindering potential economic growth (Rajbhandari, Zhang, 2017). In addition, the regions experience energy poverty due to a significant portion of peoples' incomes going to energy consumption for heating (United Nations, 2021).

The intertwined dynamics of economic expansion and energy use are the primary subjects in which focuses this article. It studies how multiple facets of institutions affect the rate of change in the energy sector and, in turn, the rate of economic growth. The study looks more closely at the links between green energy usage and qualitative institutions with the growth of a region's gross domestic product. The use of fossil fuels is considered in the context of its nature as a double-edged sword. While the use of energy is necessary for economic performance, at the same time known for its harmful impact on human health and the environment. Thus, this discourse contends that nations expediting their shift towards cleaner energy paradigms are poised to witness sustainable economic advancement. The WB countries need to undergo an energy transition that balances a delicate trade-off that exists between reducing carbon dioxide emissions through RE investments and meeting the domestic energy needs that support economic growth. Achieving this balance would positively impact the economic growth prospects of the WB countries.

1.2. Importance of energy transition

The term "energy transition" refers to the shift in energy production from fossil-based to renewable energy sources due to the Kyoto and the Paris Climate Agreements. This transition aims to mitigate the harmful effects of air pollution and global climate change. According to the World Energy Outlook (International Energy Agency, 2022), air pollution is responsible for a significant number of daily deaths worldwide, estimated at 19,000. In the WB region, cities experience pollution levels that exceed the European Union's threshold by five times, mainly due to thermal power stations. Likewise, the economic effects of pollution include increased healthcare expenditures and decreased work performance (United Nations, 2021).

The War in Ukraine, the COVID-19 pandemic and other crises have impeded the energy transition and economic growth progress. The disruption in energy supply caused by crises adversely affects the overall production level (Stern, 2000). Moreover, government efforts to stimulate economic growth and employment inevitably lead to increased energy consumption, as found by Luqman et al. (2019), Sadorsky (2009), and Amri (2017). Thus, economic growth closely links to the challenge of reducing CO2 emissions through the energy transition. The 2021 data confirms the above situation, where the total world CO2 emission increased by 5.6% as an attempt to recover economic growth harmed by the Pandemic (International Energy Agency, 2022).

Notwithstanding the obstacles posed by recent events, the transition towards renewable energy constitutes a crucial step towards achieving sustainable energy usage and curbing carbon dioxide emissions. Decarbonisation necessitates a substantive increase in renewable energy production and consumption and a corresponding decrease in energy usage through efficiency enhancements. However, as posited by the World Bank (2022), while the transportation sector spearheads this transition, the electricity and heat sectors must catch up. Such a gap implies that developing economies, which rely heavily on energy, are increasingly vulnerable to energy shocks, as Asafu-Adjaye (2000) estimates.

2. Literature Review

2.1. Energy and growth

The endogenous growth theory, initially proposed by Romer (1986) and later expanded upon by Lucas (1988), provides a lens through which we can analyse the complex relationships between energy consumption, institutional factors, and economic growth. The theory suggests that factors such as a country's capacity to innovate, the quality of its human capital, and the adoption of new technologies (ex: renewable energy sources) are crucial to economic growth. In this context, energy is a significant factor in the production process, which affects the final product's growth (Stern, Cleveland, 2004). The literature thoroughly examines the link between energy consumption and economic growth, although there is no agreement on the direction of the impact. The length of the study, the methods used, the country's characteristics, and its growth level can cause diversity in research results. While the majority of research shows an encouraging link and co-integration between energy consumption and economic growth (Stern, 2000; Asafu-Adjaye, 2000; Kalyoncu et al., 2013; Kula, 2014; Carfora et al., 2019), they differ in their findings about factors of causality and what are primary causes of it. For instance, Stern (2000) highlights the causative link between energy and economic development in the United States, while Zhang and Cheng (2009) demonstrate unidirectional Granger causation between China's GDP, energy consumption, and CO2 emissions. In contrast, Jayasinghe and Selvanathan (2021) show that GDP and tourism-related energy consumption positively influence CO2 emissions, suggesting a more complex relationship. In a study of 38 European countries, Topolewski (2021) found that production increases energy consumption but does not have a long-term effect on GDP, which opposes the idea of a direct connection between energy use and economic growth.

Carfora et al. (2019) discovered no causal relationship between energy, income, and prices. In contrast, Odhiambo (2021) asserts that Botswana's GDP is not dependent on energy consumption and finds no causal relationship, advance illustrating the contrasting results in the literature. On the other hand, the literature offers consistent findings on renewable energy's positive relationship with economic growth (Kasperowicz et al., 2020; Apergis and Payne, 2012). Specifically, it positively affects GDP by increasing capital accumulation and employment, but also reducing gas emissions in the environment and replacing exhaustible energy sources (Stern, 2000; Kalyoncu et al.,2013; Alper and Oguz, 2016),

However, studies such as Li and Leung (2021) and Szustak et al. (2022) indicate that renewable energy and other energy sources are substitutable, and merely just a change in the energy source does not impact GDP. These studies suggest that the positive effects of increased renewables on economic growth are possible only if they increase the overall energy supply. Related to this, some researchers found that countries could invest in renewable energy technologies by increasing growth, with a slight change in per capita GDP significantly impacting renewable energy consumption (Sadorsky, 2009; Kula, 2014).

Nonetheless, the literature has confirmed some positive effects of RE in GDP. Energy-dependent countries may decrease energy imports by increasing RE production (Can, Korkmaz, 2019; Luqman et al., 2019; Sadorsky, 2009). The transition to renewable energy is necessary to reduce CO2 emissions and provide sustainable energy for economic growth (Allen et al., 2021).

As a result, Csereklyei et al. (2016) suggest that while aiming for energy transition and sustainable growth, policies prioritising increasing economic growth have a more significant impact than those focused only on increasing renewable energy consumption, as they can improve government capacities to increase energy efficiency. Furthermore, as countries become wealthier, the total productivity of energy use and its overall intensity decrease by increasing energy consumption, reflecting the non-linear relationship between energy consumption and economic growth (Nomura, 2022). Relying on the marginal effects of energy consumption, Apergis and Payne (2010) support hypotheses and conservation policies, which, together with qualitative institutions can increase the efficiency of energy use by improving the level of productivity (Pejovic et al., 2021).

In conclusion, whereas conventional energy sources show mixed results in their association with economic growth, renewable energy consistently positively influences GDP, employment, and capital accumulation. However, it is crucial to consider each country's unique circumstances and policy frameworks as they can lead to varying outcomes, emphasizing the need for a more nuanced examination of these relationships.

Besides that, the effort to address multiple objectives of the energy transition, including energy security, reduced energy consumption, and environmentally friendly energy use, may be achievable if strong institutional governance (Vasquez et al., 2018; Saidi et al. 2020; International Energy Agency, 2022) supports them. Nevertheless, the relationship between energy consumption and economic development continues to be an issue of ongoing debate.

2.2. Institutions and energy transition in economic growth

The linkage between economic performance, governance quality, corruption and other institutional factors has been extensively studied in the academic field, considering them as endogenous growth factors. Notably, countries characterized by sluggish economic growth, weak governance, and poor rule of law are particularly subject to high levels of corruption (Sala-I-Martin and Subramanian, 2003; Harford and Klein, 2005; Evrensel, 2010; Danish and Ulucak, 2020). This issue further exacerbates economic performance, forming a vicious cycle of underdevelopment.

The situation is even more complex in nations undergoing economic transition. These countries also frequently struggle with high corruption levels and weak governance, further hampering their growth (Redek, Sušjan, 2005; Efendic et al., 2011; Efendic, Pugh, 2015). A crucial aspect that comes into play in these settings are institutions, whose importance is highlighted in the context of energy problems, also due to the impossibility of energy conservation. The increase in political interest as price changes and the level of energy supply has a strong social impact (Hausman, Neufeld, 2011). Consequently, institutional variables play a crucial role in determining energy consumption patterns and can affect economic growth via the rules and restrictions they impose. Countries with advanced democratic institutions are likelier to establish and execute appropriate policies than those with weaker institutions and less democracy (Bayer, Urpelainen, 2016). A favourable institutional environment also fosters the accumulation of physical and human capital (North, Thomas, 1973; North, 1981), directly impacting the energy transition trajectory (Saidi et al., 2020). Moreover, corruption levels and institutional stability directly influence technological change and investment (Acemoglu, Robinson, 2012). The absence of such stability raises transaction costs, fuels informal interactions, and undermines the rule of law (North, 1990; Campos, Nugent, 1999; Hartmann, Spruk, 2021).

Nonetheless, it is essential to acknowledge that not all institutional factors exert equal influence. Amri (2017) and Li et al. (2020) emphasize that trade and economic openness can favour the transition to renewable energy, facilitating technological transfer. Montes and Paschoal (2016) point out that trade openness has beneficial consequences for government effectiveness and the rule of law, yet corruption can counteract these advantages. Corruption often poses an obstacle hindering economic growth (Mauro, 1995; Rock, Bonnett, 2004; Wright and Craigwell, 2012). It can distort budget allocations, resulting in investments that yield slower returns (Williamson, 2004).

Resource-rich countries can leverage their wealth to spur economic growth, provided they establish effective institutions (Mehlum et al., 2006; Hannan, Mohsin, 2015). However, corruption often obstructs this process, encouraging rent-seeking behaviour (Murphy et al., 1993; Sindzingre, Milelli, 2010), which can result in power concentration and wealth accumulation, among elites (North et al., 2009; Khan, 2010). Consequently, political dynamics may prevent necessary institutional or economic changes to protect the interests of the elite, hindering energy transition (Kolstad, Søreide, 2009; Vicente, 2010).

Institutional factors, including corruption control, good governance, and the rule of law, are fundamental for environmental protection (Danish and Ulucak, 2020). This includes implementing suitable energy regulations to efficiently exploit existing resources and promote investments in new technologies (Ionescu, 2011; Zafar et al., 2021). Additionally, strengthening control of corruption and maintaining a high trade openness strongly influence the environment, increasing access to and transfer of energy-efficient and environmentally friendly technologies (Biswas et al., 2012; Zhang, Zhou, 2016; Chen et al., 2018). In contrast, Le et al. (2016) disagree with the above notion and argue that increasing trade openness leads to environmental degradation. Additionally, they confirm that economic growth increases pollution, even with qualitative institutions.

In conclusion, the interaction between economic performance and institutional factors is vital in shaping a country's growth trajectory. Institutional factors are endogenous growth variables that promote capital accumulation, technological change, and human capital growth needed to accelerate the energy transition. Therefore, improving institutional stability, increasing responsibility and transparency, and the rule of law are indispensable for the region's countries to advance in economic growth and environmental protection.

3. Data and Methodology

This study uses panel data analysis to evaluate four different models to measure the impact of independent variables on Total Energy Consumption, renewable energy consumption, and GDP. The models included OLS, OLS Robust, fixed effects (FE), and random effects (RE) models, which were used to account for the panel data structure of the dataset.

Because of their ability to account for unobserved heterogeneity across cross-sectional units while still capturing the influence of time-variable variables, fixed and random effect models in panel data analysis can be advantageous compared to alternative methodologies. To reduce the possibility of omitted variable bias and to encourage more precise causal effect estimations of time-variant covariates. A fixed effects model assumes that the independent variables have the same effect on all sample units. The fixed effect model nullifies the effects of time-invariant unobserved factors by emphasizing within-unit fluctuations. Thus, disparities in the dependent variable are caused by independent variable values. Researchers use fixed effects models to derive causal inferences about a treatment or intervention (Baltagi, 2013).

In contrast, random effects models consider the possibility that independent variables affect the dependent variable in random ways across sample members via independent variables and unobserved factors that vary across individuals. Because they account for both within-unit and between-unit variations, considering unobserved heterogeneity as an arbitrary component for a more thorough analysis (Baltagi, 2013), these models are widely used to generalize findings or examine hierarchical or clustered data. Compared to their fixed effect equivalents, random effect models are more effective when it is assumed that unobserved components continue to be uncorrelated with explanatory variables. Additionally, random effect models allow for evaluating time-invariant covariate effects, allowing for a more in-depth comprehension of variable relationships. Finally, random effect models offer a more computationally efficient and straightforward estimation process than dynamic panel models, which take into account potential endogeneity in lagged dependent variables (Arellano & Bond, 1991).

In addition, we use the Hausman test to select or compare fixed effects and random effects models in econometric analysis. This statistical test can determine which model fits a given dataset best by comparing the predicted coefficients of the independent variables in both models (Hausman, 1978). The Hausman test is as follows: H = (-1)(V_fe - V_re)(-1)(b_fe - b_re).

The number of degrees of freedom for the chi-squared test is the same as the number of independent factors. The null hypothesis that the coefficients in both models are not statistically different is rejected if the computed Hausman statistic exceeds the critical value of the chi-squared distribution at a specified significance level, indicating that the random effects model is more appropriate. If the Hausman statistic is smaller than the crucial value, on the other hand, the null hypothesis is not rejected, and the fixed effects model is preferred.

When the Hausman test assumes that the random effects model works well, it should be tested by comparing the variance of the estimated coefficients for the random and fixed effects models. The validity of the test may be compromised if this presumption is not met (Hausman, 1978).

The study analysed 96 observations across six Western Balkans countries for 16 years (2005-2020) using data from the International Energy Agency, World Development Indicator, and World Governance Indicator. This period corresponds to the signing in October 2005 of the Energy Community Treaty, whereby the states of the Western Balkans become contracting parties with the European Union along with other countries of the Black Sea region and Southeast Europe. This treaty aimed to create an integrated energy market, with clear objectives for the parties. They will benefit from the implementation of unique EU energy market rules and encouraging investments in the production of energy (European Union, 2006).

It examines proxies such as government effectiveness, control of corruption, political stability, and the rule of law using data from WGI estimates. The research also employed a range of independent variables, including carbon dioxide emissions, corruption, political stability, the rule of law, economic growth, final consumption expenditure, and net export. Various tests were used, such as the Breusch-Pagan Lagrange test controlling for heteroscedasticity, the variance inflation factor (VIF) test for multicollinearity, and the Hausman test to determine the most accurate and reliable model. The study uses the Stata 17 program to analyse the results presented in the research.

For the analysis of the data, the study uses four econometric models, as presented in equations below:

(1) $TEC = \beta 0 + \beta 1 (CO2) + \beta 2 (GE) + \beta 3 (CC) + \beta 4 (PS) + \beta 5 (RL) + \beta 6 (GDPC) + \beta 7 (FCE) + \beta 8 (TO) + \varepsilon$

(2) $REC = \beta 0 + \beta 1 (CO2) + \beta 2 (GE) + \beta 3 (CC) + \beta 4 (PS) + \beta 5 (RL) + \beta 6 (GDPC) + \beta 7 (FCE) + \beta 8 (TO) + \varepsilon$

(3) $GDP\_pc = \beta 0 + \beta 1 (TEC) + \beta 2 (REC) + \beta 3 (CO2) + \beta 4 (GE) + \beta 5 (CC) + \beta 6 (PS) + \beta 7 (RL) + \beta 8 (FCE) + \beta 9 (TO) + \varepsilon$

(4) $GDP = \beta 0 + \beta 1 (TEC) + \beta 2 (REC) + \beta 3 (CO2) + \beta 4 (GE) + \beta 5 (CC) + \beta 6 (PS) + \beta 7 (RL) + \beta 8 (FCE) + \beta 9 (TO) + \varepsilon$

The data used for variables presented in Table 1 below are from free access databases, from: International Energy Agency (IEA), World Development Indicator(WDI); World Governance Indicator (WGI). A detailed description of variables is presented also in Table 3. in the annexe. Table 1 presents descriptive statistics of the research variables, providing an overview of the current state of the Western Balkans (WB) region.

Table 1. Description and analysis of research variables

Variable	Abbreviation	Data source	Unit	Obs	Mean	Std. Dev.	Min	Max
Total Energy Consumption	TEC	IEA	TJ	96	125,706	116,319	26,276	418,698
Renewable Energy Consumption	REC	IEA	TJ	66	27,399	21,340	9,315	74,732
GDP per capita	GDP pc	WDI	US Dollar	93	5,189	1,428	2,674	8,910
CO2 emissions per capita	CO2	IEA	T/Capita	96	4.27	1.69	1.20	7.00
Government Effectiveness	GE	WGI	Index	95	-0.22	0.29	-1.04	0.35
Control of Corruption	CC	WGI	Index	96	-0.39	0.20	-0.81	0.01
Political Stability and Absence of Violence and Terrorism	PSAVT	WGI	Index	92	-0.18	0.44	-1.16	1.01
Rule of Law	RL	WGI	Index	96	-0.33	0.21	-0.95	0.02
Trade Openness	TO	WDI	Trade as % of GDP	93	92.06	17.05	60.97	138.58

The descriptive analysis based on 96 observations, shows that regional energy consumption averaged 125,706 terajoules (tj) over the study period, regional energy consumption averaged 125,706 terajoules (tj), with renewable energy consumption averaging around 27,399 terajoules (tj). Therefore, the average CO2 emissions were estimated at 4.27 t/capita.

Institutional indicators, measured from -2.5 for the lowest values to +2.5 for the best quality (Kaufmann et al., 2011), show that the region suffers from weak institutions. For example, average indexes for government efficacy (-0.22), corruption control (-0.39), political stability (-0.18), and the rule of law (-0.33) were all negative. Additionally, the study includes several economic variables. The average per capita income in the region was $5,188, and final consumption expenditures were estimated at $15 billion. The trade openness variable mean is 92.06, measuring a percentage of (import + exports)/GDP. The region is a negative net exporter at $2.7 billion, indicating that imports of goods and services exceeded exports.

4. Research Results

4.1. Regression analysis

Table 2 below presents the findings of the econometric models. It shows analyses of the impact of various independent variables on renewable energy consumption and economic growth, utilising specific panel data models such as fixed effects and random effects, in addition to OLS and OLS Robust models.

Table 2. Regression results from selected model

Econometric models

Variables	TEC	Renewable EC	GDP_CAPITA	GDP
	Coef/tstat	Coef/tstat	Coef/tstat	Coef/tstat
	RE	RE	RE	FE
TEC_ln	-	-	-0.979***	0.107***
	-	-	-9.49	-0.31
REC_ln	-	-	0.361***	0.583***
	-	-	-6.68	-0.5
CO2_ln	0.0678***	-0.0463**	0.0740***	-0.012***
	-6.07	-3.04	-6.3	-3.09
GE	0.247***	0.373	0.364***	-0.0143**
	-3.39	-1.74	-5.97	-0.01
CC	-0.205*	-0.722**	0.16	0.0228
	-2.05	-2.08	-1.52	-0.43
PSVAT	-0.0279**	0.146	-0.0414***	-0.0209***
	-3.04	-1.33	-3.22	-4.62
RL	-0.133	0.13	0.0978**	0.0958*
	-0.99	-0.35	-0.21	-0.92
GDPC_ln	-0.437***	0.0585**	-	-
	-4.64	-3.02	-	-
FCE_ln	1.03***	0.912***	0.801***	1.009***
	-40.44	-10.29	-9.99	-27.32
TO	0.00403***	0.00281	0.00655***	-0.00012
	-3.78	-0.64	-5.06	-0.21
Cons	-9.425***	-11.73***	-3.323**	0.498
	-12.22	-4.99	-2.98	-0.53
Hausman Test	0.0784	0.4402	0.7424	0.0000
Prob > F	0.0000	0.004	0.0000	0.0000
Hettest	0.9542	0.8321	0.5431	0.5642
Mean VIF	3.31	3.86	4.14	4.67
N	92	62	62	62
R2	97.31%	85.31%	94.32%	95.41%

t statistics in parentheses
* p<0.1, ** p<0.05, *** p<0.01

The Hausman test revealed p-values of 0.0784, 0.4402, and 0.7424 for the first three models, suggesting the application of the random effects model for interpretation. In contrast, the results suggest using the fixed effects model for the fourth model. Choosing a fixed effects model means that the analysis is controlling for unobserved heterogeneity across the units of observation (such as countries or regions) in the data. The fixed effects model accounts for any time-invariant differences between units that could affect the dependent variable, in this case, GDP (Wooldridge, 2012).

For the first study focusing on overall energy consumption, the model's determination coefficient was 97.31% for the 92 observations analysed. In the second study, which examined renewable energy consumption specifically, the model demonstrated a coefficient of determination of 85.31% with 62 observations. Lastly, the models focusing on economic growth displayed a coefficient of determination of 94% and 95%, each with 62 observations, thereby underlining their high explanatory power.

In addition to the Hausman test, each study conducted tests for heteroscedasticity and multicollinearity. Homoscedasticity was confirmed, and no serious problems were found in the data, with p-values of 0.9542, 0.4076, 0.5431, and 0.5642 for the heteroscedasticity tests. Tests for multicollinearity showed VIFs of 3.31, 4.11, 4.14, and 4.67, respectively, indicating that multicollinearity was not a significant concern in the models. These results strengthen the reliability and credibility of the study's findings, endorsing the substantial explanatory power of the independent variables on energy consumption and economic growth.

4.2. Regression analysis for total energy consumption

The first model, shown in Table 4 in the annexe, reveals multifaceted relationships between economic variables and institutions with energy consumption, despite the short period covered by the West Balkan Countries' data, which precludes complex analyses. These results confirm the findings of Stern (2000), Asafu-Adjaye (2000), Kalyoncu et al. (2013), Kula (2014), and Carfora et al. (2019) that economic development influences energy consumption.

In addition, results demonstrate that the economic factors under consideration explain energy consumption in the region's countries. According to them, an increase of one unit in per capita GDP is associated with a 0.437% decrease in total energy consumption. This suggests that higher levels of economic development may be accompanied by lower levels of energy consumption, confirming the absence of a long-term impact (Topolewski, 2021), or even a non-linear relationship, as suggested by Csereklyei et al. (2016), due to adaption to new technologies and savings through increased efficiency, resulting in a decline in energy intensity as countries become wealthier. The study confirms the dependence of the region's economies on energy, where an increase in final consumption expenditures by one unit will increase TEC by 1.03 units and is statistically significant at a 1% level.

The above demonstrates that an increase in final consumption, such as consumer expenditure, can result in a corresponding increase in total energy consumption. Because most of the region's energy used comes from fossil fuels, which produce a great deal of pollution, the model's findings are consistent with theoretical expectations. They reveal a correlation between factors, concluding that a one-unit rise in CO_2 emissions and a 0.0678-unit rise in overall energy usage. From this, we can conclude that in circumstances where investments in renewable energy are scarce and sluggish (as is the case in Western Balkan countries), efforts to reduce CO_2 emissions by maintaining the economies' needs for energy consumption are only possible through improvements in the efficiency of resource utilization. This can be accomplished by incentivizing the adoption of new technologies and investments in energy savings, particularly for heating (Vasquez et al., 2018). On the other hand, the global transition in the transportation sector towards cleaner energy is progressing rapidly, led by the industry's innovation in electric vehicles. However, the remaining part of the transition needs to be supported by institutions. Following the findings of Sala-I-Martin and Subramanian (2003), Harford and Klein (2005), Evrensel (2010), and Danish and Ulucak (2020), the results of this study suggest that the institutional factors included in the model can significantly influence the countries dependence on energy.

Additionally, government efficiency, corruption, and political stability all have statistically significant effects on overall energy use, as shown by this model (at the 1%, 5%, and 10% levels, respectively). Yet, the rule of law was not statistically significant despite positively influencing energy consumption.

The results reveal that an increase of one unit in government efficiency results in a 0.247 percentage point increase in total energy usage. Therefore, more effective governments may be better positioned to promote economic growth and business expansion, influencing energy consumption. Then again, this is despite the positive effects that the determination and implementation of policies favouring energy efficiency have in this regard.

In contrast, a one-unit increase in corruption control is associated with a 0.205-unit decrease in total energy consumption. As argued by Mauro (1995), Rock and Bonet (2004), and Wright and Craigwell (2012), corruption can negatively influence energy transition and efficiency despite the positive effects of effective governance.

As for political stability, it positively affects increasing investments in efficiency and results in a decrease of 0.0279 units in total energy consumption. Suggesting that politically unstable environments require lower energy consumption levels, hindering business expansion and energy needs.

4.3. Regression analysis for renewable energy consumption

By executing this model as presented in Table 5 in the annexe, the study aims to look at the economic and institutional aspects that affect the growth of renewable energy consumption in the Western Balkans, where the level of energy use from this source is relatively low. The results suggest a positive influence from economic factors, including an increase of one unit in GDP per capita, which would increase renewable energy consumption by 0.0585 units, statistically significant at the 5% level. In the same line, general consumption expenditures positively impact renewable energy by 0.912, which is statistically significant at the 1% level. On the other hand, trade openness has a small coefficient of 0.00281 and statistically shows an insignificant influence on renewable energy consumption in our model.

The model shows that CO2 emissions have a negative and statistically significant impact on renewable energy consumption, with a coefficient of -0.0463 at a 5% significance level. Results prove that increasing renewable energy consumption may decrease CO2 emissions.

Of all the institutional quality indicators, only corruption control is statistically significant at the 5% level, with a negative impact on renewable energy consumption of -0.722. Therefore, improving corruption control would enhance the effect of increasing energy consumption from renewable sources. However, renewable energy consumption in the regional countries still needs to improve due to early-stage investments in renewable energy infrastructure.

Lower levels of corruption can significantly improve renewable energy consumption by promoting policies that increase transparency and efficiency in resource distribution (Ionescu, 2011). Misallocation of resources has primarily occurred due to various interests, subsidies, or other factors that have resulted in incentives favouring the production and consumption of fossil-based energy, the price of which has been kept low, making it more attractive than renewable energy. However, reducing corruption would make the energy sector more competitive, allowing for more innovation and cost-effective solutions (Biswas et al., 2012), thus impacting energy use efficiency and reducing overall consumption levels, regardless of the energy source. In addition, better control of corruption can result in better and faster implementation of renewable energy projects, ensuring fair use of funds and licensing (Zhang & Zhou, 2016). It would also increase public and investor trust, making investments in this sector more attractive (Ionescu, 2011).

Effective control of corruption helps minimize the effects of the so-called "resource curse" (North, 1990), which hinders investments in renewable energy by reducing costs and decreasing the overall demand for energy, an idea supported by studies by Murphy et al. (1993), Kolstad & Søreide (2009), Khan (2010), Sindzinger & Milelli (2010), and Vicente (2010). Moreover, this process paves the way for creative destruction (Schumpeter, 2003) as an essential process for developing the energy sector and plays a crucial role in fostering endogenous growth in regional countries.

In conclusion, the countries in the region of the Western Balkans, have not made sufficient progress in the energy transition. The levels of renewable energy growth are more closely linked to the economic growth of the countries and growth-oriented government policies rather than other institutional factors, despite corruption.

Government efficiency, the rule of law, and political stability are some of the other quality indicators utilized in this model; they all have a positive influence, although their significance is low. Therefore, it may be necessary to expand the analysis time for more available data to investigate this association further.

4.4. Regression analysis for economic growth

Findings for models 3 and 4 presented in Table 6 in the annexe are consistent with economic theories of endogenous growth, which assume that energy consumption is necessary for economic growth. However, the two last models show a different impact of Total Energy Expenditures on GDP and GDP per capita. With a Total Energy Consumption increase of one unit, GDP increases by 0.107 units. In both models, the level of statistical significance is 1%. The positive relationship between economic growth and energy expenditures fits also for the Western Balkans region, as Asafu-Adjaye (2000) confirms, by stating that as economies grow, they require higher energy consumption levels to support that growth. This finding from the study's results is also consistent with the findings of Stern (2000), Stern and Cleveland (2004), Kalyoncu et al. (2013), Kula (2014), and Carfora et al. (2019).

However, economies that exhibit high levels of energy dependence indicate that they could be more efficient in energy utilization. It is partly due to outdated infrastructure and technology or dependence on non-renewable sources, which may limit their economic growth in terms of GDP per capita. Therefore, according to the model's results in the Western Balkans, the increase in Total Energy Consumption of 1 unit, damages GDP per capita by -0.979 units. Supporting the findings of literature such as Nordhaus (2013), Vasques et al. (2018), and the United Nations (2021) assert that while energy consumption is essential for economic growth, it can also adversely affect individuals and enterprises. Because in energy-dependent countries, a rise in energy prices will lead to a decline in GDP per capita, leaving households and businesses with less money to spend on goods and services. In addition, the region's high consumption of fossil-based energy results in long-term economic costs, including health problems and environmental degradation. These costs (represented in the model by the CO2 level) might harm GDP, lowering it by -0.012, as shown by the model results. However, other variables may also drive CO2 emissions and economic development, showing a non-causal relationship. Based on the regression results, CO2 positively impacts GDP per capita, increasing it by 0.074%. This is related to the fact that fossil-based energy is cheap, even though it increases pollution by increasing CO2 levels, from which non-direct costs occur.

Additionally, both models show that using renewable energy positively affects GDP and GDP per capita (with respective impacts of 0.361 and 0.583, statistically significant at 1%). Furthermore, it shows that countries that spend on renewable energy are more innovative and efficient, which leads to more economic growth. These results also support findings from the work of Apergis and Payne (2012), Kalyoncu et al. (2013), Alper and Oguz (2016), and Kasperowicz et al. (2020), which suggest that since the region is a net energy importer, increased RE consumption will result in fewer collateral damages and less dependence on imports.

The study results confirm institutional indicators' statistically significant impact on GDP and GDP per capita. The results show a strong and positive influence of the rule of law on GDP, with a highly reliable coefficient of 10%. For each unit increase in the rule of law, on average, GDP increases by 9.58%, assuming all other factors remain constant. The rule of law promotes a stable and predictable legal environment, essential for businesses and investors. It ensures property rights, reduces corruption, and ensures fair contract enforcement. This promotes a favourable environment for stimulating economic activity, consequently leading to GDP growth.

In conclusion, the study results confirm that although economic energy consumption is positively linked to energy expenditures, policies that promote energy efficiency and investments in renewable resources can balance desirable economic growth with environmental sustainability by reducing the negative impacts of total energy expenditures on GDP per capita (Nordhaus, 2013). Furthermore, strengthening institutional quality, in general, serves this purpose and can accelerate the energy transition, which, as seen from all three models, will affect the path of sustainable economic development for Western Balkan countries in the near future.

Final consumption expenditures, along with trade openness, also have a positive impact on economic growth, with statistically significant importance at the 1% level. In conclusion, although economic growth is positively linked to energy expenditures, these expenditures negatively impact GDP per capita due to energy inefficiency; a significant portion comes from household and business income. Therefore, while energy consumption is a crucial factor for economic growth, the high costs associated with energy consumption can have a negative impact on GDP per capita.

5. Conclusions and Suggestions for Future Research

Given that Western Balkan countries rely heavily on energy consumption, efforts to secure sustainable energy sources will significantly influence their economic growth. High dependence on imports and pollution caused by energy consumption, coupled with the need to align with EU requirements, make the acceleration of the energy transition urgent. The energy transition can lower energy consumption costs and boost economic growth since it is linked to adopting new technologies, efficiency investments, and resource usage improvements. The study's findings, however, can fluctuate depending on socioeconomic development and the locality. This research explores the complex relationships between economic variables, institutional factors, and energy consumption in the Western Balkan region for 2005-2020.

Consistent with the principles of endogenous growth theory, the research confirms that economic development, as a product of internal capital factors, technology, and the labour force, has a fundamental impact on energy consumption patterns. As economies grow, energy consumption patterns change, potentially reflecting increased efficiency or adopting new, less energy-intensive technologies. The increase in GDP per capita and total consumption expenditure has a positive impact on the consumption of renewable energy, as shown by the research's second model and confirmed by the findings of Stern (2000); Asafu-Adjaye (2000); Kalyoncu et al. (2013); Kula, (2014); Carfora et al., 2019). It emphasizes that growth-oriented policies can lead to faster energy transition patterns for countries in the region.

Findings suggest that institutional factors may influence strong energy dependency. These conclusions align with previous studies by Sala-I-Martin and Subramanian (2003), Harford and Klein (2005), Evrensel (2010), and Danish and Ulucak (2020), reinforcing the link between institutional quality, technological change, and economic growth, central to endogenous growth theory. Furthermore, institutional elements such as the rule of law, political stability, and government efficiency lead considerably to economic growth, producing a stable and foreseeable environment for firms and investors. They encourage investments in energy efficiency, suggesting they favour innovation and adopting new technologies. On the other hand, reduced levels of corruption can significantly boost renewable energy consumption by encouraging policies that increase transparency and efficiency in resource distribution (Ionescu, 2011). Furthermore, curbing corruption would result in a more competitive energy sector, innovations and cost-effective solutions (Biswas et al., 2012), and faster implementation of renewable energy projects (Zhang, Zhou, 2016). This would effectively alleviate the so-called "resource curse" (North, 1990) that impedes investments in renewable energy.

Energy consumption boosts economic growth, productivity, and development. However, the use of fossil fuel energy is accompanied by high costs related to health and environmental damage—causing concern. Therefore, according to this study, the use of fossil energy along with weak efficiency in use of it, creates unequal benefit distribution and harms GDP per capita, keeping individual and business expenses high. Furthermore, the study's findings emphasize the necessity of energy efficiency and the negative repercussions of relying on non-renewable resources. These are frequently characterized by outdated technology and infrastructure, hindering economic progress. This conclusion aligns with findings from various researchers, like Nordhaus (2013), Vasques et al. (2018), and the United Nations (2021), highlighting energy consumption's dual role as a driver of growth and a potential source of negative socioeconomic impacts as per results from model 3 and 4.

As a result, while energy consumption is an essential component of economic growth, governments of countries in the Western Balkans countries must achieve a balance between consumption, efficiency, and sustainability. Confirming that renewable energy investments are a substantial driver of economic growth and environmental sustainability, favourably increasing GDP and GDP per capita and demonstrating possibilities for innovation and efficiency in this region.

In conclusion, while economic growth in the Western Balkans is positively linked to energy expenditure, inefficient energy usage harms GDP per capita. Therefore, policies promoting energy efficiency and investments in renewable resources are recommended, combined with strengthening institutional quality. This interaction of these elements underscores the importance of a balanced approach that meets individuals' and businesses' interests while promoting long-term economic growth.

This study, though comprehensive, has its limitations, such as a short period and the inability to evaluate the effects of inflation and price changes caused by the energy crisis, as well as the social impacts on institutional quality. In addition, employing a static panel data analysis, the research may need to be expanded to represent institutional factors' dynamic impact on economic and energy transitions over time. Future research could enhance this investigation by thoroughly examining additional factors, including prices, population growth, and urbanization, as the role of institutional interventions like energy subsidies, tax benefits, and green technology deployment in resolving energy crises. Additionally, utilising larger sample sizes and advanced econometric methods may better determine the relationship between renewable energy use and income and could lead to more robust policy recommendations.

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Annex: Tables and figures

Table 3. Definition of the variables under study

Variable	Abbreviation	Definition	Source of data and definition
Total Energy Consumption	TEC	The total amount of energy used by a region or country's end users, such as households, industry administration and agriculture, within a year. Including renewable and fossil-based energy	IEA
Renewable Energy Consumption	REC	The share of the amount of energy consumed is derived from renewable sources like hydro, solar, wind, biomasses etc.	IEA
GDP in current US$	GDP	The totality of goods and services produced within a country in a year, expressed in current prices in US dollars. This means that the data are not adjusted for inflation and the values are presented in the prices of the given reporting year.	WDI
GDP per capita	GDP pc	Its population, indicating the average economic productivity per person, divides the economic output of a country.	WDI
CO2 emissions per capita	CO2	Average CO2 emissions produced per individual in a specific region or country, aiming to allow comparison of pollution among countries with different sizes of population. CO2=Total CO2 emissions of the country/Total population of the country	WDI
Government Effectiveness	GE	Government effectiveness takes into account the public sentiment on the country's quality of public and civil service and how independent are they from political politics. They measure the opinion on the credibility of the governments in creating qualitative policies and their commitment to accomplish them.	WGI 2022 Interactive > Documentation (worldbank.org).
Control of Corruption	CC	The extent to which elites and private interests do not exercise public power for private gain, including both petty and grand forms of corruption, as well as "capture" of the state. The values are in a range between -2.5 the most corrupted or the worst, to +2.5 is the least corrupted country based on public opinion	
Political Stability and Absence of Violence and Terrorism	PSAVT	Political Stability and Absence of Violence/Terrorism measures perceptions of the likelihood of political instability and/or politically motivated violence, including terrorism.	
Rule of Law	RL	The extent to which agents have confidence and abide by the rules of society, including the quality of contract enforcement, property rights, the police, and the courts.	
Final Consumption Expenditures	FCE	It includes all of the things and services used by households, the government, and non-profit groups. This number shows how a country spends its revenue expressing also the nature of its internal demand and standard of living.	WDI
Trade Openness	TO	The extent to which a country allows the free flow of goods, services, and capital across its borders. It is measured as a sum of exports with imports divided by GDP	WDI

Note: The analysis utilizes ln (GDP; FCE; GDP_pc) instead of raw figures linearizes exponential trends, stabilizes variance, and eases interpretation changes. This transformation also compresses large-scale values, enhancing analytical tractability.

Table 4. Regression analysis for energy consumption

Variables	OLS	OLSR	FE	RE
	Coef/tstat	Coef/tstat	Coef/tstat	Coef/tstat
GDP_pc_ln	-0.437***	-0.437***	0.777***	-0.437***
	(-4.64)	(-4.49)	-4.24	(-4.64)
CO2	0.0678***		0.0606**	0.0678***
	-6.07	-6.25	-3.36	-6.07
GE	0.247**	0.247*	-0.0456	0.247***
	-3.39	-2.57	(-0.57)	-3.39
CC	-0.205*	-0.205*	-0.0146	-0.205*
	(-2.05)	(-2.14)	(-0.14)	(-2.05)
PSAVT	-0.0279**	-0.0279**	0.0156	-0.0279**
	(-3.04)	(-3.04)	-3.48	(-3.04)
RL	-0.133	-0.133	-0.0948	-0.133
	(-0.99)	(-0.65)	(-0.87)	(-0.99)
FCEln	1.030***	1.030***	-0.618**	1.030***
	-40.44	-43.98	(-3.03)	-40.44
TO	0.00403***	0.00403***	0.0011	0.00403***
	-3.78	-4.65	-0.99	-3.78
_cons	-9.425***	-9.425***	18.74***	-9.425***
	(-12.22)	(-11.04)	-5.56	(-12.22)
Hausman Test	0.0784			
Prob > F	0.0000	0.0000	0.0000	0.0000
Hettest	0.9542			
Mean VIF	3.31			
N	92	92	92	92
R^2	93.24%	94.31%	97.66%	97.31%

t statistics in parentheses; * p<0.1, ** p<0.05, *** p<0.01

Table 5. Regression analysis for renewable energy consumption

Variables	OLS	OLSR	FE	RE
	Coef/tstat	Coef/tstat	Coef/tstat	Coef/tstat
GDP_pc_ln	0.0585	0.0585	3.176**	0.0585**
	-0.2	-0.25	-3.37	-3.02
CO2	-0.0463**	-0.0463**	-0.0217**	-0.0463**
	(-3.05)	(-3.09)	(-3.06)	(-3.04)
GE	0.373	0.373	0.0987	0.373
	-1.74	-1.42	-0.34	-1.74
CC	-0.722**	-0.722**	-0.325	-0.722**
	(-2.08)	(-2.35)	(-0.90)	(-2.08)
PSAVT	0.146	0.146	0.077	0.146
	-1.33	-1.28	-0.86	-1.33
RL	0.13	0.13	-0.00439	0.13
	-0.35	-0.23	(-0.01)	-0.35
FCEln	0.912***	0.912***	-3.232**	0.912***
	-10.29	-16.51	(-3.43)	-10.29
TO	0.00281	0.00281	0.00222	0.00281
	-0.64	-0.78	-0.59	-0.64
_cons	-11.73***	-11.73***	57.79***	-11.73***
	(-4.99)	(-6.60)	-4.06	(-4.99)
Hausman Test	0.4402			
Prob > F	0.004	0.001	0.000	0.004
Hettest	0.8321			
Mean VIF	3.86			
N	62	62	62	62
R2	87.42%	88.91%	82.19%	85.31%

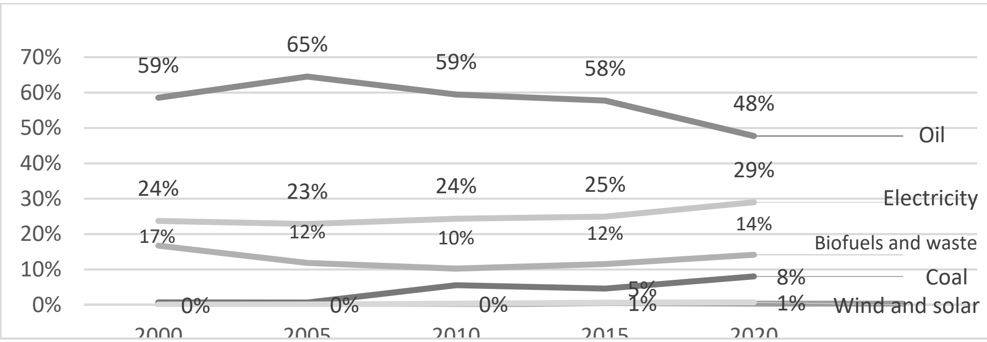
t statistics in parentheses; * p<0.1, ** p<0.05, *** p<0.01

Table 6. Regression analysis for economic growth

Variables	RE	FE
	Coef/tstat	Coef/tstat
	GDP_CAPITA	GDP
TEC_ln	-0.979***	0.107***
	(-9.49)	(-0.31)
REC_ln	0.361***	0.583***
	-6.68	-.05
CO2	0.0740***	-0.012***
	-6.3	(-3.09)
GE	0.364***	-0.0143**
	-5.97	(-0.01)
CC	0.16	0.0228
	-1.52	-0.43
PSAVT	-0.0414***	-0.0209***
	(-3.22)	(-4.62)
RL	0.0978**	0.0958*
	(-0.21)	-0.92
FCEln	0.801***	1.009***
	-9.99	-27.32
TO	0.00655***	-0.00012
	-5.06	(-0.21)
_cons	-3.323**	0.498
	(-2.98)	-0.53
Hausman Test	0.7424	0.0000
Prob > F	0.0000	0.0000
Hettest	0.5431	0.5642
Mean VIF	4.14	4.67
N	62	62
R2	94.32%	95.41%

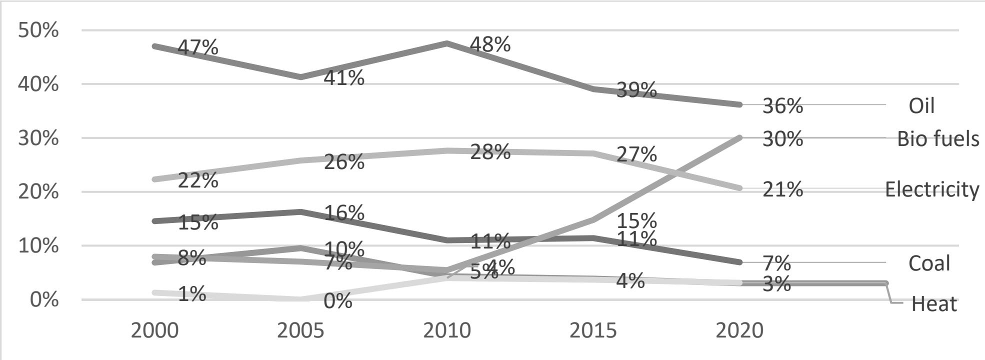
t statistics in parentheses; * p<0.1, ** p<0.05, *** p<0.01

Figure 4. Energy Mix in Albania



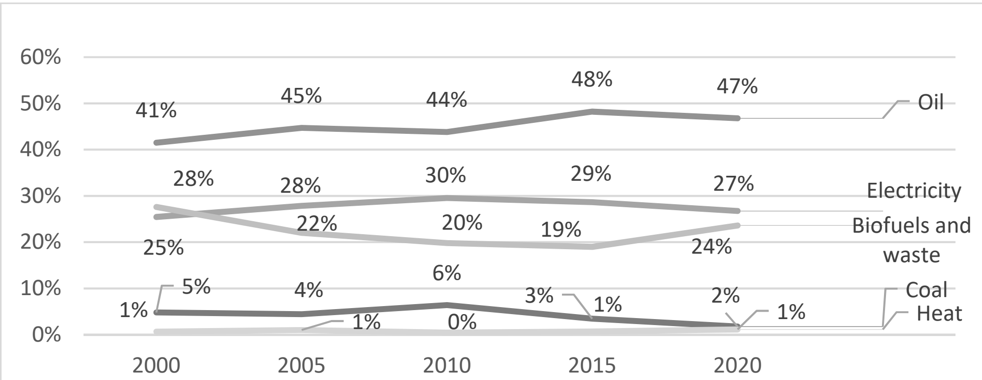
Source: IEA (2023)

Figure 5. Energy Mix in Bosnia and Hercegovina



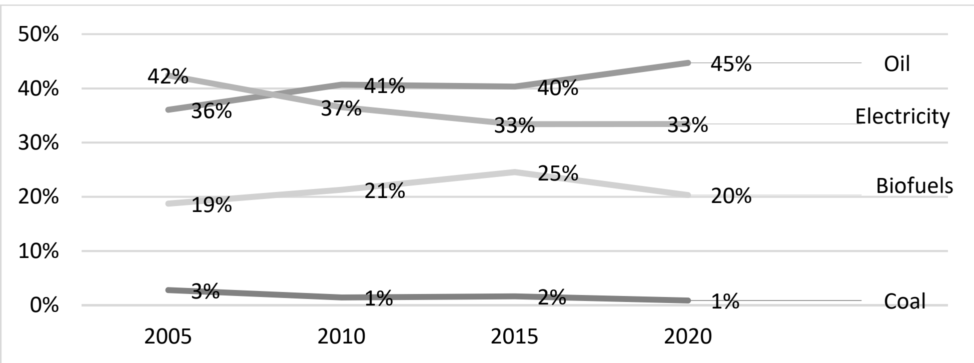
Source: IEA (2023)

Figure 6. Energy Mix in Kosovo



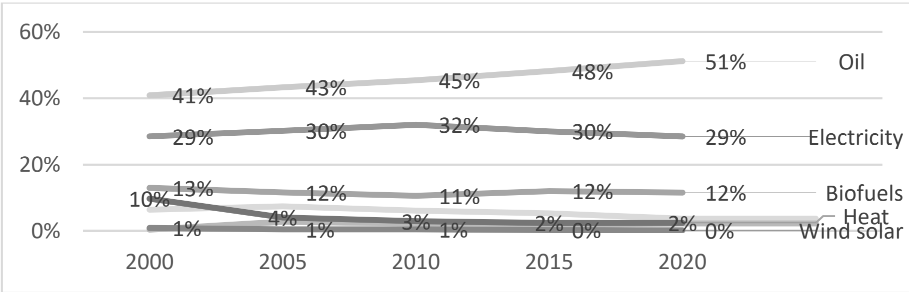
Source: IEA (2023)

Figure 7. Energy Mix in Montenegro



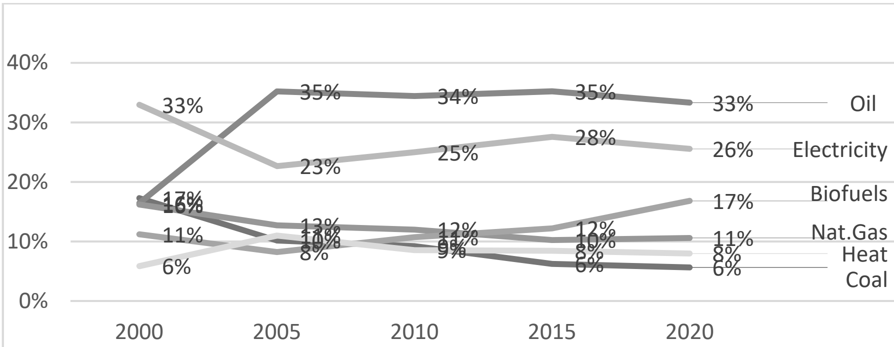
Source: IEA (2023)

Figure 8. Energy Mix in North Macedonia



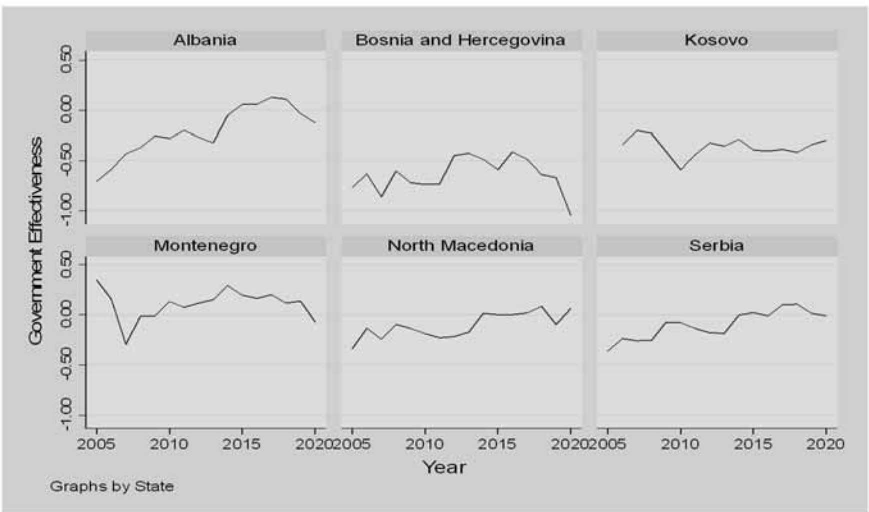
Source: IEA (2023)

Figure 9. Energy Mix in Serbia



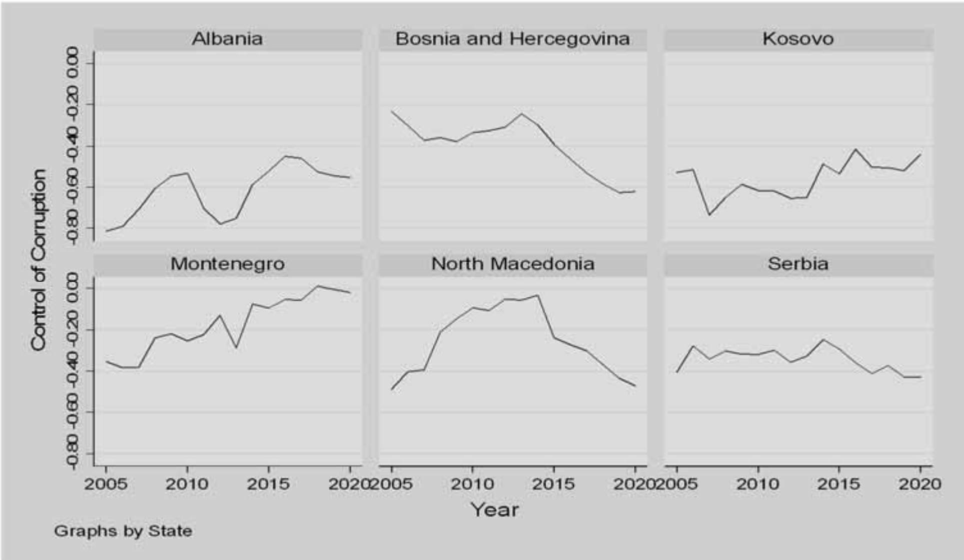
Source: IEA (2023)

Figure 10. Government Effectiveness in the countries of the Western Balkans



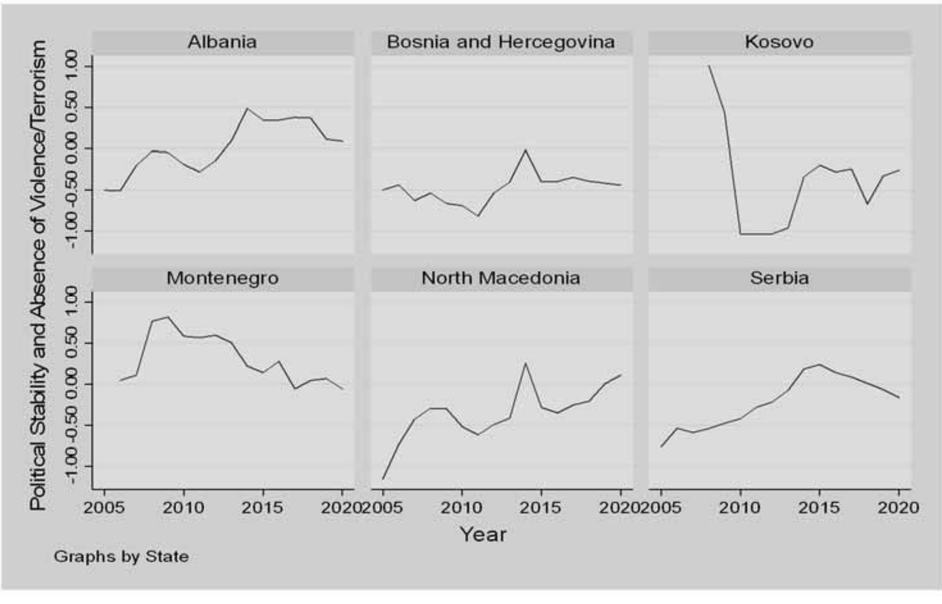
Source: WDI (2023)

Figure 11. Control of Corruption in the countries of the Western Balkans



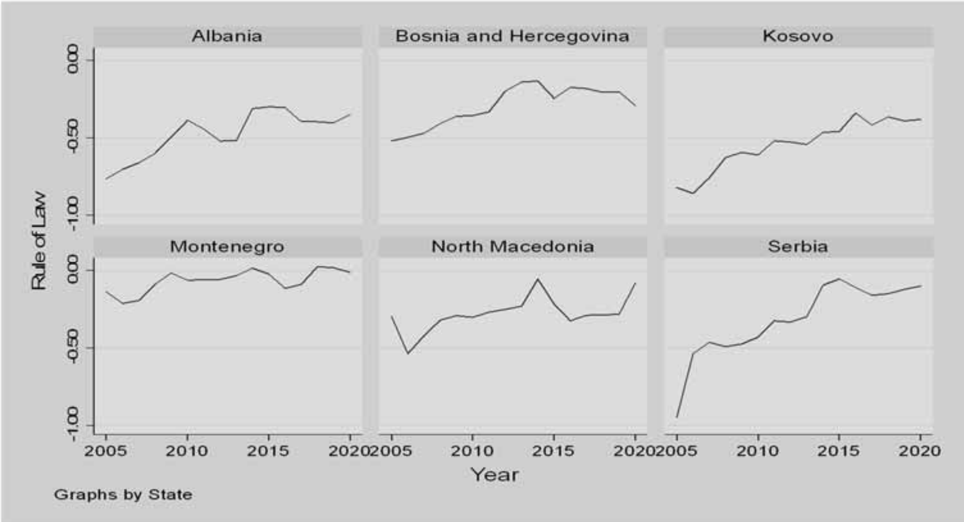
Source: WDI (2023)

Figure 12. Comparison of data for Political Stability in the countries of the Western Balkans



Source: WDI (2023)

Figure 13. Comparison of data for Rule of Law in the countries of the Western Balkans



Source: WDI (2023)

ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ
ECONOMIC STUDIES

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NEXT GENERATION EU AND FISCAL INTEGRATION IN EUROPE[2]

The creation of Next Generation EU in response to the COVID-19 pandemic was a significant milestone in the European integration project. NGEU is an innovative financial instrument with the ambitious tasks to boost economic recovery and to finance long-term investments, thus raising the question if it can be viewed as a common fiscal capacity. The aim of the present article is to analyse in detail the structure of NGEU expenditure from the perspective of the public sector's three main functions (allocation, redistribution and stabilisation) and to draw conclusions about whether this instrument increases the EU's capacity to perform them. After a concise literature review of the main arguments in favour of a supranational fiscal capacity, the article examines in detail the expenditure side of NGEU's main component, the Recovery and Resilience Facility. It is concluded in the article that NGEU increases the EU's capacity to perform the redistribution function and to some extent the allocation function. However, it cannot be viewed as a macroeconomic stabilisation mechanism. The article discusses several challenges arising from the establishment of the fund.

Keywords: European Union; Next Generation EU; fiscal integration; public sector functions; fiscal federalism
JEL: F15; H7; H87

1. Introduction

The European Union is without doubt the most ambitious and far-reaching integration project in the world. Since the establishment of the Common agricultural policy in 1962 and especially after the creation of the Single Market and the euro area, Member States' economies have become increasingly interconnected. Although the integration process is based on close coordination of Member States' public finances, the necessity of a common fiscal capacity has become an important issue in the debate on the future of integration, especially after the introduction of the euro and the sovereign debt crisis of the 2010s.

The severe crisis induced by the COVID-19 pandemic has reinforced the academic interest towards the possibilities for closer fiscal integration in terms of macroeconomic stabilisation

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and the supply of public goods at the EU level. In response to the pandemic, the Member States created Next Generation EU, a financial instrument with the ambitions not only to boost a post-crisis recovery but also to cover long-term investments in strategic policy areas such as the transition to the green economy and digitalisation. In other words, it was intended to serve both as a mechanism for adjustment to asymmetrical economic shocks and as an additional common budget to finance activities with the characteristics of European public goods. When combined with the long-term budget for 2021-2027, NGEU implies a strong increase in the total amount of EU expenditure. However, unlike the common budget, this instrument is entirely financed with debt and its repayment in the next decades will require the introduction of new own resources. Moreover, NGEU is managed directly by the European Commission but at the same time, the Member States have the responsibility to implement reforms and investments in the specified areas.

The abovementioned characteristics raise the question if NGEU can be viewed as a fiscal capacity that would increase the impact of the EU in fiscal policy. The aim of the present article is to analyse in detail the structure of NGEU expenditure from the perspective of the public sector's three main functions (allocation, redistribution and stabilisation) and to draw conclusions about whether this instrument increases the EU’s capacity to perform them.

The methodology used in the article is analysis and interpretation of the expenditure side of the Recovery and Resilience facility as NGEU’s main component based on statistical data from the Recovery and Resilience Scoreboard.

A limitation in the present article arises from its focus entirely on the expenditure side of NGEU. The financing of this financial instrument is also an important issue, especially considering the issuance of common debt, and future research can study the advantages and risks related to financing the supply of European public goods with common borrowing. Furthermore, the research focus is placed entirely on the Recovery and Resilience Facility (RRF) which allocates by far the largest share of total NGEU funds.

The article is structured as follows: section two presents a concise literature review of the main arguments for fiscal integration; section three contains a detailed analysis of the structure of NGEU expenditure from the perspective of public sector main functions; section four discusses the main risks and challenges arising from the creation of NGEU; section five concludes.

2. The case for closer coordination of the Member States’ public finances – a review of the literature

Considering the advanced level of integration in the EU, including the introduction of the common currency, in the past decades there has been a growing academic interest towards the possibilities for closer integration in the area of public finances, including through a common fiscal capacity. An important aspect of the theoretical debate is related to the possible objectives that fiscal integration can pursue. In their groundbreaking work, Musgrave and Musgrave (1989, p. 6) defined allocation (supply of public goods), income redistribution and macroeconomic stabilisation as the three main functions of the public sector in the individual country.

In a multilevel governance context, fiscal federalism literature asks at which level of government – local, regional or central – revenue and spending functions and instruments should be allocated to achieve an efficient provision of public goods, income redistribution and macroeconomic stabilisation but also to maintain sound public finances (ECB, 2020, p. 10). As Nenkova (2021, p. 19) pointed out, in Europe, there is a situation where functions are transferred from national governments to the supranational level of government. This gives rise to multiple questions, such as how much of their autonomy should national governments renounce, who should perform the redistribution and stabilisation roles and how should the allocation role be shared between the Member States and the supranational level of government, thus turning the EU into an interesting case for examination of fiscal federalism.

The small size of the EU budget significantly limits the possibilities for a more active role of the EU in the performance of these functions. It amounts to only 1% of Member States' gross national income and thus stands in contrast to federal countries which redistribute a much larger part of their national income. Currently, the EU budget performs primarily the redistribution role coupled with the financing and provision of public goods, through cohesion policy and agricultural policy. With regard to the stabilisation function, the budget contributes to it indirectly, mainly through the long (7-year) programming periods which provide a constant level of investment independent of the economic cycle (European Commission, 2017b, p. 14).

Nevertheless, the potential advantages of increasing the powers of supranational institutions in the performance of these functions have been studied ever since the beginning of integration in Europe. Earlier studies drew upon the theory of optimum currency area and focused mainly on the integration of public finances as a necessary precondition for monetary integration. According to Kenen (1969), as cited in Mongelli (2002, p. 10), the countries sharing a supranational fiscal transfer system that would allow them to redistribute funds to a member country affected by an adverse asymmetric shock would be facilitated in the adjustment to such shocks. Also at an earlier stage, the MacDougall report (1977) concluded that in unitary countries income redistribution between regions arises automatically, whereas in federal countries inter-governmental grants and tax-sharing play a much more important role and achieve relatively large redistribution with relatively small amounts of federal expenditure (Commission of the European Communities, 1977, p. 13). The introduction of the euro was not accompanied by the establishment of a common fiscal capacity of a permanent nature, mainly because of the fears of moral hazard associated with such a capacity. The consensus at that time involved a combination of fiscal rules and market discipline through a commitment to no bail-out and no debt monetisation (Thirion, 2017, p. 1) to ensure the sustainability of Member States' public finances. After the euro area sovereign debt crisis there were significant developments in the euro area institutional and legislative setting, including the creation of the European Stability Mechanism (ESM) for conditional lending and the introduction of enhanced surveillance of Member States' public finances through the European Semester. Despite the important reforms carried out in response to the crisis, the EMU remained incomplete (Draghi, 2019). The necessity to deepen the EMU through a common stabilisation function was emphasised also in the Five

Presidents' report (Juncker et al., 2015). In response to the recommendation in the report, the European Commission elaborated concrete proposals for the creation of such a capacity at the EU level (European Commission, 2017a).

Integration in the field of public finances can be justified also by the potential benefits of pooling resources to carry out common policies and provide supranational public goods (Dabrowski, 2015, p. 9). In general, economic efficiency requires a decentralised provision of most public goods but the appropriate level of supply of any public good depends on factors such as consumers' preferences heterogeneity, the price elasticity of demand of the good and the existence of economies of scale in the supply of the good (Brussarski, 2007, p. 219). In the MacDougall report (1977) the transfer of some public sector activities to EU institutions was viewed as desirable on the grounds of economies of scale, spillover effects, and streamlining of expenditure (Commission of the European Communities, 1977, p. 15). Ever since, the supply of public goods at the EU level has been the subject of a growing body of literature (Buti, Nava, 2003; Dabrowski, 2014, 2015; European Commission, 2017b; Fuest, Pisani-Ferry, 2019; Nunes Ferrer, Katarivas, 2014; Buti, Papaconstantinou, 2022). In theory, public goods are defined as non-rival in consumption and non-excludable. A pure public good satisfies this definition exactly, whereas the consumption of an impure public good is to some extent rival and excludable (Rosen, Gayer, 2010, p. 55). Buti and Papaconstantinou (2022) suggested an alternative typology to be applied specifically to European public goods. These authors defined "pure" European public goods as such that are both delivered and financed at the EU level, such as the common procurement of vaccines or the programme "Horizon" for financing research. On the other hand, EU programmes that are either delivered or financed by the Member States can be considered mixed (impure) European goods.

At the turn of the century, new policy priorities came more prominently to the forefront, including climate, migration, research and innovation, but they have only slowly gained ground in the EU budget. The reason for this has been the overall stable size of the EU budget relative to GDP combined with a predominance of expenditures for agriculture and cohesion policies, which comprise pre-allocated national contributions and have been strongly favoured by Member States. The limited size can also be explained by the EU budget's strong dependence on national contributions in the absence of sizeable and genuine EU own resources (European Commission, 2021a, p. 7).

Public goods tend to be underprovided on a supranational level because economic agents may not fully consider the benefits for society at large. Limited fiscal space in some countries may also exacerbate the risk of underprovision with negative spillover effects to other countries (Panetta, 2022, p. 5). At the same time, the range of possible new public goods with a European dimension is wide. Fuest and Pisani-Ferry (2019) suggested eight potential candidates for EU public goods in fields where changes in Europe's external environment and problems of collective action call for reform, including foreign economic relations, climate change mitigation, digital sovereignty, research and development, etc. According to Panetta (2022, p. 4), examples of public goods at the European level include energy security, defence, digital transition as well as technologies and infrastructure needed to protect strategic autonomy and underpin the Single Market. This author suggests further that European policies can also make an important contribution towards global public goods, such as climate change mitigation. As D'Apice and Pasimeni (2020, p. 3) pointed out, the relevance and importance of European public goods may vary over time and the pandemic just triggered one of those turning points in which new priorities emerge.

3. Next Generation EU from the Perspective of Public Sector Main Functions

3.1. Context of NGEU creation

The unprecedented situation caused by the pandemic required a stronger common response and gave a strong push towards closer integration in the EU, including the introduction of new elements of a fiscal union. As the outbreak of the pandemic coincided with the final stages of the preparation of the Multiannual financial framework (MFF) for 2021-2027, it influenced the outcome of the negotiations in favour of more fiscal federalism. In the summer of 2020, the Member States reached a historic agreement on the creation of a recovery instrument to be adopted along with the MFF. It was the result of compromises achieved among several groups of Member States that had different positions on important aspects, such as the issuance of common debt, the provision of assistance in the form of grants instead of loans, conditionality and the rule of law (De la Porte & Jensen, 2021).

Thus, at the end of 2020, Next Generation EU (NGEU) was established as the biggest recovery instrument in EU history with an overall size of EUR 807 billion in current prices (EUR 750 billion in 2018 prices). If added to the long-term budget for 2021-2027, this brings the total amount of EU expenditure to over EUR 2 trillion or 6% of EU GDP in 2020 (ECB, 2022a, p. 93). The creation of NGEU reflected the reversal of the approach adopted during the sovereign debt crisis when fiscal consolidation was prioritised over solidarity and the lack of a supranational fiscal capacity was acutely felt. In this sense, NGEU represents a paradigm change, pushing the EU architecture of economic governance towards an arrangement akin to that of federal states (Fabbrini, 2022, p. 187). As De la Porte and Jensen (2021, p. 389) pointed out, this response to the consequences of the pandemic was perplexing not only because of the underlying political tensions, but also because NGEU broke with core norms of the EU, such as no common debt issuance and no large-scale redistribution to cushion economic crises. Wasserfallen (2022, p. 8) suggested that the radical change in Member States' position regarding common borrowing lies in the different causes of the two crises. The asymmetric shock triggered by the pandemic was seen as completely exogenous, while in the case of the euro area debt crisis, the narrative of self-inflicted problems blocked burden sharing. According to Howarth and Verdun (2020), the reason for this major paradigm shift was the necessity to address two asymmetries that had arisen in the integration process after the introduction of the common currency: the first one involves the asymmetric degrees of integration in "economic union" and "monetary union", while the second one, which emerged after the sovereign debt crisis, is between the "core" and the "periphery" countries of the euro area (Howarth & Verdun, 2020, p. 1). Thus, the responses to COVID-19 aimed at rebalancing between the economic and monetary pillars of EMU (Fabbrini, 2022, p. 193).

3.2. Structure and main characteristics of NGEU

NGEU is composed of seven programmes but at its core is the Recovery and Resilience Facility (RRF) which receives almost 90% of total funds. The remaining part of the funding is distributed along with six other programmes to reinforce the EU budget (Table 1). As the most important component, RRF was designed with a dual purpose. In the short term, its objective was to tackle the adverse economic and social effects of the COVID-19 crisis on the Member States. On the other hand, the reforms and investments financed by RRF aim at making the EU more resilient and less dependent as well as to generate European added value (Official Journal of the European Union, 2021). Both short-term goals (recovery) and long-term goals (resilience) are pursued through RFF’s six pillars.

Table 1. Structure of Next Generation EU

Programme	Purpose	Amount (in EUR billions, current prices)
Programmes financed only by NGEU		
Recovery and Resilience Facility (RRF)	Provision of grants and loans to support reforms and investments in the Member States. Consists of six pillars.	723.8 (grants and loans)
Programmes to reinforce MFF 2021-2027		
Recovery Assistance for Cohesion and the Territories of Europe (REACT-EU)	Addressing the immediate economic consequences of the pandemic. The funds are available for 2021-2022 through the Structural funds.	50.6
Horizon Europe	Promoting research	5.4
Invest EU	Support of private investments	6.1
European Agricultural Fund for Rural Development (EAFRD)	Support of farmers	8.1
Just Transition Fund (JTF)	Assistance for transition to climate neutrality	10.9
RescEU	Increased capacity for response to large-scale emergencies	2
Total amount of funds		806.9

Source: European Commission, 2021b.

Several important characteristics of the recovery instrument stand out. In the first place, NGEU is a temporary fund planned to exist only from 2021 to 2026. To ensure that the financial support is frontloaded in the initial years after the COVID-19 crisis, it was envisaged that 70% of the total amount of the grants would be committed by the end of 2022 and the remaining 30% to be committed by the end of 2023. The Member States were also given the opportunity to request a prepayment of up to 13% of the financial contribution by the end of 2021 in case of submission of their respective national recovery and resilience plans (Official Journal of the European Union, 2021).

Furthermore, RRF’s main purpose is to finance investments and reforms in the Member States aimed at increasing their competitiveness and preparing them for the challenges of globalisation. For this purpose, the Member States were required to prepare and submit national recovery and resilience plans (NRRPs) containing detailed reforms and investments along RRF's six pillars but also taking into account the specific challenges of the Member State concerned. NRRPs include also a set of measures for their monitoring and implementation, including targets and milestones as well as estimated costs (Official Journal of the European Union, 2021).

Another prominent feature is the strict conditionality imposed on the Member States since the payments of country allocations depend on the fulfilment of the milestones and targets set out in their respective national plans. Although the specific reforms and investments are proposed and implemented by the recipient countries themselves, the European Commission has a decisive role both in the initial approval of NRRPs and the subsequent supervision on their implementation. For milestones and targets to show as satisfactorily fulfilled, the Member States have the obligation to send relevant proof to the Commission, which should give a positive assessment (European Commission, 2023). Since NGEU is directly managed by the European Commission it entails a certain amount of fiscal centralisation from the Member States to the EU by surrendering fiscal sovereignty in the decision of how to use these resources (Batini et al., 2020, p. 5).

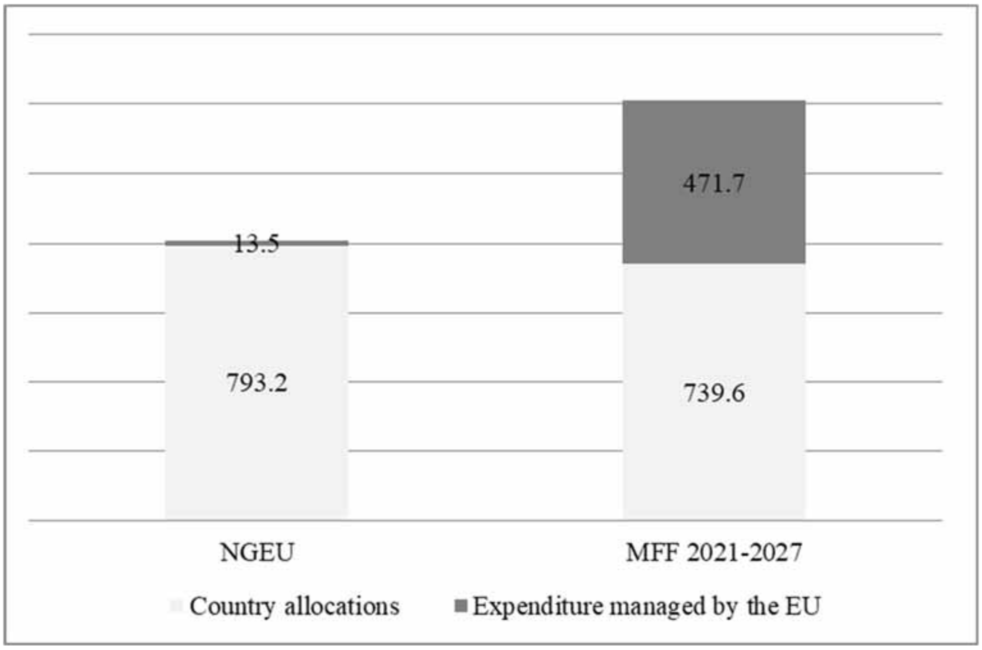
Finally, unlike the long-term EU budget, NGEU is financed entirely with debt. Before 2020, the European Commission had limited capacity to borrow funds on capital markets and lend them at favourable conditions to countries experiencing difficulties. However, with NGEU the European Union became a major debt issuer as the Commission was empowered to borrow up to EUR 750 billion (in 2018 prices) from mid-2021 until 2026. Implementing common EU borrowing showed EU solidarity and has generated confidence in the resilience of the euro area. NGEU is also a useful tool to give an additional option to Member States to borrow more cheaply and to invest together in common priorities, such as the green and digital transitions (Christie, Claeys, & Weil, 2021, p. 29).

3.3. Analysis of NGEU expenditure side from the perspective of public sector main functions

RRF's short-term objective of boosting post-pandemic economic recovery suggests an enhanced role of the EU in macroeconomic stabilisation and income redistribution. At the same time, the concentration of its expenditure side on investments aimed at increasing long-term resilience indicates a more important role of the EU in the supply of public goods. Considering these ambitious tasks the following questions arise: whether NGEU brings fiscal integration to a higher level and how its creation influences the EU's capacity to perform the main functions of the public sector. To answer this question this section provides an in-depth examination of the structure of NGEU expenditure.

In the first place, it is worthwhile to look at the distribution of the financial resources between county commitments and expenditures managed by the EU. As can be seen in Figure 1, over 98% of total funds from NGEU are dedicated to the Member States primarily in the form of grants and loans from RRF. Thus, the remaining financial resources for other instruments managed directly at the EU level amount to less than 2%. In contrast, country allocations in MFF 2021-2027 are 61% of total funds while the remaining 39% of the expenditure are managed by the EU, including for research, external actions and aid and cross-border infrastructure (European Commission, 2021a, p. 7). The predominant share of country allocations in NGEU is a result of the unprecedented political consensus achieved during the pandemic to prioritise the economic recovery and long-term growth potential of the Member States. This suggests a strong contribution of NGEU towards income redistribution among the EU countries.

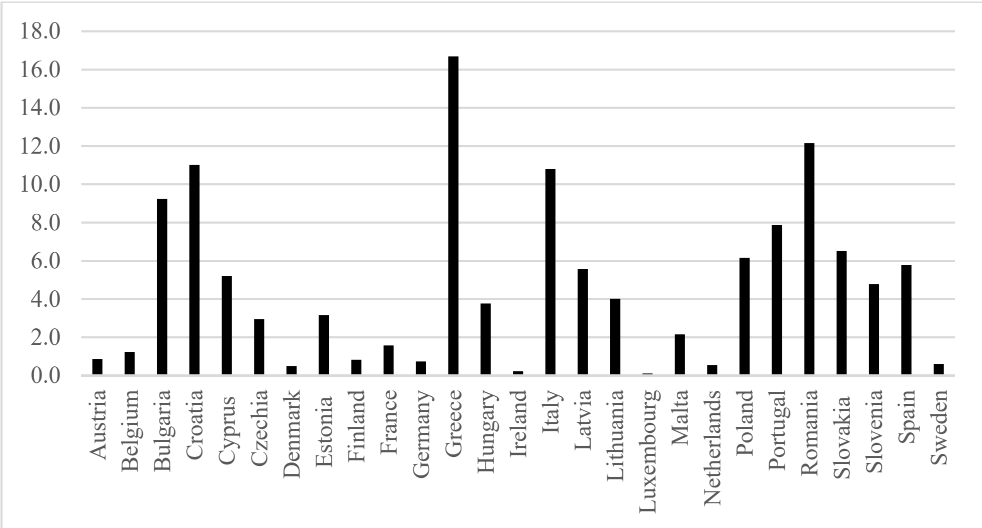
Figure 1. Breakdown of total funds between country allocations and other expenditures (in EUR billions, current prices)



Source: author's calculations based on European Commission data.

The main recipients from RRF, as measured in proportion to GDP, are the more vulnerable economies of the euro area as well as the new Member States from Central and Eastern Europe (Figure 2). This is achieved through the allocation formula which intends to ensure that more funds are made available for the countries with most economic difficulties and have been hit the hardest by the pandemic (ECB, 2022b, p. 9). In 2021-2023, the allocation of grants from RRF was based on three criteria, namely population, inverse GDP per capita and the average unemployment rate in 2015-2019. For the grants allocated in 2023 (around 30% of total), the average unemployment rate is replaced by the GDP losses in 2020 (15%) and over 2020-21 on a cumulative basis (15%), as projected by the European Commission. Due to the growth of GDP in most Member States in 2022, the amounts of the country allocations were reduced in accordance with the third criterion. With a view of providing immediate financial support at the height of the COVID-19 pandemic, the Member States were allowed to request prepayments of up to 13% of their respective national contributions by the end of 2021 (Official Journal of the European Union, 2021). Most countries, except Bulgaria and the Netherlands, received prefinancing.

Figure 2. Country commitments from RRF (in percentage of GDP)



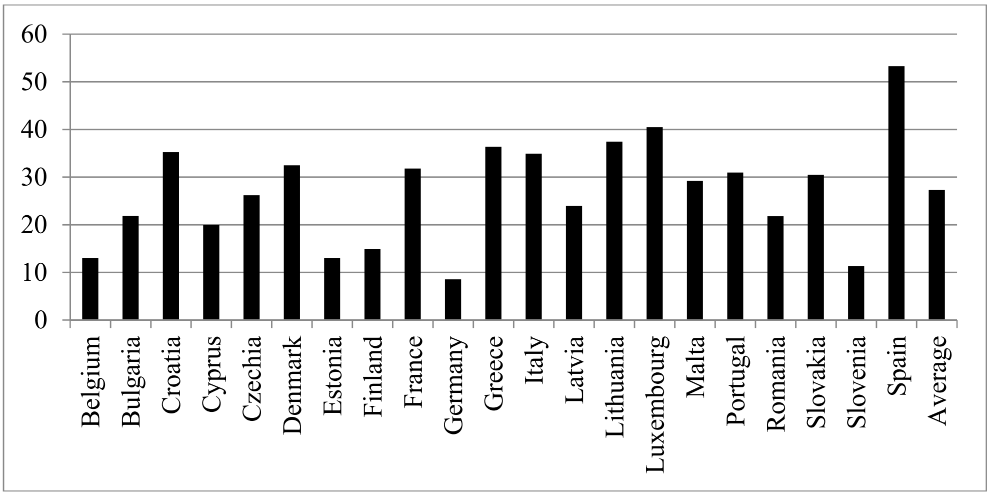
Note: The data is based on National Recovery and Resilience Plans and includes loans for the countries that have requested them

Source: European Commission (2023).

NGEU (combined with the EU budget) is expected to exert positive macroeconomic effects both in the short term – through boosting aggregate demand and supporting the countries that were most affected by the pandemic, and in the medium-to-long term - through strengthening growth potential due to investments and reforms (European Commission, 2021a, p. 17). Empirical studies (Codogno, van den Noord, 2021; ECB, 2022b; EIB, 2022) provide evidence that the disbursements from RRF will contribute to the economic growth in EU countries and especially the main recipients. The European Investment Bank estimates that RRF will have the highest impact in Southern Europe, where GDP is expected to rise about 5% by 2030 and 2.7% by 2040. In Eastern Europe, the impact will be about half the size relative to GDP for both periods and in Western and Northern Europe about 0.7% of GDP (EIB, 2022).

Nonetheless, the European Commission has acknowledged that despite its positive impact NGEU is not fully a macroeconomic stabilisation instrument as the disbursement of the funds has started after the peak of the crisis (European Commission, 2021a, p. 17). Furthermore, the expected effects on economic growth depend on the successful implementation of the national plans and the payment of the full amounts committed to the Member States. As can be seen in Figure 3, as of July 2023 the average amount of disbursements stands at 27.3% on total committed funds which is in contrast with the initial intentions. The Member States that have received the largest parts of their allocations are Spain (53.3%), Luxembourg (40.5%), Lithuania (37.5%), Greece (36.4%) and Italy (34.9%). It should be noted that although all Member States have submitted their NRRPs, five of them (Ireland, the Netherlands Sweden, Poland and Hungary) have not received any payment.

Figure 3. Disbursements to Member States as a share of total country allocations as of July2023 (including loans)

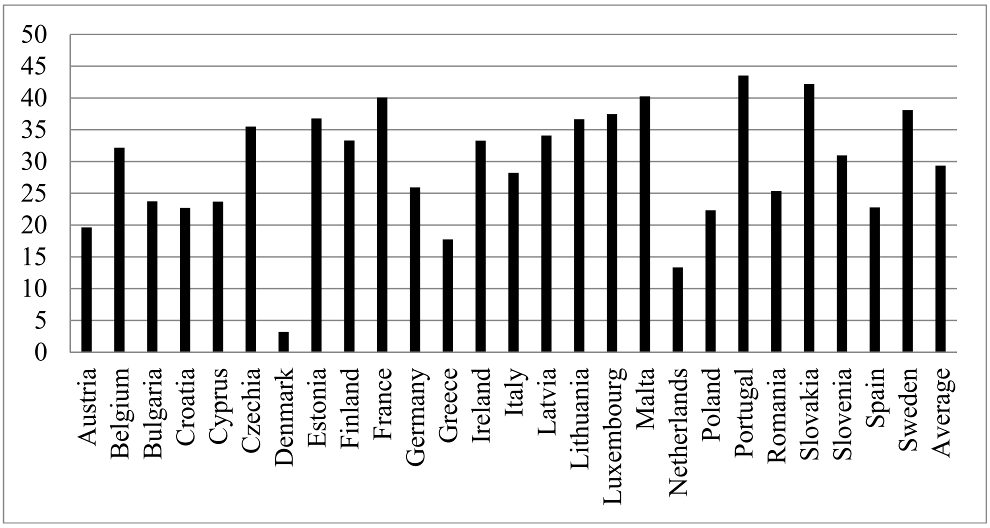


Source: author's calculations based on European Commission data.

NGEU's strong orientation towards income redistribution among and within the Member States is also evidenced by the significant share of social expenditure in NRRPs. In particular, RRF pillar four is dedicated to social and territorial cohesion, but social expenditure is incorporated in the other RRF pillars as well and it is divided into four categories: social policies, employment and skills, health and long-term care and education and childcare. Overall, social expenditure amounts to 29.3% of the total expenditure of Member States' NRRPs (Figure 3). However, significant differences are observed among the Member States as there is no minimum required level. In four countries social expenditure exceeds 40%, namely Portugal (43.5%), Slovakia (42.2%), Malta (40.2%) and France (40.1%) and in another ten countries its share is over 30%. On the other hand, the lowest levels of social expenditure are set in the national plans of Denmark (3.2%) and the Netherlands (13.3%). The observed variety can be explained by the characteristics of the existing welfare systems in the individual EU countries as well as the condition of their public finances.

Corti, Liscai & Ruiz (2022) conducted a study of the effects of RRF disbursements on social expenditure in six Member States. The authors' conclusion was that RRF has fast-forwarded the implementation of social investments in the countries with limited fiscal capacity (Portugal, Italy and Spain), whereas in the other countries of their sample, particularly Austria and Germany social spending has been used mainly to replace already planned investments.

Figure 4. Estimated social expenditure in national recovery and resilience plans (in percentage of total)



Source: author's calculations based on European Commission data.

Finally, the structure of the RRF expenditure side implies a stronger role of the EU in the allocation function. The funds are distributed along six pillars, namely:

- green transition;
- digital transformation;
- smart, sustainable and inclusive growth;
- social and territorial cohesion;
- health, and economic, social and institutional resilience;
- and policies for the next generation.

Although the Member States have the responsibility for their provision through the implementation of their respective NRRPs, the activities covered in the six pillars are closely linked to common priorities and objectives. It should be noted also that some of the investments in NRRPs contribute to more than one pillar at a time. Some of the activities under these pillars can be considered pure public goods because of their non-rivalry and non-excludability. This is the case, especially of the green transition as well as research and development. Other policy areas, such as digital transformation, education, health and infrastructure construction, exhibit traits of mixed goods as they create positive spillover effects but are excludable. On the other hand, following the distinction of Buti and Papaconstantinou (2022) the programmes comprising NGEU cannot be defined as "pure" EU public goods because the Member States have the primary role in their implementation. The breakdown of total funds presented in Figure 1 confirms that indeed a very small share of the funds (around 2%) is devoted to the provision of "pure" European public goods. However, according to NGEU can be viewed as a public good "by aggregation" where delivery takes place at a national level while the reforms and investments respond to European priorities (Buti, Papaconstantinou, 2022, p. 3).

Pillars one and two are of particular importance as the EU countries are required to allocate at least 37% of RRF-related expenditure to green transition and at least 20% to digitalisation (Official Journal of the European Union, 2021). The breakdown of estimated costs in NRRPs among the six pillars, presented in Figure 4, confirms that these levels are achieved by all Member States and in some cases they have even been exceeded.

Reforms and investments under pillar one "Green transition" are related to the implementation of the Green Deal which aims at achieving climate neutrality by 2050. Thus, they are expected to create significant positive spillover effects from an environmental perspective. After the beginning of the war in Ukraine, this pillar became even more important as it contributes also to enhancing the EU's autonomy and security in energy supply. In response to the war, RRF has been placed at the heart of the so-called REPowerEU Plan for financing cross-border and national infrastructure as well as energy projects and reforms (European Commission, 2022). On average, expenditure related to this pillar amounts to 55.3% of the national recovery and resilience plans and its share varies from 76% in Croatia to 39% in Latvia.

The main objectives of pillar two "Digital transformation" include the introduction of e-government and digital public services, digitalisation of businesses and creation of human capital in the digital economy (European Commission, 2023). The expenditure related to this pillar stands at 27.8% on average with the highest value in Germany (53%) and the lowest in Romania and Slovakia (21%).

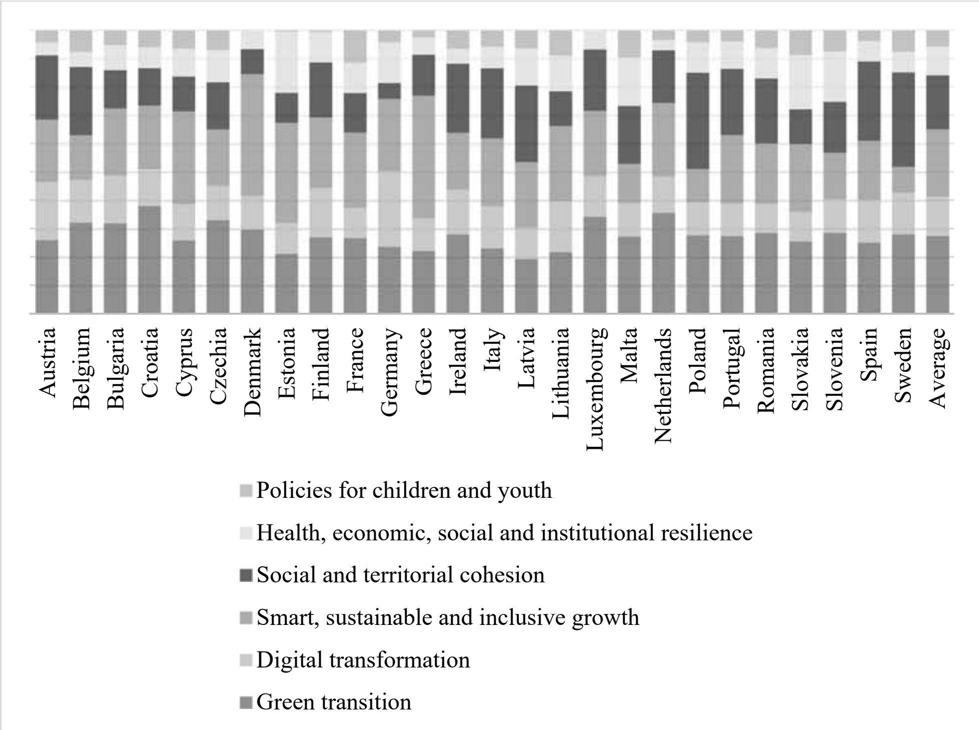
In most Member States pillar three "Smart, sustainable and inclusive growth" is the second largest expenditure heading. On average it accounts for 47.6% of NRRPs' estimated costs and in Greece and Denmark, it amounts to approximately 86%. On the other hand, in Sweden its share is relatively low at 18% Among the main objectives of this pillar are to promote economic cohesion and job creation, increase competitiveness and support the EU internal market (European Commission, 2023).

As already mentioned, pillar four has as its main objective to boost territorial and social cohesion. The predominant share of expenditure under this pillar is devoted to investments in territorial infrastructure and services and a smaller part of the funds is allocated for social cohesion and protection in the Member States. On average, the estimated costs for this pillar amount to 38.2% of NRRPs but again there are significant differences among the Member States. In Poland pillar four accounts for almost 68% of the expenditure while in Germany its share is 11%.

Pillar five comprises a variety of policy areas, including health, effectiveness of public administration, long-term care, crisis preparedness and others. Its share in total expenditure is 20.4% on average with the highest value in Estonia (43%) and the lowest in the Netherlands (7.2%).

Finally, pillar six "Policies for the children and young people" finances investments primarily in the areas of education and youth employment. Its overall share is 11.6% of total expenditure ranging from 23% in France to only 1% in Estonia. The national plans of Denmark and Luxembourg do not allocate any funds for this pillar.

Figure 5. Estimated expenditure for the six policy pillars in national recovery and resilience plans (in percentage of total)



Note: As each measure contributes towards two policy areas of the six pillars (primary and secondary assignments), the total contribution to all pillars amounts to 200% of the RRF funds allocated to the Member States (See Recovery and Resilience Scoreboard, Country overview)

Source: author's calculations based on European Commission data.

4. Challenges arising from the establishment of NGEU

Without a doubt, NGEU has been a major advance in the integration process and some authors (Fuest, 2021; De la Porte, Jensen, 2021) even suggest that it will ultimately become a permanent structure. Nevertheless, the creation of this fund gives rise to several issues that might negatively influence the realisation of its objectives.

4.1. The duality of NGEU

The ambitious dual goal of “recovery” and “resilience” in itself constitutes a potential obstacle to the success of this instrument. NGEU was established in the unprecedented context of a global pandemic and the obvious reason for its creation was to provide financial support to the Member States. This support, however, was not immediate but rather it was designed as investment projects along the six pillars. In this sense, defining the precise place of NGEU in the integration project constitutes a challenge. This complexity of NGEU can be explained by the necessity to avoid moral hazard. A reflection of this approach is the requirement for the recipient countries to carry out reforms in exchange for receiving their corresponding allocations from RRF.

Considering the rising number of common challenges facing the Member States in a globalised world, in the future the EU will have a more active involvement in the performance of public sector main functions. However, their more effective provision requires clearer delineation of the approaches to their provision.

On the one hand, a common fiscal capacity for macroeconomic stabilisation would have as a primary role to provide financial assistance to Member States in case of economic shocks. The existence of such a mechanism is especially important for the euro area countries but it can also involve the rest of the Member States under exceptional circumstances. Its key characteristic is that transfers to countries are automatically triggered by a cyclical indicator (Arnold et al., 2018, p. 10). Over the years, and especially after the euro area sovereign debt crisis, there have been multiple studies in this area with concrete proposals for a permanent supranational fiscal capacity for reaction to macroeconomic shocks (Commission of the European Communities, 1977; Inman, Rubinfield, 1992; Beblavy, Lenaerts, 2017; Arnold et al., 2018; Codogno, Van den Noord, 2021). According to Berger, Dell’Ariccia & Obstfeld (2018, p. 41) when some formal but partial risk sharing is introduced, the amount of expected (or de facto) overall fiscal risk sharing drops, and the associated level of moral hazard falls.

On the other hand, the supply of public goods at the EU level involves long-term investments that do not depend on the business cycle but rather reflect common priorities and objectives in different areas, such as environmental protection, health, security, external affairs and others. Moreover, some projects require significant capital but afterwards produce benefits for many years. If the provision of EU public goods follows the subsidiarity principle and avoids duplication with activities financed by Member States’ budgets, it could streamline the expenditure both at the EU level and national level and improve the state of Member States’ public finances. As Nunes Ferrer and Katarivas (2014) put it, the core issue is not the size of the EU budget, but rather its economic impact in terms of contribution to the achievement of EU policy objectives in areas such as energy and environmental protection (Nunes Ferrer & Katarivas, 2014). According to Panetta (2022), NGEU has demonstrated that the emergence of shared interests, such as the need to address the pandemic and the challenges of climate change and digitalisation, can provide the impetus that was missing in the past. This author suggested a possible design of a European fiscal capacity that supports projects with genuine European added value. Moreover, in terms of its contribution to allocative efficiency, it would be desirable for NGEU to draw a clearer line between areas where public expenditure may be justified or needed and areas where private investors should act (Fuest, 2021, p. 5).

4.2. Absorption difficulties in the Member States

The slow progress in NRRPs implementation and disbursement of funds to the recipient countries is another important challenge to the success of NGEU. Historically, there have been issues regarding the recipients' capacity to absorb EU funding, especially in the new Member States from Central and Eastern Europe. As Bisciari et al. (2021, p. 45) pointed out, the combination of MFF and NGEU adds to this challenge, especially because NGEU funds need to be absorbed by the end of 2026, which is faster than cohesion funds under MFF. Further complications arise from the strict conditionality related to RRF payments. As already mentioned, disbursements depend on the satisfactory fulfilment of the milestones and targets set in NRRPs as determined by the European Commission. Moreover, after the adoption of the rule of law conditionality regulation in 2021 the payment of country allocations both from MFF and NGEU is conditional upon the fulfilment of a set of political requirements (Official Journal of the European Union, 2020). Due to incompliance with rule of law conditionality Hungary has not received any payments from NGEU.

Statistical data indicates both a slow advance in reforms and investments in the Member States and a low rate of disbursement. As of July 2023, three years after NGEU's creation, the level of fulfilment of the targets and milestones set in NRRPs stands at only 11% on average (European Commission, 2023). On their part, total disbursements to the Member States amount to approximately 27% of total RRF funds (including loans) which is significantly below the goals set upon the establishment of NGEU.

4.3. Legitimacy issues

The creation of NGEU, like most major reforms in the EU over the past years, has occurred outside the existing EU institutional framework, thus raising questions regarding its legitimacy. A number of observers (Fabbrini, 2022; Howarth, Verdun, 2020; Leino-Sandberg, Vihriälä, 2021) have expressed the view that formal changes in EU legislation might be necessary given the transfer of significant new powers to the European Commission, and especially the power to borrow in financial markets. The Treaty for the Functioning of the EU (TFEU) explicitly requires that the Union provides itself with the means necessary to attain its objectives and carry through its policies and the budget is to be financed wholly from its own resources (Official Journal of the European Union, 2012). Although the requirement for a balanced budget formally was not breached, as NGEU was created as a separate programme outside the EU budget, the legitimacy of the decision to borrow funds to finance NGEU was questioned in the German Constitutional Court. The final ruling of the Court was that the issuance of common debt was related to exceptional circumstances and did not represent overstepping of EU competences (Euractiv, 2022). Nevertheless, all important steps in the integration process need to have a solid legislative base with a view of legitimacy and gaining support for further advances.

4.4. Risks to financial sustainability

The issuance of common debt to finance NGEU creates an asymmetry between EU expenditure and revenue and puts at risk its financial sustainability. In case new own resources are not introduced in the following years, the repayment of the loans under NGEU would require an increase in Member States' GNI-based contributions which will negatively affect their public finances. However, the adoption of new own resources is a difficult task considering the declining share of genuine own resources in the budget revenue over the past decades. The only new financing method for 2021-2027 is the Own resource based on plastic packaging waste. The entry into force of this new own resource was an important step as it reflects the European Commission's plans to bring the budget revenue in line with new EU priorities related to the green transition. The fiscal receipts from this resource, however, amount only to 3.5% of the total revenue in the EU budget in 2022, which is insufficient to cover the EU's increasing expenditure. In 2021 the European Commission proposed the adoption by the beginning of 2023 of other three new own resources to help repay the debt under NGEU: an own resource based on carbon border adjustment mechanism; an own resource based on the reallocated profits of multinational enterprises and an own resource based on the emissions trading system (European Commission, 2021c). However, as of 2023, these new own resources are not in place yet. Their entry into force is difficult because of the technical complexities involved and also because their introduction affects third countries. The only new own resource that can be introduced relatively fast is the own resource based on the emissions trading system as this system already exists and it involves only the Member States.

5. Conclusion

The creation of the Next Generation EU has been a major milestone for the European integration project leading to an increased role of the EU in fiscal affairs. The detailed analysis of its expenditure side has confirmed that NGEU contributes mainly to income redistribution among the Member States and at the same time it boosts social investments in the individual countries. With regard to its macroeconomic effects, NGEU cannot be viewed as a mechanism for adjustment to asymmetric shocks because of the slow payment of funds to the recipient countries and its linkage to the implementation of reforms that require time. It implies a stronger involvement of the EU in the allocation function because the investments along NGEU's six pillars correspond to common priorities and create positive spillover effects. Although the latter cannot be considered pure European public goods because of the decentralised approach in their supply, the relative autonomy delegated to the Member States with regard to the spending decisions is in line with economic efficiency in a multilevel governance system.

Finally, several important challenges have been identified in the article in relation to NGEU's specific characteristics and complex organisation. In particular, its ambitious tasks, namely short-term recovery and long-term resilience, make it difficult to define the precise place of this financial instrument in the integration process. It can be characterised neither as a fiscal capacity for macroeconomic stabilisation nor as a facility for the provision of EU public goods. Given the increasing interconnection of the Member States' economies, further integration in fiscal affairs should be based on a clear distinction between short-term financial assistance in response to macroeconomic shocks, on the one hand, and long-term financing of EU public goods, on the other hand. Some other challenges related to the establishment of NGEU are difficulties in the absorption of the funds, legitimacy issues and risks to EU financial sustainability.

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ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ
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IMPACT OF FISCAL POLICY ON ECONOMIC GROWTH: EVIDENCE FROM SOUTH EAST EUROPEAN COUNTRIES[6]

This paper empirically analyses the impact of fiscal policy on the economic growth of the countries of Southeast Europe. The work was carried out with secondary data from the 12-year period and respectively from 2010 to 2021 and includes 11 countries, so the data belongs to the panel type. The purpose of this paper is to analyze social variables such as government spending, income from taxes, public debt, government effectiveness, fiscal freedom, rule of law index, and corruption in economic growth. For this purpose, we employ different econometric models and techniques such as OLS, OLS Robust fixed and random effects models, and GMM (Generalized Method of Moments). The findings from the research show that fiscal policy instruments have a positive impact on the economic growth of the countries of Southeast Europe, while the effectiveness of the government, the rule of law, and corruption show a statistically significant impact on the economic growth of these countries. The recommendations for the countries are for policymakers in the region to prioritize the development and implementation of sound fiscal policies to stimulate economic growth. By strategically managing government spending and taxation, these countries can enhance aggregate demand, encourage investment, and create a favourable business climate. Furthermore, adopting expansionary measures during economic downturns and adopting prudent debt management practices can contribute to stability, confidence, and sustainable growth.

Keywords: Fiscal Policy; Economic Growth; Southeast Europe; Institutions; Government
JEL: O4; O40; H3

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1. Introduction

Many works have been carried out with the aim of studying or measuring the impact of fiscal policy on economic growth, the works have studied different countries and periods, offering different empirical findings. Most of these works find that countries with fiscal policies have achieved sustainable economic growth (Ojon et al., 2016; Ugwuanyi et al., 2017; Paparas et al., 2015; Makhoba et al., 2019; Rexha et al., 2021; Chugunov et al., 2019; Mugableh, 2019; Qehaja et al., 2022). Well, there are also works that find that the effect of fiscal policy has been negative on economic growth, mainly due to the lack of efficiency, weak institutions, or other reasons related to management (Agostino et al., 2016; Mauro, 2017; Ramey and Zubairy, 2018; Dladla and Khobai, 2018; Stoilova, 2017). In this paper, the role of fiscal policy in economic growth is addressed, taking as a basis institutional factors such as the efficiency of the public sector and the institutional quality of the countries of the research analysis. The countries of Southeast Europe are characterized by a lack of leadership and productivity of public expenditures, which are one of the main components of fiscal policy. This lack of fiscal policy leadership often leads to high deficits and public debt. These countries are also characterized by a lack of policy coordination, which has consequences in the lack of functioning of internal and external markets. Overall, the lack of fiscal policy leadership in Southeast European countries creates significant challenges for sustainable economic development and stability. These countries must engage in the design of sustainable and coordinated fiscal policies to improve their economic and social conditions.

Fiscal policy's impact on economic growth has been the subject of extensive research, encompassing various countries and periods. Empirical findings from these studies offer divergent insights into the relationship between fiscal policies and sustainable economic growth. This paper contributes to this discourse by investigating the role of fiscal policy in economic growth, specifically focusing on Southeast European countries. The countries within Southeast Europe constitute a diverse region, marked by varying levels of economic development and outcomes achieved. In this study, we focus on understanding how fiscal policy influences economic growth across these nations during a specified time frame (2010-2021). The distinct economic trajectories of these countries make the exploration of fiscal policy's impact pertinent and timely.

The motivation behind this research lies in the importance of comprehending the dynamics of fiscal policy within the Southeast European context. As these countries navigate their unique economic challenges, understanding the role of fiscal policy can provide valuable insights into strategies for achieving sustainable economic growth. By addressing this research gap, we aim to contribute to both the theoretical literature on fiscal policy's impact and the practical policy considerations relevant to these nations. Southeast European countries exhibit a range of economic complexities that necessitate a tailored approach to fiscal policy analysis. From varying levels of institutional quality to disparities in policy coordination, these countries encounter distinct challenges that affect their economic trajectories. It is within this context that we delve into the multifaceted relationship between fiscal policy, economic growth, and institutional factors. Through an empirical analysis grounded in rigorous econometric models, we aim to shed light on the determinants that shape the interplay between fiscal policy and economic growth in Southeast Europe. By incorporating control variables for institutional quality and effectiveness, our study not only adds to the existing literature but also provides a comprehensive perspective on the region's economic dynamics.

The research questions of the paper are:

1. What is the role of fiscal policy in the economic growth of Southeast European countries?
2. What role do institutions play in efficient fiscal policy and economic growth?

To examine the determinants of migration, the following hypotheses were raised:

H1: Fiscal Policy has a positive impact on the economic growth of Southeastern European countries

H2: Institutions have an important role in the economic growth

To evaluate the presented hypotheses, different econometric models were used, starting with the OLS and OLS Robust models. Since the data used in this study belong to the panel type, three additional models were used: fixed effects method, random effects method, and GMM. The empirical analysis was based on data from reputable sources such as the World Bank, The Global Economy, FRED, and CEIC data. In cases where data were missing, information was obtained from the statistical entities of the eleven countries under investigation.

Although this paper analyzes the effect of fiscal policy on economic growth, the additional contribution of the paper lies in the inclusion of control variables for the quality and effectiveness of the institutions of these countries, since there are very few works, especially for the countries of South-Eastern Europe, which include controlling variables such factor.

The paper is structured into five parts, where the next part presents the review of the literature which contains scientific publications relevant to our research, emphasizing the findings of other authors who have theoretically and empirically examined the effect of fiscal policy on economic growth. The third part of the study contains methodology, the fourth part presents empirical results, and the fifth part includes the conclusions derived from the results.

2. Literature Review

Many works deal with the impact of fiscal policy on the economic growth of different countries. Different authors deal with different aspects of fiscal policy management. There is still no consensus among the authors since some of the authors find that the fiscal policy turns out to be positive in economic growth, while other authors find that the fiscal policy has a negative impact on economic growth, where they mainly relate this negative impact to the management of weak institutions as well as high levels of corruption. In the following, the views of these authors about the impact of fiscal policy on economic growth are presented.

2.1. Positive impact of fiscal policy on economic growth

The research carried out by the authors Ojong et al. (2016) examines the impact of tax revenues on economic growth. This research is carried out for the state of Nigeria, where the special focus was the examination of revenues from oil taxes and corporate taxes on the Nigerian economy. The data for the realization of this research were taken as secondary data from the Statistical Bulletins of the Central Bank of Nigeria. For the empirical analysis, multiple regressions were used where the results show that there is a statistically significant and positive relationship between oil tax revenues and economic growth in Nigeria. The findings also confirm a positive relationship between corporate tax revenues and economic growth. As a recommendation, the authors give the Nigerian authorities to invest in the tax collection infrastructure and to empower the administration for the collection of tax revenues.

The work by the authors Ugwuanyi and Ugwunta (2017) aims to determine the effect of the fiscal policy variable on economic growth, the study was carried out for sub-Saharan African countries. The result of linearly modelled hypotheses tested using panel data estimation technique under fixed effect assumptions revealed that productive and non-productive government spending, distortionary taxes (a proportional tax on nominal output) and non-distortionary taxes have effects important in the economy. the growth of sub-Saharan African countries. The findings also revealed that budget balances of sub-Saharan African countries have a positive but insignificant effect on economic growth in sub-Saharan Africa. Another study also carried out for African countries (regarding South Africa) was carried out by the authors Makhoba et al. (2019), this work was carried out using data from 1960 to 2017. For the empirical study, the authors use the VECM Johansen approach to examine the impact in short-term and long-term impact of fiscal policy on economic growth. According to the results of the empirical models, the authors find a positive relationship between the use of fiscal policy instruments and economic growth.

Another research carried out by the author Paparas et al. (2015) emphasized that the role of fiscal policy in the long-term growth process has been decisive in macroeconomics since the emergence of endogenous growth models. The authors carry out research with the aim of presenting the relationship between fiscal policy and economic growth for 15 countries of the European Union in 14 years, while the authors also investigate which of the fiscal policy instruments is more important for economic growth. The models that were used for the realization of the empirical analysis are the models; least squares method, fixed effects model, random effects model, and GMM model. The findings from the empirical analysis show that there is a positive impact of the increase in government spending on economic growth.

The research by the authors Rexha et al. (2021) analyzes the impact of fiscal policy on economic growth, this work is carried out only for the state of Kosovo, which is part of the region of Southeast European states. The time period of the research includes 11 years (2006-2016). The econometric model used by the authors is the model with the VAR technique where the Granger test was also performed to test the randomness between the data. The findings from the results presented in this research show that there is a statistically significant positive relationship between public spending and economic growth in the Republic of

Kosovo, although the findings show that the other instrument of fiscal policy (revenues) does not show a statistically significant impact. in the economic growth of Kosovo.

The authors Chugnov and Makohon (2019) carry out research on the relationship between two indicators (fiscal policy and economic growth) in the state of Ukraine. According to these authors, budget stability is characterized by the ability of state and local government bodies to finance budget expenditures in time and in full and to support the weight of the budget deficit and public debt in the gross domestic product at an economically sound level.

The author Mugableh (2019) analyzes research for the state of Jordan in the period of 40 years, namely from 1978 to 2017. The author's purpose is to analyze the relationship between economic growth and fiscal policy. The author uses the ECM model to carry out empirical analyses, where the findings from the results show that there is evidence of causal links between economic growth and fiscal policy instruments. The findings from this author also show that in the long term, general government spending has a positive impact on the economic growth of the state of Jordan, while the other instrument of fiscal policy has a negative relationship; to tax revenues, implying that tax cuts stimulate economic growth.

A recent study carried out specifically for the countries of Southeast Europe was done by the authors Qehaja et al. (2022) where the purpose of this paper was to analyze the relationship between government spending and economic growth. The time period of the research is 21 years, respectively from the year 2000 to the year 2020. The models used by these authors include the OLS models, the fixed effects method, and the random effects method. From the empirical analyses carried out in this research, the authors find that there is a positive and statistically significant relationship between government spending and economic growth in the countries of Southeast Europe during the studied period.

The paper published by the authors Petrevski, Bogoev, and Tevdovski (2016) investigates the macroeconomic effects of the fiscal policy in three of the countries of South-Eastern Europe, respectively the research is carried out for the states of Bulgaria, Croatia, and North Macedonia. The authors use vector regression to study the relationship between fiscal policy and economic activity, where the data collected are quarterly data. Based on the authors' findings, economic activity has a statistically significant impact on the inflation rate, the authors find evidence for the expansionary effects of fiscal consolidation since fiscal tightening leads to an increase in economic activity.

According to another research carried out by the author Alexiou (2009), which deals with the impact of government spending on the economic growth of countries that are considered by the author as countries in transition and are part of South-Eastern Europe, respectively the research is carried out for seven countries of this region. Based on the author's empirical evaluation findings, four of the five variables used in the evaluation, i.e., government spending on capital formation, development assistance, private investment, and trade openness, all have positive and significant effects on economic growth. In contrast, population growth turns out to be statistically insignificant.

2.2. Negative impact of fiscal policy on economic growth

After the presentation of various works by authors who find a positive impact of fiscal policy on economic growth, there are also works that find a negative effect/ratio between these two indicators. Some of these researches are presented below.

Ricardian Equivalence which is proposed by economist David Ricardo, this theory suggests that individuals anticipate that future taxes will be increased to pay off government debt incurred due to fiscal expansion. As a result, they increase their saving to offset the anticipated higher future taxes. In this view, changes in government spending financed by debt are seen as having no net effect on aggregate demand and economic growth, as the private sector adjusts its behaviour to counteract the fiscal stimulus (Meissner and Rostam, 2017).

The authors Agostino et al. (2016) emphasize that countries with high levels of corruption are less productive in government spending, which then represents a negative impact of government spending on economic growth. In the research carried out by this author, a total of 106 countries are included. The results from the presented empirical analysis show that in countries with high levels of corruption, the effects of government spending in different sectors have a negative impact on economic growth. The authors suggest strengthening the institutions thus reducing the high levels of corruption to increase the productivity of government spending. Important research was also carried out by the author Mauro (2017), who emphasizes that there is a lack of work that deals with the efficiency of institutions in such a way that the fiscal policy is efficient, this mainly happened because it is difficult to measure the efficiency of institutions and there is a lack of data in this direction. The author points out that the high levels of corruption cause the efficiency of the institutions to decrease and in this case the fiscal policy does not have the desired effect so as not to have a negative effect on economic growth.

Authors Ramey and Zubairy (2018) analyze the effect of multiplying government spending during economic crises, focusing on the United States of America. The results from the author show that despite the increase in government spending during the various financial crises, the effect on economic growth has not been positive (at least in the short term).

Another research carried out by the authors Dladla and Khobai (2018) analyzes the report about the impact of taxes on economic growth in South African countries. For the empirical analysis, the authors analyzed the data for 36 years, respectively from 1981 to 2016. The model used for the analysis of this data is the model with the ARDL approach. The findings from the analysis carried out with this model show that there is a negative relationship between taxes and economic growth in South African countries. In this paper, Autroet suggests that fiscal policy is very important to promote sustainable economic growth in South Africa.

A study similar to the previous one was carried out by the author Stoilova (2017), the purpose of which is to provide assessments about the impact of taxation on economic growth. The author's analysis includes the 28 countries of the European Union in the period of 18 years, respectively from 1996 to 2013. Since the data is a panel, then the author uses panel data models where he finds that some types of taxes (taxes in personal income and property taxes) have a positive impact on economic growth, but other taxes collected such as corporate taxes, value added tax, etc. have a negative impact on economic growth.

The author Hasnul (2015) also finds a negative effect of government spending on economic growth, this author researches the relationship between these indicators for the state of Malaysia. The author divides government expenses into two types; operating expenses and development expenses. The time period of the data included in the research is 45 years, respectively from 1970 to 2014. The author uses the OLS technique for the analysis of indicators. Findings by this author suggest that there is a negative relationship between government spending and economic growth in the state of Malaysia.

Other authors Onifade et al. (2020) finally carry out empirical research using the ARDL model with data from 1981 to 2017 for the state of Nigeria. Findings based on practical experiences support the existence of a relationship between public expenditure indicators and economic growth in Nigeria. The study shows that regular government expenditures have a significant negative impact on economic growth, while the positive impact of public capital expenditures is not as significant for economic growth during the study period. The results of the Granger causality test show that the government's fiscal expansion, which depends on debt financing, has a strong impact by causing public spending and domestic investment, and this, at the same time, causes real growth in the economy. The author points out that the increase in public debt to finance public expenses is not recommended because the high increase in public debt has a negative impact on economic growth.

3. Methodology

Many works deal with the impact of fiscal policy on the economic growth of different countries. Different authors deal with different aspects of fiscal policy management. To analyze the impact of fiscal policy on economic growth in Southeast European Countries, panel data were used where 5 econometric models were applied; the first model executed is based on the method, Ordinary least squares (OLS), the second model Ordinary least squares robust (OLSR). While the models for the panel data are also used; fixed effect (FE), random effect (RE), and General method of moments (GMM).

3.1.Research Methodology

The empirical analysis includes 12 years, respectively, the empirical analysis is developed with data from 2010-2021 and includes 11 countries of southeast Europe. For the testing impact of fiscal policy on economic growth, the GMM model is used, while the tests applied are Arellano and Bond (1991), Blundell (2000), and Viciente et al. (1999).

A GMM model is a statistical representation that uses multiple Gaussian distributions together to analyze a specific data set. Instead of assuming that the data come from a single Gaussian distribution, a GMM aims to capture the underlying structure by considering a combination of Gaussian distributions. One area where GMMs are commonly applied is clustering, which involves grouping items based on their similarity to each other. GMMs are particularly useful for clustering when the data have a complex structure that cannot be accurately described by a single Gaussian distribution. In such cases, GMMs approximate the underlying structure by mixing multiple Gaussian distributions. The model learns the number of Gaussian distributions and their parameters from the data, enabling it to cluster the data into different groups. Density estimation is another valuable application of GMMs. It involves estimating the underlying probability density function of a given data set. GMMs excel at density estimation when the data have a complex structure that cannot be adequately represented by a single Gaussian distribution. In these situations, GMMs model the data density by fitting a combination of Gaussian distributions to the data set. The developed GMM model can be useful for various tasks such as anomaly detection, classification, clustering, and even density prediction of new data points. Anomaly detection is particularly important, as it involves identifying data points that deviate significantly from the rest. Detecting anomalies is essential as they may indicate errors or outliers. GMM models can help detect anomalies by first fitting a series of Gaussian distributions to the data and then determining the probability score for each data point. Those with low probability values are considered anomalies, highlighting points that deviate significantly from the rest of the data.

The reliability of the toolkits utilized by the GMM estimator directly impacts the estimator's trustworthiness. To address this concern, we consider two specification tests introduced by Arellano and Bond (1991), Blundell (2000), and Viciente et al. (1999). The initial test, known as the Sargan test, assesses the accuracy of the hypothesis that there are no over-identification constraints or that the instruments, as a whole, are exogenous.

Through analyzing the sample counterpart of the moment conditions employed in the estimation procedure, this examination either verifies or disputes the overall effectiveness of the instruments. The second test examines the hypothesis that there is no autocorrelation, meaning that the error terms are not sequentially correlated with each other. In the differenced regression, we examine whether the differenced error term demonstrates a serial lack of correlation in either the first or second order.

The specification of the dynamic panel data model (GMM) is as follows:

$$GDPit = \mu + B1(GDPit - 1) + B2\,(GSPENDit) + B3\,(ITAXit) + B4\,(PDEBTit) + B5\,(FFIit + B6\,(RLIit) + B7\,(GEIit) + B8\,(CPIit) + \delta i + \gamma i + \varepsilon i \quad (1)$$

Based on the equation above, economic growth (GDP) is the dependent variable of the study which is presented as a percentage, the I parameters represent the states, and t represents the time or the years in which μ is a constant term. Whereas the independent variables of the study are: GDP(it-1) is the first lag of the dependent variable, GSPEND represents government expenditures presented as a percentage of gross domestic production, ITAX represents government revenues presented as a percentage of gross domestic production, PDEBT represents public debt also presented as a percentage of gross domestic product, FFI represents fiscal freedom index, RLI represents Rule of law index, GEI represents Government effectiveness index and last variable CPI represents Corruption Perceptions Index. The term δi is the country fixed effect that enables us to control for time-invariant unobservable factors that may affect economic growth which otherwise may lead to bias coefficients. The term γi is the common time effect that covers the business cycle effect which otherwise may lead to spurious regression between the dependent variable and explanatory variables. The term εi represents standard error. Following the table, a definition of the study variables is presented.

3.2. Descriptive statistics

Table 1 shows the descriptive statistics of the study variables, so the research was conducted with a total of 132 observations (except for some variables where we have some missing data). According to the data presented in this table, the average economic growth in the 11 states of the research is 1.84% during the time period of the research, these states on average have government spending 18.98% of the value of gross domestic production, while tax revenues are 18.63% of the value than GDP-sw. Regarding public debt, the states are characterized by 56.76% of gross production on average.

The table also shows the results of the four indices, where according to the results, the fiscal freedom index on average in these countries is 79.96, the rule of law index is on average 0.08, the Government effectiveness index has an average of 0.12 and the Corruption Perceptions Index is characterized by an average of 42.70.

Table 1. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
GDP	131	1.84	3.87	-15.31	12.43
GSPEND	131	18.98	4.32	10.84	34.3
ITAX	121	18.63	3.19	12.34	26.95
PDEBT	126	56.76	44.95	4.89	206.3
FFI	132	79.96	11.67	58	95
RLI	132	.08	.39	-.52	1.11
GEI	132	.12	.43	-1.04	1.18
CPI	130	42.70	7.31	31	64

Source: Author calculation.

4. Results

Table 2 presents the analysis of the correlation matrix which is presented in order to identify the relationship between economic growth and independent variables. According to the results presented in this table, both government expenditures (r=0.12) and tax revenues (r=0.20) have a positive relationship with the economic growth of the countries of South-Eastern Europe, the fiscal freedom index also has a positive relationship (r=0.12). Whereas public debt (r=-0.43) has a negative relationship with economic growth along with the indices; the operation of the law (r=-0.09), the effectiveness of the government (r=-0.05), and the perception of corruption (r=-0.03).

Table 2. Correlation matrix analysis

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) GDP	1.00							
(2) GSPEND	0.12	1.00						
(3) ITAX	0.20	-0.03	1.00					
(4) PDEBT	-0.43	-0.02	0.63	1.00				
(5) FFI	0.12	-0.59	-0.30	-0.32	1.00			
(6) RLI	-0.09	0.30	-0.07	0.03	-0.72	1.00		
(7) GEI	-0.05	0.14	0.04	0.11	-0.68	0.80	1.00	
(8) CPI	-0.03	0.14	-0.01	-0.03	-0.55	0.82	0.75	1.00

Source: Author calculation.

Table 3 presents the results of the econometric models of the countries of South-Eastern Europe. The table shows the summarized results of 5 econometric models, but for the interpretation of the empirical results, the results obtained from the Gaussian mixture model (GMM) will be taken as a basis. The Sargan test for identifying constraints (obtained from the findings of the second phase) is acknowledged as a reliable tool. It supports the claim that there is no relationship between the instrument variables and the residuals. In the first order, the Arellano-Bond test of AR(1) and AR(2) is refused; in the second order, it is approved.

According to the results presented in the table, government spending has a positive impact on economic growth (B=1.41) where the coefficient is statistically significant at the 5% significance level. So, for every 1% increase in gross local production due to government spending, the corresponding increase in economic growth is estimated to be 1.41 percentage points on average. Tax revenues also have a positive impact on economic growth (B=0.22), this coefficient is statistically significant at the 10% significance level. So, for every 1% of the gross domestic product collected in taxes, we will have economic growth of 0.22% on average. These results are consistent with the findings of the authors (Ojong et al., 2016; Ugwuanyi and Ugwunta, 2017; Paparas et al., 2015; Mugableh, 2019; Qehaja et al., 2022) who emphasize that the use of these two instruments fiscal policy has a positive impact on economic growth.

Freedom Fiscal Index has a positive impact on GDP (B=0.96), which is statistically significant at the 1% level. So, for every 1 increasing unit in this index, we will have economic growth of 0.96% on average. The index of the functioning of the law (B=1.07) has a positive impact on economic growth, this coefficient is statistically significant at the 5% level. So, for every 1 increasing unit in the index of the functioning of the law, there will be economic growth of 1.07% on average and the last variable which has a positive impact on economic growth is the government effectiveness index (B=4.86) but the coefficient is not statistically significant Important.

Public debt has a negative impact on economic growth (B=0.09), which is statistically significant at the 1% level. So, for every 1% of the gross domestic product increase in the public debt, we will have an economic decline of 0.09% on average. This result is consistent with the findings of the authors Onifade et al. (2020) where the authors emphasize that the increase in public spending is financed by the increase in public debt, which then has a negative impact on economic growth.

The perception of corruption also has a negative impact on economic growth (B=-0.41), which is statistically significant at the 1% significance level. So, for every 1 increasing unit in the corruption index, there will be an economic decline of 0.41% on average. This result is consistent with the findings of the author Agostino et al. (2016) who point out that countries characterized by high levels of corruption are less productive in government spending, therefore the effect is negative on economic growth.

Table 3. Results of econometric models

Variable/Model	OLS	OLSR	FE	RE	GMM
GSPEND	0.284**	0.284*	0.727***	0.284**	1.411**
	2.75	2.28	4.09	2.75	2.56
ITAX	0.0142	0.0142	0.495*	0.0142	0.221*
	0.11	0.07	2.04	0.11	2.13
PDEBT	-0.0475***	-0.0475**	-0.235***	-0.0475***	-0.0908***
	(-5.28)	(-3.16)	(-6.47)	(-5.28)	(-5.30)
FFI	-0.184**	-0.184**	-0.198*	-0.184**	0.965**
	(-2.86)	(-2.71)	(-2.04)	(-2.86)	2.6
RLI	-1.740**	1.740*	-1.711	-1.740**	1.07**
	(-2.74)	2.62	(-0.63)	(-2.74)	2.40
GEI	-0.892	-0.892	2.097	-0.892	4.86
	(-0.65)	(-0.61)	0.93	(-0.65)	0.43
CPI	0.124	0.124	0.327***	0.124	-0.419***
	1.65	1.45	4.21	1.65	(-4.15)
L.GDP					0.299
					-0.34
_cons	19.51*	19.51*	20.70*	19.51*	6.579
	-2.29	-2.29	-2	-2.29	-0.07
N	114	114	114	114	106
Arellano – Bond test for AR (1)					0.0481
Arellano – Bond test for AR (2)					0.56
Sargan					151.56
VIF					3.65
Hettest					0.2452

t statistics in parentheses
** p<0.1, ** p<0.05, *** p<0.01*

5. Conclusions

Fiscal policy plays a crucial role in driving economic growth by shaping government spending and taxation. Through the strategic allocation of resources and management of public finances, fiscal policy can stimulate aggregate demand, promote investment, and create a favourable business environment. By implementing expansionary measures during times of economic downturn and adopting a prudent approach to debt management, governments can foster stability and confidence, leading to increased private sector activity, job creation, and overall economic prosperity. The effective utilization of fiscal policy tools is imperative for policymakers to ensure sustained and inclusive growth, address socioeconomic challenges, and steer economies toward long-term development and resilience.

The findings from the empirical analysis presented in this paper, which includes 11 countries in Southeast Europe during the period 2010-2021, that is, a 12-year time period, show that fiscal policy instruments such as government spending and tax revenues have a statistically significant impact and positive in the economic growth of these countries. From the empirical results presented in the paper, we have sufficient statistical evidence to support the first hypothesis of the research, which is in line with the findings of other authors. So, Fiscal Policy has a positive impact on the economic growth of Southeastern European countries, based on the results presented in the paper for every 1% increase in government spending we will have economic growth of 1.41% on average, while for every 1% increase in tax revenues, we will have an economic growth of 0.22%. The second hypothesis of the research "Institutions have an important role in economic growth" also has sufficient statistical evidence to accept it since the effectiveness of the government and the rule of law had a positive impact on economic growth, while corruption on the other hand has an effect negative.

In summary, fiscal policy instruments have a positive impact on the economic growth of the countries of Southeast Europe. This study serves as a valuable resource for future research on the impact of fiscal policy on economic growth in South East European countries. Building upon the findings presented in the article, we recommend that policymakers in the region prioritize the development and implementation of sound fiscal policies to stimulate economic growth. By strategically managing government spending and taxation, these countries can enhance aggregate demand, encourage investment, and create a favourable business climate. While ensuring no undue burden on the populace, efforts should be made to simplify tax systems, ensuring broad coverage and compliance. Revenue generated should be transparently and effectively reinvested into growth-inducing sectors. Policymakers should prioritize reforms that bolster government effectiveness, uphold the rule of law, and combat corruption. This can include measures such as transparent governance initiatives, judicial reforms, and anti-corruption campaigns. Furthermore, adopting expansionary measures during economic downturns and adopting prudent debt management practices can contribute to stability, confidence, and sustainable growth. Policymakers need to leverage fiscal policy tools effectively to foster long-term development, address socio-economic challenges, and strengthen the resilience of their economies. Fiscal policy instruments undeniably influence the economic trajectory of Southeast European countries. As established in this study, effective utilization of these tools can stimulate robust economic growth. Policymakers in the region, therefore, should prioritize developing and implementing fiscal policies that capitalize on these findings. Doing so will promote aggregate demand, encourage investments, and foster a favourable business environment, leading to sustainable and resilient growth.

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ИНСТИТУТ ЗА ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ НА БЪЛГАРСКАТА АКАДЕМИЯ НА НАУКИТЕ
ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ
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PUBLIC SECTOR IMPACT ON INCOME INEQUALITY IN CEE COUNTRIES[2]

The paper focuses on examining the impact of the public sector, specifically the tax system and expenditure structure, on income inequality in CEE countries from 1998 to 2021. A panel data estimation technique is used to analyse this relationship. The findings of the research indicate that the tax systems in the CEE countries, characterised by limited progressivity and low shares of income taxes in total tax revenues, do not contribute effectively to reducing income inequality (shares of personal income tax, direct taxes and VAT are positively connected with GINI). In contrast, social and education spending are negatively associated with income inequality. These results suggest that expenditure policies have a stronger impact than tax measures in addressing income inequality in CEE countries.

Keywords: income inequality; public sector; CEE countries; panel regression
JEL: D31; E01; H23; H53; D63

1. Introduction

Unequal distribution of income is a market failure that necessarily results from the functioning of the market and the primary distribution of income based on the participation of economic agents in the factor market. A key policy objective of governments is to reduce inequality in the distribution of income, which is mainly associated with the redistributive function, one of the three functions performed by the modern state in its interventions in the economy (Musgrave and Musgrave, 1989).

The public sector can influence the level of income inequality through various channels, such as tax policy and government expenditure measures. This impact can come from both discretionary and non-discretionary (based on automatic budget stabilisers) fiscal policies. Furthermore, the public sector can affect both the primary income distribution and the secondary distribution of income (after taxes and transfers). The impact on market incomes occurs through more complicated and indirect transmission channels. Alfonso et al. (2008)

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emphasise that public policies also influence income inequality indirectly through their impact on income opportunities, human capital and institutions.

Tax policy plays a crucial role as one of the main direct channels through which governments can influence income inequality. The extent of this influence depends on the scope and effectiveness of the tax system. Different types of taxes are associated with income inequality to varying degrees and operate through diverse transmission mechanisms.

The structure of the tax system is an important determinant of income inequality. According to Joumard et al. (2012), certain countries with relatively small tax and social security systems, such as Australia, achieve a similar redistributive effect as countries with higher taxes and transfer payments, such as Germany. This is because these countries are more likely to base their tax systems on progressive income taxes, which are more effective at reducing income inequality than other types of taxes. On the other hand, tax systems that are mainly based on indirect taxes, such as in the countries of Central and Eastern Europe (CEE), are considered to be more regressive and less effective in reducing income inequality.

The main indirect tax, value-added tax (VAT), is a consumption tax that violates the principle of vertical equity. This means that individuals with different capacities to pay taxes bear the same tax burden, potentially exacerbating income inequality. Indirect taxes are perceived as more regressive (Beramendi and Rueda, 2007; Joumard et al., 2012; Chan and Ramly, 2019, etc), especially when compared to progressive income taxation. Under a VAT system, poorer individuals experience a higher loss of welfare compared to wealthier individuals. Chan and Ramly (2019) highlight that VAT has a negative impact on income distribution, as lower-income households spend a higher proportion of their income on VAT. This increases the wealth gap between the rich and the poor.

The impact of personal income taxes on income inequality is theoretically straightforward and clear. However, the progressivity of these taxes and hence the degree of vertical equity are crucial factors to consider when assessing their impact. Personal income taxes also act as important automatic stabilisers for government budgets. Increasing the progressivity of personal income taxes can help reduce income inequality by increasing their redistributive effect. However, several authors report a flattening trend of personal income tax systems over time in developed countries, with declining tax rates for the highest income groups (e.g. Piketty and Saez, 2007; Joumard et al., 2012; Wildowicz-Szumarska, 2022, etc.). This trend is very pronounced in Central and Eastern European (CEE) countries, many of which have moved from progressive to proportional taxation of personal income. As a result, the role of personal income taxes in reducing income inequality has weakened.

Social security contributions, on the other hand, are a good example of a regressive tax once a maximum insurable income (where applicable) is reached. However, a different trend has been observed in most OECD countries since 2000. According to Joumard et al. (2012), labour taxes, including social security contributions, have become more progressive. However, this goal is typically not achieved by focusing solely on increased progressivity and higher tax rates. Instead, it is often achieved through targeted measures such as reducing social security contributions for low-income groups or increasing the tax-free minimum for income taxation. Several countries, including Austria, Finland, Germany, Italy, Slovakia and others, have implemented such approaches to effectively address income inequality.

Corporate income taxation also has the potential to reduce income inequality. However, the limited share of revenue generated by this type of tax, coupled with the reduction of tax rates in some Central and Eastern European (CEE) countries due to tax competition within the European Union, weakens the likelihood of a significant impact. It is important to highlight that the impact of corporate income tax on income distribution is related to the final economic incidence of the tax burden, which is influenced by the possibility of tax burden shifting.

Public expenditure and its allocation through the government budget play an important role in shaping income inequality. In assessing this impact, particular attention is paid to the allocation and effectiveness of public spending. Social transfers are widely recognised as an important component of public expenditure with a significant impact on income inequality. While their impact is mainly on the secondary distribution of income, it is important to note that certain social transfers (e.g. employment-generating measures and training vouchers for the unemployed) can also have an impact on the primary distribution of income.

Expenditure that is specifically targeted at the lowest income groups, rather than being universally distributed without regard to income criteria, is more likely to be effective in reducing income inequality. These direct and targeted social transfers can take the form of in-kind benefits, such as social housing, social care, public canteens and active employment-generating measures, or cash payments, including benefits, allowances and scholarships. However, Alfonso et al. (2008) highlight a growing trend to replace income transfers targeted only at the poor with universal programmes, particularly in areas such as health and education. These universal programmes benefit all citizens, not just the poor, and can influence income growth through the primary distribution of income, while transfers play a role in the secondary distribution of income by the state.

The government's impact on income inequality in the market distribution is mainly associated with public spending on education and health (e.g. Chan and Ramley, 2018; Zhang, 1996; Anderson et al., 2016). Anderson et al. (2016) highlight that government spending on basic health and education services, as well as certain types of infrastructure such as rural roads, water and sanitation, and housing, are widely recognised as contributing to poverty reduction. These investments can increase the productivity and income potential of poor households. In addition, Chan and Ramley (2018) note that public spending aimed at improving welfare through education and health, contribute to the development of human capital. This, in turn, increases employment opportunities in an economy and helps to reduce income inequality.

Public expenditure on education, with a particular focus on increasing the proportion of people with secondary and tertiary education, can contribute to the reduction of income inequality by promoting equal opportunities in the labour market. It is crucial to ensure equal access, quantity and quality of education for all members of society as it is considered a vital public good. Zhang (1996) emphasises that higher education improves the labour skills of the population, which leads to higher average incomes and consequently reduces income inequality. Furthermore, Chan and Ramley (2018) argue that spending on education can also contribute to reducing inequality through the 'compensation' effect proposed by Knight and Sabot (1983). By providing comprehensive and accessible education, as well as free or affordable healthcare to the entire population, income inequality can be reduced. Such policies create more equitable living and working conditions, leading to greater equality of income opportunities. This type of expenditure is seen as an investment in human capital, as it improves skills and promotes equality. According to Wildowicz-Szumarska (2022), healthcare spending has the potential to increase the productivity of low-income workers, thereby reducing inequality.

The latest World Inequality Report highlights that variation in income inequality after taxes and transfers is mainly driven by differences in inequality before taxes and transfers. Pre-tax inequality accounts for a significant proportion of the observed variation in after-tax inequality levels across countries (Chancel et al., 2022). This suggests that redistributive policies are unable to cope with rising inequality. Černiauskas et al. (2022) argue that market income inequality has increased at a higher rate than redistribution, and the impact of redistributive policies has weakened over time in many countries. The effectiveness of these policies depends not only on their design, but also on trends in the primary distribution of market income, which is influenced by resource ownership. In this context, it is important to recognise that the effectiveness of public redistributive policies in addressing income inequality is also influenced by factors that shape the primary distribution of market income.

Based on the above, it is clear that effectively tackling income inequality requires attention to both the secondary and primary distribution of income. In this context, targeted and prioritised public spending plays a crucial role in increasing the effectiveness of public policies aimed at reducing inequality.

This paper contributes to the existing literature by examining the influence of the public sector, specifically the tax system and expenditure structure, on income inequality in CEE countries over the period 1998-2021. Based on empirical evidence, the paper provides evidence that different fiscal policies affect inequality outcomes in different ways. The focus on CEE countries is particularly relevant as these economies share a common history of transition to market-based systems and a lower degree of state intervention in the economy compared to the EU average. By providing empirical evidence and insights into the relationship between the public sector and income inequality in CEE countries, this research can assist policymakers in developing more targeted and effective policies. The central hypothesis of this study is that due to the predominance of indirect taxes in the tax structure of CEE countries, the contribution of the tax system to reducing income inequality is likely to be relatively limited compared to measures focused on the expenditure side of the budget, such as increased public spending on social security, education and health.

The paper is structured as follows. The next section provides a brief review of the relevant empirical literature in the field. The third part presents the dynamics of income distribution, tax system indicators and public expenditure in CEE countries. The fourth part describes the methodology adopted. The fifth part presents the main findings of the panel model estimation, aiming to verify the research hypothesis. The last part presents the main conclusions drawn from the analysis and the discussion.

2. Empirical Literature Review

The public sector plays an important role in influencing income inequality and the empirical literature has examined various aspects of its impact. Among these, the structure of the tax system has emerged as an important determinant of income inequality. In the case of Central and Eastern European (CEE) countries, value-added tax (VAT) accounts for the largest share of tax revenue. The regressive nature of VAT in terms of income inequality, as stated in theory, has been supported by several empirical studies (e.g. Leahy et al., 2011; Martinez-Vazquez et al., 2012; Chan and Ramley, 2018; Schmutz and Schaltegger, 2018; Alavuotunoki et al. 2019, etc.).

Chan and Ramly (2018) assessed the impact of value-added tax (VAT) on income inequality in 105 countries, including developed and developing countries, over the period 1984-2014, considering the influence of countries' level of development on the relationship between VAT and income inequality. Using the Generalised Method of Moments (GMM), the study findings revealed distinct patterns. In the model covering all 105 countries and in the model specific to developed countries with established and efficient tax collection processes, the results showed that increases in VAT revenue are associated with increases in income inequality. However, an inverse relationship is observed in the group of developing countries. This suggests that the impact of VAT on income inequality depends on the level of development of a country.

The confirmation of Chan and Ramly's (2018) findings on the positive relationship between VAT and income inequality in developed countries is also supported by Alavuotunoki et al. (2019) through panel model estimation. However, when considering low-income countries, no evidence is found that VAT leads to an increase in wealth inequality. In addition, Martinez-Vazquez et al. (2012) and Leahy et al. (2011) also provide evidence that indirect taxes increase income inequality. Leahy et al. (2011) conducted a study that examined the impact of different reforms of the VAT system in Ireland on income distribution. The results show that even when simulating rate changes such as the removal of VAT on food or children's clothing, the burden of VAT on disposable income remains highest for the poorest households. In addition, the introduction of a flat rate on all goods and services, regardless of their value, would disproportionately affect the poorest households and would not contribute to reducing income inequality. However, the authors recognise that introducing a zero rate on all food products could potentially have a positive impact on reducing income inequality. Furthermore, in a study focused on Switzerland, Schmutz and Schaltegger (2018) find that VAT does not have a significant impact on income inequality, as measured by the Gini coefficient.

The empirical literature is dominated by evidence that VAT is regressive and contributes to income inequality. However, there are some empirical studies that provide evidence of the opposite relationship. For example, Bye et al. (2012) find evidence of a reduction in inequality due to VAT in Norway. However, it should be noted that Norway has a tax system structure characterised by a lack of defined social security contributions and a reliance on direct taxes. This suggests that the impact of VAT on inequality may depend on the specific structure of the tax system.

The impact of income taxes on reducing inequality has also been examined in a number of empirical studies (Weller, 2007; Duncan and Peter, 2012; Martinez-Vazquez et al., 2012; Chen et al., 2018; Clifton, 2020; Carneiro et al., 2022, etc.). Theoretically, income taxes are considered to have a stronger association with reducing income inequality due to their progressive nature and the application of principles of horizontal and vertical equity.

Martinez-Vazquez et al. (2012) conducted a study that examines the impact of discretionary fiscal policy measures, including changes in income taxes (personal and corporate) and public spending, while also taking into account the impact of indirect taxes. The study uses a large panel data set covering developed and developing countries from 1970 to 2006. The empirical analysis shows that progressive income taxation, when considered independently, has a positive impact on income inequality, with a stronger effect observed with higher levels of progressivity and a larger share of income tax revenues in GDP. The authors also find a positive effect of corporate income taxes in reducing inequality, although this effect diminishes significantly in highly open or globalised economies. This finding supports Harberger's (1998) thesis regarding the reinterpretation of the impact of corporate income taxes in open versus closed economies. The results of Martinez-Vazquez et al. (2012) generally support the main theoretical propositions regarding the impact of different types of taxes on inequality.

Furthermore, Carneiro et al. (2022) find that in the United States, a tax reform that combines a reduction in the basic tax rate and an increase in the progressivity of income taxation, while leaving the tax burden on the richest quintile unchanged, leads to a reduction in income inequality. Weller (2007) also finds evidence that increasing the progressivity of income taxation reduces income inequality. The study covers a range of countries with different tax rates and progressivity of the tax system between 1981 and 2002. Duncan and Peter (2012) analyse the effect of changes in the structural progressivity of national income tax systems on observed and actual income inequality over the period 1981-2005 for a large panel of countries. They find that progressivity reduces observed income inequality. Wildowicz-Szumarska (2022) comes to a similar conclusion regarding the progressivity of personal income taxation for EU countries. In their study on the determinants of income inequality, Chen et al. (2018) argue that direct taxes play an important role in reducing inequality.

The impact of public spending on income inequality has also been studied in the empirical literature. A number of papers have examined the impact of public spending on income inequality, with most authors recognising that social spending plays a significant role (e.g. Alfonso et al., 2008; Martinez-Vazquez et al., 2012; Johansson, 2016, Doerrenberg and Peichl, 2012; Sanchez and Perez-Corral, 2018; Chen et al., 2018; Doumbia and Kinda, 2019; Ionut et al., 2021; Wildowicz-Szumarska, 2022, etc.).

Existing studies use different methodologies, country samples, time periods and other variables to examine the relationship between government spending and income inequality. After reviewing 80 separate studies with over 900 estimates, Anderson et al. (2016) conclude that there is substantial evidence that certain types of government spending have consistently contributed to reducing income inequality in different countries and regions around the world. Moreover, for developed countries, Alfonso et al. (2008) find that public spending related to the redistributive function of the state (excluding pensions) and education outcomes have a significant impact on income distribution. Johansson (2016) reaches a similar conclusion for OECD countries, demonstrating that social spending can reduce inequality through the promotion of redistribution and risk sharing. These findings are further supported by Doerrenberg and Peichl (2012) for OECD countries and Sanchez and Perez-Corral (2018) for EU countries.

The impact of social transfers on income inequality depends on the organisation of the social system and the social model adopted. Joumard et al. (2012) conducted an analysis of different social systems in OECD countries, based on the distribution of income over the life cycle (e.g. pensions) or between individuals (e.g. family and housing support). Their research led to several notable conclusions. First, old-age pensions, which account for a significant share of social transfers, have low progressivity and therefore a limited impact on income inequality. Similarly, unemployment benefits have a minimal effect on inequality as they are often correlated with income levels. It is mainly the duration for which individuals receive these benefits that affect their progressivity. Moreover, family support programmes based on income criteria show the highest degree of progressivity. However, their impact on income inequality is limited by their relatively small share in total transfers.

Empirical evidence has also shown that public spending on education and health has an impact on income inequality. Malla and Pathranarakul (2022) conducted a study that demonstrated a negative relationship between education spending, health spending and income inequality in developed countries. Similarly, the study by Martinez-Vazquez et al. (2012) found that increases in public spending on social security, education, health and housing have a positive impact on income distribution. In the context of EU countries, Wildowicz-Szumarska (2022) found a significant negative relationship between public spending on health and income inequality. However, the research found an inverse relationship for education spending, which is attributed to poor targeting of the main benefits captured by the urban middle class. Another study by Clifton et al (2020) focused on 17 Latin American countries and showed that spending on education plays a role in reducing income inequality.

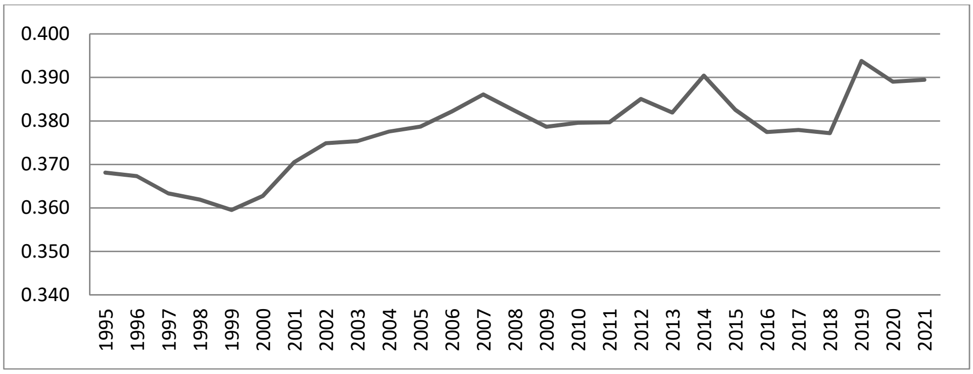
The literature review shows that the influence of the public sector on income inequality through the tax system and public spending is a topic of interest in empirical research. However, this relationship has not been extensively studied, especially in Central and Eastern European (CEE) countries. These countries share certain characteristics and have the lowest government revenue and expenditure as a percentage of GDP within the European Union, suggesting a relatively smaller role of the state in the economy.

The impact of the level of government intervention in the economy and the size of public expenditure on income inequality has also been examined in empirical studies. Malla and Pathranarakul (2022) show a negative relationship between the size of government and income inequality in developed countries. This relationship is further supported by Doerrenberg and Peichl (2012) and Fournier and Johansson (2016) in their studies focusing on OECD countries.

3. Trends on Income Distribution, Tax System Indicators and Public Expenditure in CEE Countries

Income inequality in Central and Eastern European (CEE) countries is a challenge for public policy. The Gini coefficients, which measure income inequality on the basis of disposable income after taxes and transfers, show a rising trend for the CEE average (see Figure 1). The upward trend of these coefficients suggests an increase in inequality, which could be attributed to both growing disparities in market incomes and a declining role of the public sector in reducing inequality. Despite this unfavourable trend in income inequality in the CEE countries on average, it should be noted that in some of them (Estonia, Croatia, Latvia, Slovenia and, to a very small extent, the Czech Republic and Slovakia) the opposite process is reported. The main reason for the rising trend in the average Gini coefficient in the CEE countries is the significant increase in the coefficient in Lithuania, Hungary and Bulgaria.

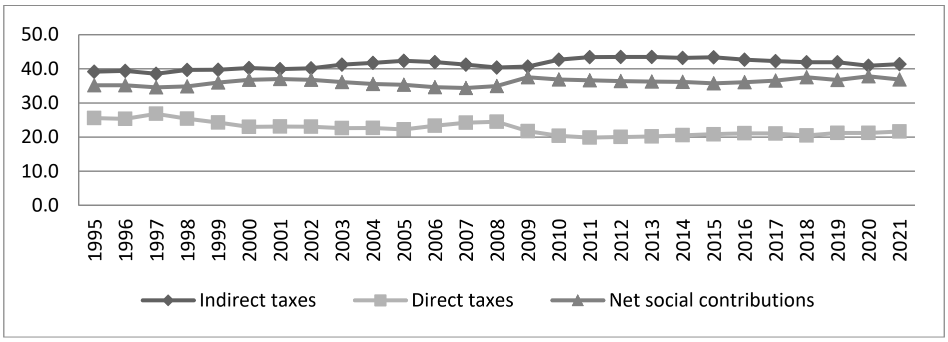
Figure 1. Gini coefficients in CEE countries on average



Source: WID.

The effectiveness of the public sector in reducing income inequality is influenced by the structure of the tax system and the structure and targeting of public spending. In the case of Central and Eastern European (CEE) countries, there is a notable imbalance between the shares of indirect and direct taxes, with indirect taxes dominating (see Figure 2). This revenue structure in the CEE countries differs significantly from the EU-27 average observed between 1995 and 2021. According to Eurostat data, the revenue structure of the EU-27 is relatively balanced in 2021, with indirect taxes accounting for 31.3% and direct taxes for 31.6% of total revenue (see Figure 3).

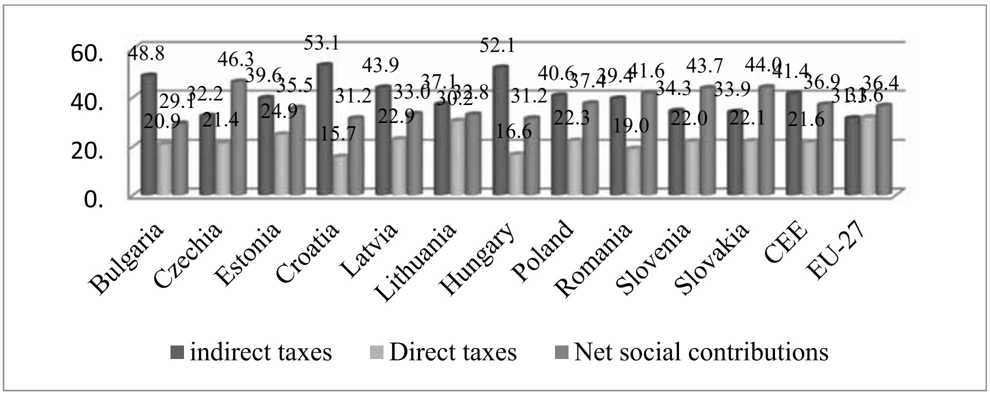
Figure 2. Shares of indirect taxes, direct taxes and social security contributions in total tax revenue in CEE countries on average (%)



Source: Eurostat.

On average, the share of indirect taxes has increased in the CEE countries, reaching around 40% in recent years. In contrast, direct taxes have shown the opposite trend, with a share of around 20% in the latter part of the period. The values of the indicators show that the share of indirect taxes is about twice that of direct taxes. There is also considerable variation between countries in the share of tax revenue, with only Lithuania showing a difference of less than 10 percentage points between direct and indirect taxes. Croatia, Hungary and Bulgaria stand out as having the highest shares of indirect taxes (see Figure 3).

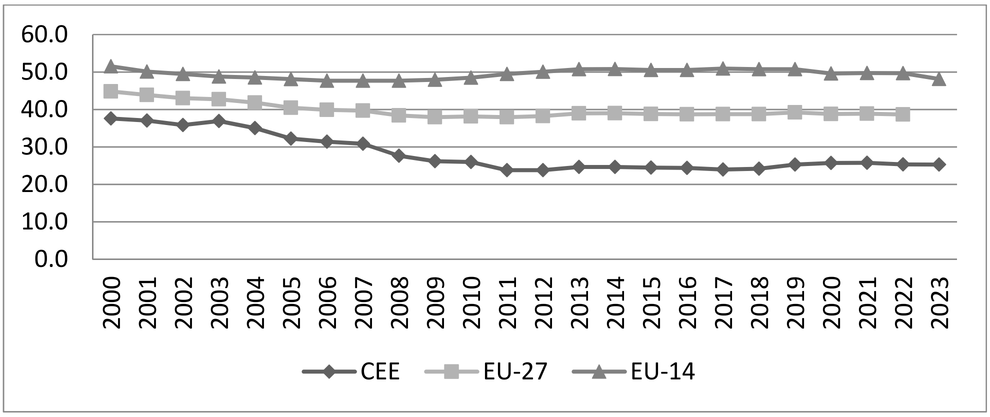
Figure 3. Shares of indirect taxes, direct taxes and social security contributions in total tax revenue in CEE countries, 2021(%)



Source: Eurostat.

Tax systems that rely mainly on value-added tax (VAT) to generate tax revenue are generally considered to be less effective in reducing income inequality than systems that rely mainly on direct taxes, in particular income taxes with a progressive tax structure.

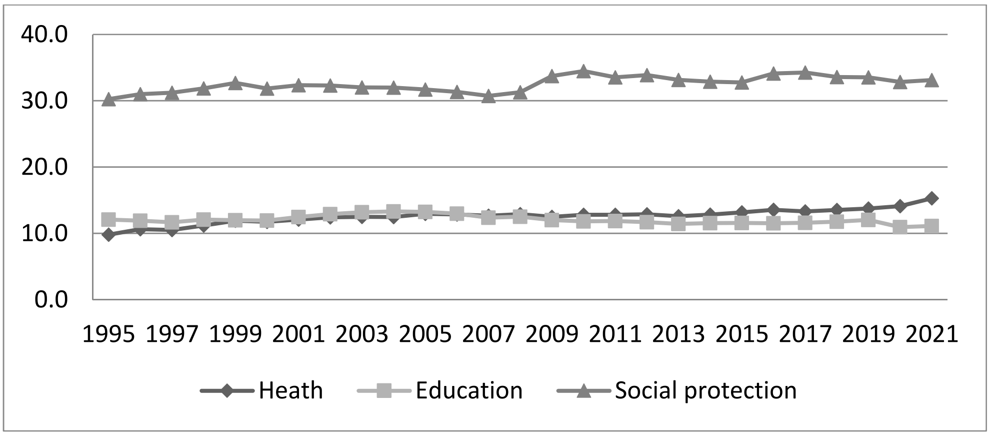
Figure 4. Top statutory personal income tax rates (%)



Source: Eurostat.

In the old EU Member States (EU-14), no significant change in top income tax rates was observed after 2004. In the CEE countries, however, there is a noticeable trend of changes in top income tax rates until 2011, leading to a downward trend in the share of direct taxes in general government revenue (see Figure 4). This trend explains the observed downward trend in the share of direct taxes in budget revenues and the significant disparity between the shares of indirect and direct taxes in the CEE countries.

Figure 5. Shares of public expenditure on health, education and social protection in total revenue in CEE countries on average (%)



Source: Eurostat.

The reduction of personal income tax rates and the introduction of flat tax systems in most CEE countries have played an important role in reducing the redistributive impact of fiscal policy. These changes have reduced the overall progressivity of the tax system. As a result, it becomes crucial for the public sector to prioritise the expenditure side of the budget, in particular by allocating public funds to key areas such as social protection, health and education to promote welfare. This trend is evident in the CEE countries, where public spending on social protection and health shows a notable increase over the period 1995-2021. However, education expenditure shows a contrasting trend (see Figure 5), but exhibits the lowest dynamics (measured by the coefficient of variation of the values for different years of the period) compared to the other two public cost areas, indicating a relatively stable level of public investment in education over the years.

4. Methodological Approach

This section presents the methodology used to assess the impact of the tax system and expenditure structure on income inequality in the CEE countries (Bulgaria, the Czech Republic, Estonia, Croatia, Latvia, Lithuania, Hungary, Poland, Romania, Slovenia and Slovakia). The analysis applies a panel data estimation technique: the seemingly unrelated regression (SUR) model, which is chosen because the null hypothesis of no cross-section dependence (correlation) in the residuals (based on the Breusch-Pagan LM test and Pesaran scaled LM) is rejected for OLS regression, which also detects heteroskedasticity. This model selection is also influenced by the relatively larger number of time periods (T) compared to the number of countries (N). The SUR approach allows the estimation of panel data models with a long time dimension but a small cross-sectional dimension (Olbryś, 2012; Xu et al., 2016). SUR estimation involves the use of a feasible generalised least squares (FGLS) estimator, where OLS is applied to each individual-specific equation (Xu et al., 2016). This approach allows to capture of the specific effects of each country, while accounting for potential heteroskedasticity and cross-sectional correlation in the data.

Five separate models are evaluated using the following formal representation of the panel model (equation 1):

$$GINIit = \alpha + \beta \mathrm{PSVit} + \gamma \mathrm{CVit} + \varepsilon \mathrm{it} \quad (1)$$

Where:

GINIit - the dependent variable for the country "i" at period "t"

α – constant

β, γ – parameters, representing the association between the dependent and a given independent variable

PSVit – a vector of public sector variables for the country "i" at period "t"

CVit – a vector of control variables for the country "i" at period "t"

εit – the error term

The dependent variable is income inequality, measured by the Gini coefficient after taxes and transfers. The data for this variable is obtained from the World Inequality Database (WID). The independent variables of interest in the study are related to the public sector and vary in the five different models. The main model evaluated includes several tax variables. These include the share of VAT revenue in total revenue, the share of personal income tax revenue in total revenue, the share of corporate income tax revenue in total revenue and the share of net social contributions in total revenue. By looking at the shares of different taxes in total revenue, the study aims to assess the impact of the tax structure on income inequality. Furthermore, by including each type of tax separately in the regressions, the analysis can take into account differences in their impact on income inequality. In addition, the model includes the top statutory personal income tax rates as an indicator of the progressivity of personal income taxation

On the government expenditure side, the model includes public expenditure on social protection, health and education, expressed as a share of total public expenditure based on the COFOG classification. This allows the study to analyse the impact of specific categories of expenditure that contribute most directly to the welfare of members of society and are therefore expected to have the greatest impact on reducing income inequality. The role of government in the economy with respect to income inequality is captured by including public expenditure as a share of GDP as an explanatory variable in the model. This variable reflects the overall size and involvement of the state in the economy, which may have an impact on income distribution.

The second model differs from the main model in that the revenue shares of personal and corporate income taxes are replaced by the share of direct taxes in total revenue. This adjustment allows a specific focus on the impact of direct taxes as a whole on income inequality. The third model uses the main types of social costs (family and children and old age) as a percentage of total public expenditure, instead of total social security expenditure, in an attempt to capture their different impacts on income inequality. This also allows for a more detailed examination of the specific categories of social expenditure that may have a significant impact on income inequality. The fourth and fifth models differ from the main model by including only cost-side variables and only revenue-side variables respectively as explanatory variables.

To increase reliability and explanatory power, all three models include a set of control variables. The selection of these variables is based on previous research on the determinants of income inequality (Chan and Ramley, 2018; Peshev et al., 2019; Roine and Waldenström, 2015; Alavuotunki et al., 2019; Wildowicz-Szumarska, 2022; Martinez-Vazquez et al., 2012; Anderson et al., 2016, etc.). The selected control variables include various factors that have been found to be relevant in explaining income inequality. These variables include changes in population, GDP per capita (as a percentage of the EU average), unemployment rate, economic openness (measured by the share of exports and imports in GDP), educational attainment (indicated by the share of the population with tertiary education, levels 5-8) and financial development (approximated by the consolidated private sector credit flow as a percentage of GDP). A detailed description of the variables used in the models can be found in Table 2 in the Appendix.

The application of a unit root test reveals that most variables are stationary at a level, while some variables show stationarity at their first difference. These variables include public health expenditure, public education expenditure, public social expenditure, the share of the population with tertiary education and GDP per capita. Furthermore, the analysis confirms the absence of multicollinearity, as no variance inflation factors (VIF) above 10 are found. Only one variable has a VIF slightly above 5 in the main and second models and two variables in the third model (Annex Table 3). It should also be noted that the five equations have a normal distribution, as the p-value for the null hypothesis of the Jarque-Berra test is higher than 0.05.

The panel study period is from 1998 to 2021, limited by data availability. All variables used in the analysis data are obtained from Eurostat, except for the Gini coefficient, for which data from the World Inequality Database (WID) is used.

5. Results

The estimation of the main panel model shows that the coefficients of most of the public sector explanatory variables of interest are statistically significant at the 5% significance level. However, the coefficient of public health expenditure is not statistically significant.

The results suggest that the role of the state in the economy, represented by the share of public expenditure in GDP, has a negative impact on income inequality in the CEE countries. This result indicates that a higher share of public expenditure in GDP is associated with lower income inequality. Furthermore, this factor stands out as one of the most influential factors in the model, as evidenced by the high value of the coefficient in comparative terms (see Table 1).

The model results also show that an increase in the share of VAT in revenue is associated with an increase in the GINI coefficient, which is consistent with previous empirical findings (Leahy et al., 2011; Martinez-Vazquez et al., 2012; Chan and Ramley, 2018; Schmutz and Schaltegger, 2018; Alavuotunoki et al., 2019, etc.). Similarly, an increase in the share of personal income tax is also positively associated with income inequality. The results also suggest that a higher share of corporate income tax is related to lower income inequality, which is in line with the findings of Martinez-Vazquez et al. (2012) and suggests that the tax burden is partly borne by workers (see Table 1). However, corporate income taxes account for a relatively small share of budget revenues in CEE countries, reflecting their low tax rates. Moreover, the estimation of Model 2 shows that the share of direct taxes (the sum of all direct taxes) in total revenue is positively correlated with income inequality in CEE countries (see Table 4 in the Appendix).

Table 1. Regression results (main model)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PIT	0.003025	0.000549	5.511565	0.0000
CIT	-0.003014	0.000797	-3.782321	0.0002
VAT	0.003691	0.000580	6.364701	0.0000
SOCCONTRIB	-0.002015	0.000510	-3.948039	0.0001
TOPSTAXRATE	-0.000308	0.000144	-2.142724	0.0332
PUBLEXPGDP	-0.005196	0.000435	-11.95476	0.0000
SOCEXP	-0.001909	0.000865	-2.205950	0.0284
HEALTHTEXP	0.000846	0.001521	0.556490	0.5784
EDUCATIONEXP	-0.006011	0.001909	-3.149031	0.0019
POPULTERTIARY	0.000736	0.001599	0.460121	0.6459
UNEMOLOYMENT	0.002544	0.000304	8.363148	0.0000
CREDITS	-0.000570	0.000205	-2.776345	0.0059
GDPCAP	0.000254	0.000840	0.301998	0.7629
OPENNESS	-0.000734	0.000159	-4.613185	0.0000
POPULATION	-2.34E-07	3.17E-08	-7.393890	0.0000
C	0.538103	0.045809	11.74656	0.0000
R-squared	0.920499			
F-statistic	180.6235			
Prob(F-statistic)	0.000000			
Jarque-Berra test	1.826561			
Prob.	0.401206			

Source: Application of the models in E-views based on Eurostat and WID data.

The demonstrated effect of VAT is not surprising, but the impact of the personal income tax share on income inequality does not follow the expected theoretical relationship. The observed positive relationship between the personal income tax share and inequality can be explained by the low progressivity and the introduction of a flat tax in most countries for most of the period analysed. Wildowicz-Szumarska (2022) points out that eight of the eleven

CEE countries (Bulgaria, Romania, the Czech Republic, Hungary, Lithuania, Latvia, Estonia and Slovakia) abolished progressive taxation and introduced proportional taxation of personal income at different periods. For example, Slovakia had proportional taxation only in the period 2004-2012. Poland also introduced a two-step and flattened tax scale (18% and 32%) from 2009 to September 2019, resulting in relatively low top marginal personal income tax rates.

The impact of the personal income tax share on income inequality should be analysed in conjunction with the trends in this share over the period considered. On average, the CEE countries show a significant decrease in the personal income tax share due to a reduction in progressivity, with this share falling from 17% in 1998 to 13.9% in 2021 as a result of tax policy changes leading to lower progressivity. This suggests that in the CEE countries, the reduction in this tax share is positively associated with a reduction in inequality, suggesting that policies to reduce inequality are implemented through the expenditure side of the budget. Apparently, the importance of these taxes in generating tax revenue is declining sharply in the CEE countries, while governments are relying less on them to implement policies to reduce income inequality. With low shares of personal income taxes, they cannot be expected to play a significant role in reducing inequality. The CEE countries are at the bottom of the EU rankings for this indicator, with all but Lithuania having values lower than the EU average in the last years of the survey period.

As Martinez-Vazquez et al. (2012) very accurately point out, not all personal income taxes are created equal in terms of their structure and resulting overall level of progressivity. In countries with flat income taxes, the negative relationship between the share of personal income tax and income inequality may not exist. This is what the results of the present study show for the CEE countries. Some of the empirical studies reviewed show a negative relationship between personal income taxes and income inequality, but mainly in countries with higher personal income tax progressivity than that observed in the CEE countries.

The increasing share of net social contributions in total revenue is associated with a decrease in income inequality, as indicated by the significant negative coefficient. These contributions are directly related to the redistributive role of social and health expenditure, as they are collected in social security funds in the CEE countries. Moreover, the statistically significant impact of social security contributions on income inequality, despite the fact that part of them is paid by employers, suggests a successful transfer of the tax burden to workers in the CEE countries.

Results from the study demonstrate that the top statutory personal income tax rate is negatively correlated with income inequality, which supports the theoretical hypothesis and is in line with previous research findings on the positive effect of progressivity in reducing income inequality (e.g. Wildowicz-Szumarska, 2022; Martinez-Vazquez et al., 2012; Doerrenberg and Peichl, 2012, etc.). However, it is important to consider the relatively small coefficient value associated with this variable in the main model (see Table 1) and its statistical insignificance in the second model (see Table 4 in the Appendix).

The main model results on the influence of different aspects of the tax system on income inequality in the CEE countries are confirmed by the estimated coefficients of the fourth model, which examines the impact of taxes on income inequality without including types of public expenditure as explanatory variables (see Table 6 in the Appendix).

The results on the impact of different tax revenues are indicative of the overall effect of the tax system on income inequality. In CEE countries, where the tax structure is significantly unbalanced and dominated by indirect taxes, the ability of the tax system to reduce income inequality is limited, according to the results of this empirical test. Although VAT is not directly related to income, an increase in its share of tax revenue implies a decrease in the share of direct taxes, which are considered to have a stronger and more direct impact on reducing income inequality. Despite the regressive nature of VAT in terms of income inequality, it remains an important component of tax systems as it provides stable revenue to the government budget and effectively serves the fiscal function of taxation. The generation of budget revenues, on the other hand, creates opportunities to implement policies aimed at reducing inequality through the expenditure side of the budget.

On the expenditure side, the expected effects as described in the theoretical and empirical literature (e.g. Chen et al., 2018; Doumbia and Kinda, 2019; Wildowicz-Szumarska, 2022; Alfonso et al., 2008; Johansson, 2016; Martinez-Vazquez et al., 2012; Doerrenberg and Peichl, 2012; Sanchez and Perez-Corral, 2018; Ionut et al, 2021; Malla and Pathranarakul, 2022; Clifton et al., 2020, etc.), are evident from the estimated coefficients of the main model (see Table 1) and from the additionally estimated fifth model, which excludes tax variables and examines only the impact of expenditure-side policies on income inequality (see Table 7 in the Appendix). In particular, an increase in public social expenditure and public expenditure on education leads to a reduction in income inequality. Among the independent fiscal variables of interest, public expenditure on education has the highest impact, as shown by the value of its coefficient. In the third model, where public expenditure on family and children and on old age are included as a share of total public expenditure instead of total public expenditure on social protection, they are found to be statistically insignificant contributors to income inequality at the 5% significance level (see Table 5 in the Annex).

The results suggest that tax systems in CEE countries, characterised by low progressivity and a low share of income taxes in total tax revenues, do not contribute effectively to reducing income inequality. On the other hand, social and educational spending is negatively correlated with income inequality. This suggests that expenditure policies are more effective than tax measures in reducing inequality in CEE countries. These findings are in line with previous empirical studies (e.g. Martinez-Vazquez et al., 2012; Joumard et al., 2012, etc.).

6. Conclusion and Discussion

The results of this study highlight the limited impact of tax systems in CEE countries on reducing income inequality. The prevalence of regressive indirect taxes, weak progressivity and the low share of personal income taxes in total tax revenue hinder the progressivity of the tax system and suggest that revenue measures alone are not sufficient to tackle inequality. This suggests that the tax systems in these countries primarily fulfil a fiscal function rather than actively tackling income inequality. As a result, policies aimed at reducing income inequality through targeted public spending are more effective. The study also highlights the important role of social protection and education spending in reducing income inequality in CEE countries. It is therefore important to target resources for social programmes and education as they have a direct impact on improving income equality in CEE countries.

To increase the impact of the tax system on reducing inequality, certain measures can be taken to enhance progressivity. One approach is to introduce or increase the tax-free minimal income while making small adjustments to tax rates where necessary. These measures can serve as an initial step to address any lack of progressivity in the tax system. Reforms in the tax area should be carried out while considering a number of objectives, some of which may be in competition with each other. These objectives include achieving efficiency and justice, reducing income inequality, minimising excessive tax burdens, ensuring sufficient revenue for the budget, promoting high levels of tax collection, reducing the informal economy and tackling tax competition. Achieving these objectives is challenging and it is crucial to prioritise current needs as much as possible. Although the impact of the public sector on income inequality, mainly through the expenditure side of the budget, is relatively limited, it is important to note that public expenditure policies can influence both the secondary and primary distribution of income in the market. This is their advantage over tax measures. Therefore, generating a stable flow of revenue to the government budget through the tax system and effectively targeting and prioritising expenditure towards the goal of reducing income inequality can lead to better outcomes in this area.

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Appendix

Table 2. Variables description

Variable	Description	Source	Type
GINI	GINI coefficient after taxes and transfers	WID	Dependent
PIT	personal income tax revenue as a share of total revenue	Eurostat	Independent of interest
CIT	corporate income tax revenue as a share of total revenue	Eurostat	Independent of interest
DIRTAXES	direct tax revenue as a share of total revenue	Eurostat	Independent of interest
VAT	VAT revenue as a share of total revenue	Eurostat	Independent of interest
SOCCONTRIB	net social contributions as a share of total revenue	Eurostat	Independent of interest
TOPSTAXRATE	top statutory personal income tax rates	Eurostat	Independent of interest
PUBLEXPGDP	public expenditures as a share of GDP	Eurostat	Independent of interest
SOCEXP	public expenditures on social protection as a share of total public expenditure	Eurostat	Independent of interest
HEALTHTEXP	public expenditures on health as a share of total public expenditure	Eurostat	Independent of interest
EDUCATIONEXP	public expenditures on education as a share of total public expenditure	Eurostat	Independent of interest
FAMILY	public expenditures onfamily and children as a share of total public expenditure	Eurostat	Independent of interest
OLDAGE	public expenditures on old age a share of total public expenditure	Eurostat	Independent of interest
POPULTERTIARY	education level (identified by the share of population with tertiary education (levels 5-8))	Eurostat	Independent control
UNEMOLOYMENT	unemployment rate	Eurostat	Independent control
CREDITS	financial development (approximated by the consolidated private sector credit flow as a percent of GDP)	Eurostat	Independent control
GDPCAP	GDP per capita (as a percent of the EU average)	Eurostat	Independent control
OPENNESS	openness of the economy (measured by export and import share in GDP)	Eurostat	Independent control
POPULATION	change in the population	Eurostat	Independent control

Table 3. Variance inflation factor results

	Centered VIF				
	main model	Second model	Third model	Fourth model	Fifth model
PIT	4.462704		5.071622	4.164325	
CIT	2.449786		2.814017	2.426470	
VAT	4.629010	5.136005	5.166323	4.448880	
SOCCONTRIB	5.169233	3.997598	5.276412	4.582143	
TOPSTAXRATE	2.266089	2.044174	2.305247	2.041338	
PUBLEXPGDP	3.447966	2.945329	3.421658	3.148388	1.458464
SOCEXP	1.526484	1.395627			1.390856
HEALTHTEXP	1.214211	1.204347	1.225412		1.152209
EDUCATIONEXP	1.241187	1.248239	1.160172		1.162592
POPULTERTIARY	1.178973	1.177153	1.178006	1.143630	1.053904
UNEMOLOYMENT	1.381391	1.305225	1.497603	1.357779	1.211381
CREDITS	2.048552	1.894756	1.829877	2.078118	1.647191
GDPCAP	2.179438	1.739156	1.771951	1.641535	1.645618
OPENNESS	1.306490	1.275957	1.243266	1.241458	1.238397
POPULATION	1.290191	1.216496	1.486351	1.242688	1.136875
DIRTAXES		2.571930			
FAMILY			1.536674		
OLDAGE			1.190042		

Source: Estimated in E-views based on Eurostat and WID data

Table 4. Regression results (second model)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DIRTAXES	0.002122	0.000581	3.650456	0.0003
VAT	0.004059	0.000607	6.689675	0.0000
SOCCONTRIB	-0.002503	0.000503	-4.970906	0.0000
TOPSTAXRATE	-0.000202	0.000141	-1.431628	0.1536
PUBLEXPGDP	-0.005110	0.000417	-12.25815	0.0000
SOCEXP	-0.001757	0.000815	-2.156437	0.0321
HEALTHTEXP	0.000218	0.001460	0.148966	0.8817
EDUCATIONEXP	-0.006228	0.001807	-3.447518	0.0007
POPULTERTIARY	-0.000572	0.001548	-0.369857	0.7118
UNEMOLOYMENT	0.002556	0.000274	9.314037	0.0000
CREDITS	-0.001041	0.000203	-5.125144	0.0000
GDPCAP	0.001639	0.000776	2.110651	0.0359
OPENNESS	-0.000652	0.000156	-4.179958	0.0000
POPULATION	-2.12E-07	2.55E-08	-8.323248	0.0000
C	0.518315	0.048150	10.76462	0.0000
R-squared	0.902133			
F-statistic	154.7305			
Prob(F-statistic)	0.000000			
Jarque-Berra test	5.486959			
Prob.	0.064346			

Source: Application of the models in E-views based on Eurostat and WID data

Table 5. Regression results (third model)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PIT	0.003502	0.000578	6.064727	0.0000
CIT	-0.004098	0.000843	-4.858622	0.0000
VAT	0.004345	0.000673	6.454006	0.0000
SOCCONTRIB	-0.001298	0.000559	-2.321519	0.0212
TOPSTAXRATE	-0.000395	0.000153	-2.584239	0.0104
PUBLEXPGDP	-0.005206	0.000470	-11.06840	0.0000
FAMILY	0.001364	0.001589	0.858512	0.3916
OLDAGE	-0.000532	0.001182	-0.450544	0.6528
HEALTHTEXP	-0.000946	0.001730	-0.546846	0.5850
EDUCATIONEXP	-0.005964	0.002082	-2.865146	0.0046
POPULTERTIARY	0.002343	0.001622	1.444203	0.1501
UNEMOLOYMENT	0.002672	0.000392	6.809994	0.0000
CREDITS	-0.000374	0.000226	-1.656868	0.0990
GDPCAP	0.000870	0.000825	1.054574	0.2928
OPENNESS	-0.000875	0.000185	-4.718915	0.0000
POPULATION	-3.08E-07	3.62E-08	-8.507622	0.0000
C	0.487564	0.048388	10.07619	0.0000
R-squared	0.918813			
F-statistic	153.4895			
Prob(F-statistic)	0.000000			
Jarque-Berra test	2.483956			
Prob.	0.288812			

Source: Application of the models in E-views based on Eurostat and WID data

Table 6. Regression results (fourth model)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PIT	0.003264	0.000564	5.786016	0.0000
CIT	-0.002750	0.000824	-3.337692	0.0010
VAT	0.004077	0.000579	7.044535	0.0000
SOCCONTRIB	-0.001808	0.000513	-3.526337	0.0005
TOPSTAXRATE	-0.000444	0.000149	-2.982392	0.0032
PUBLEXPGDP	-0.004523	0.000442	-10.24184	0.0000
POPULTERTIARY	0.000730	0.001614	0.452487	0.6513
UNEMOLOYMENT	0.002605	0.000295	8.829179	0.0000
CREDITS	-0.000425	0.000207	-2.047710	0.0417
GDPCAP	0.001275	0.000735	1.734104	0.0842
OPENNESS	-0.000691	0.000150	-4.611334	0.0000
POPULATION	-2.13E-07	3.44E-08	-6.190231	0.0000
C	0.489208	0.047342	10.33348	0.0000
R-squared	0.905237			
F-statistic	188.6640			
Prob(F-statistic)	0.000000			
Jarque-Berra test	2.596419			
Prob.	0.273020			

Source: Application of the models in E-views based on Eurostat and WID data

Table 7. Regression results (fifth model)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PUBLEXPGDP	-0.006888	0.000338	-20.37212	0.0000
SOCEXP	-0.002011	0.000909	-2.211015	0.0280
HEALTHTEXP	0.000105	0.001497	0.069938	0.9443
EDUCATIONEXP	-0.007045	0.001835	-3.838113	0.0002
POPULTERTIARY	-0.002474	0.001719	-1.439408	0.1513
UNEMOLOYMENT	0.003223	0.000284	11.33395	0.0000
CREDITS	-0.000440	0.000216	-2.040899	0.0424
GDPCAP	0.001437	0.000868	1.655504	0.0991
OPENNESS	-0.000708	0.000171	-4.144158	0.0000
POPULATION	-2.42E-07	2.82E-08	-8.581138	0.0000
C	0.632299	0.015803	40.01155	0.0000
R-squared	0.815276			
F-statistic	106.3647			
Prob(F-statistic)	0.000000			
Jarque-Berra test	4.052838			
Prob.	0.131807			

Source: Application of the models in E-views based on Eurostat and WID data

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CHARACTERISTICS OF MIGRANT WORKERS AND ECONOMIC GROWTH: AN INTERREGIONAL MIGRATION IN INDONESIA[5]

Migration bears a significant relationship with the dynamics of economic growth in developing countries. This study aims to investigate whether the allocation of internal migrant workers to specific regional units, as conducted in this research within East Java Province, Indonesia, yields the anticipated effects. The Heckman two-step estimation method was used in analyzing the impact of migrant workers on economic growth in developing countries. The results of this study indicate that the determinants of migrant workers in East Java are significantly influenced by age, gender, level of education, marital status, presence of family members under the age of 5, description of the category of origin, Gross Regional Domestic Product Based on Current Prices (PDRB ADHK), region of origin, and the number of poor people. The results of the analysis of the significant impact of migrant workers on the economic sector (PDRB ADHK in destination areas) on migrant workers in East Java are migrant workers of productive age, male migrant workers, migrant workers with bachelor/diploma's degree, migrant workers who come from areas with the widest type of floor is in the form of non-timber/soil housing, and migrant workers originating from small-town areas contribute the most to the PDRB of the destination region.
Keywords: Heckman two-step estimation; migrant workers; PDRB
JEL: J60; J61; J62

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1. Introduction

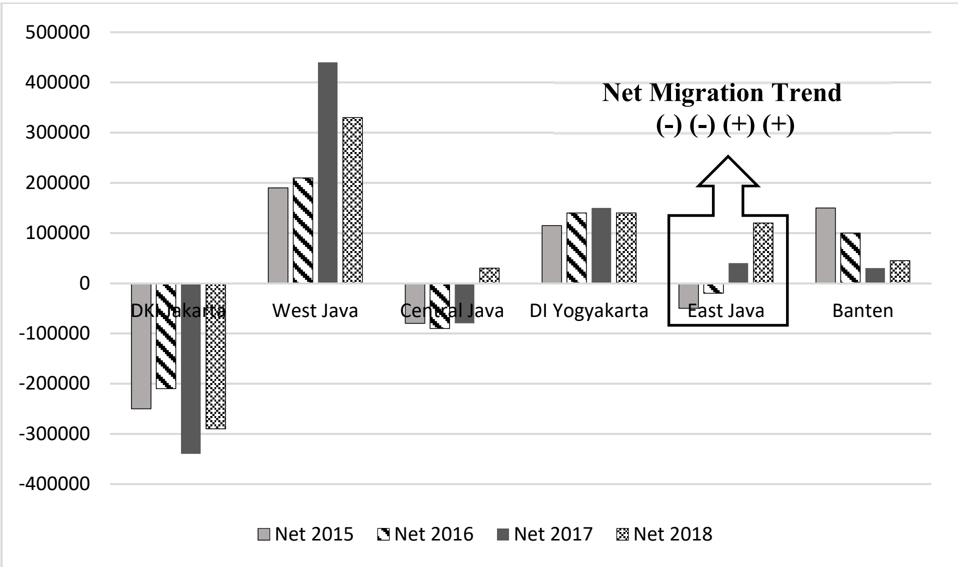
Large population growth followed by unequal distribution between regions and the economy which tends to be concentrated in one area encourages people to migrate (Purnomo, 2004). Migration aims to support a better economy due to differences in the economic structure of one city to another. According to Todaro & Stilkind (2006), migration is influenced by the push factor of a region and the pull factor of other regions. Regional thrust causes people to go elsewhere, for example, due to a lack of jobs in the area of origin and the pull factors of other regions is the hope that there will be an opportunity to improve the standard of living (Lee, 1966). In addition, another pull factor for someone deciding to migrate is the opportunity to obtain a better education (Todaro, Stilkind, 2006).

According to Todaro and Smith (2012), economic factors are the main reason for population migration. This means that there will be a flow of migration from areas with fewer economic opportunities to areas that provide more economic opportunities. Hamid (1999) also considered economic motivation to be the main ground for migration, while other factors are only derivative considerations which are ultimately related to this economic motivation. There are four factors that cause a person to migrate, namely individual factors, factors in the area of origin, factors in the area of destination, and obstacles between the area of origin and the area of destination (Lee, 1966). In most cases, migration is triggered by economic opportunities and a better life at the destination (pull factors) or by the relatively low available economic opportunities that exist in the location of origin (push factors) and is influenced by similar variables i.e. differences in income, probability of obtaining occupation, area, level of education and marital status (King, Skeldon, 2010). The work of Manning and Pratomo (2013) showed that migration benefits those who live in cities for a long time and the duration of migration affects socio-economic mobility. Furthermore, d'Albis et al. (2018) showed that net migrant flows have been shown to increase both per capita Gross Domestic Product (GDP) and fiscal balance by increasing the share of the labour force and reducing per capita transfers.

This work was conducted in East Java Province and this province has a higher number of incoming migrants than outgoing migrants. This can be seen through the total net migration for each province in Java Island which is presented in Figure 1.

Total net migration shows that the number of incoming migrants to East Java Province has increased up to three times. Thus, East Java Province has the highest increase in in-migration every year of the six provinces in Java Island, without experiencing a decline. One of the factors influencing the rise in migrants in East Java Province is the development of economic growth centres which can be seen that East Java has the area unit development of Gerbangkertosusila (Gresik, Bangkalan, Mojokerto, Surabaya, Sidoarjo, and Lamongan), then the gini ratio index decreased in 2017-2020 which indicates that inequality in East Java is declining which makes East Java Province more attractive to migrants (BPS, 2020). Research on migration has been carried out by several researchers, including Katikar (2020) empirical findings showing that immigrants, and especially those with high skills, have a positive and statistically significant impact on regional economic growth and labour productivity in Thailand. Therefore, it is suggested that more attention should be paid to the role of regional area-based development policies and the ability of destination countries to absorb high-skilled migrant workers. In-depth migration research was conducted by Chakraborty and Kuri (2017) with results showing that factors such as the experience of the head of the family, level of education of the family, family income, differences in income prior and after migration and the network to the village are the main factors in family migration decision making. A study conducted by Ilnicki (2020) also discussed migration and the results of the study showed that the areas that attract migration are very similar in terms of their spatial extent. Based on the description above, empirical data is not in line with theory and there are differences in the results of previous studies related to migrant workers which were mostly carried out using a macro approach. However, studies from the micro side are still limited. Therefore, this research was conducted with the aim of knowing the impact of migrant workers on economic growth in East Java Province using the Heckman two-step estimation method.

Figure 1. Total Net Migration of Provinces in Java Island



Source: Central Bureau of Statistics (2019).

The first part of this work discusses the literature on migration theory, the concept of migration, and the socio-economic determinants of migrant populations. This section draws attention to several features of the urban labour market in East Java Province that may be important for migrant mobility. The second section briefly describes the sample included in the Inter-Census Population Survey (SUPAS) in East Java Province and the data set used for this study. This section then examines the descriptive analysis of migrant workers based on the 10 independent variables used in this study. The third part discusses research results related to the determinants and impacts of migrant workers on the economic sector. The final section examines the conclusions of the research.

2. Literature Review

The New Economics of Migration Theory states that migration is not just the pursuit of higher incomes, but also a decision based on the needs and conditions of the family, people who migrate try to minimize the risks associated with the migration process (Gheasi and Nijkamp, 2017). The theory used as the grand theory in this study is the Neoclassical microeconomic theory which states that labour migration occurs not only because of differences in wages, but also because migrants make rational cost-benefit decisions (Gheasi and Nijkamp, 2017). The theory of Rural Migration from a Microeconomic by Todaro claims that migrants will move to cities even if they don't get a job (Todaro, 2000). The driving force in this explanation is that the wages expected of migrants in cities are higher than those in villages (Gheasi and Nijkamp, 2017).

2.1. Migration concept

According to Purnomo (2004), the factors that encourage the majority of the population to migrate to an area include greater employment opportunities with various types, various facilities, and the expectation to get a decent life with higher income compared to the area of origin. Migration is triggered by economic opportunities and a better life at the destination (pull factors) or by the relatively low available economic opportunities available at the location of origin (push factors), and is influenced by similar variables, namely differences in income, probability of getting a job, area size, level of education and marital status (King and Skeldon, 2010).

2.2. Determinants of Interregional Labor Migration

The work of Wajdi (2017) was the latest research on labour migration between regions in Indonesia through several macro and micro approaches. Some of the micro variables used in this research are age, gender, level of education, marital status, family members, floor area, minimum wage, description of area, PDRB, and population.

McConnell, et al. (2016) revealed that the older a person is, the less likely they are to migrate, this is due to several reasons, among which could be a decrease in net income or an increase in switching costs. In addition, gender is also a factor that influences migration (Regmi et al, 2019). According to the population census (2010), the gender characteristics of migrants show that there are more male migrants than female migrants.

Human capital theory explains that experience, expertise, and education will determine the migration of labour (McConnell et al., 2016). Workers with higher education are also more likely to be transferred to new geographic locations in terms of employment, if not transferred, these workers are more likely to find employment opportunities than those with shorter years of schooling (McConnell et al., 2016). Migrant decisions to enter the workforce are also influenced by marital status. There is a different pattern between individuals who are not married and individuals who are married (Castelli, 2018). Saepudin (2006) stated that individuals who are not married tend to be more mobile than those who are married.

However, this perspective is challenged by the findings of Hatab's (2022) research, which stated that migrants with married status are more likely to migrate than migrants with single, divorced, widowed, or widower status.

Wijaya (2018) found that someone who is already working and married has a lower tendency to migrate than someone who is already working but still unmarried, provided that other factors such as age and education remain constant. This is because the potential costs of migration are directly proportional to increasing family size (Wijaya, 2018). Even though the presence of children also inhibits migration due to increased costs, the presence of children under five years of age has a positive impact on migration (Wajdi N, 2017). In addition, an increase in per capita floor area tends to reduce opportunities for labour migration with risk reduction motives, this condition illustrates that labour migrants who are poor have a higher opportunity to migrate with risk motives (Joan, et al., 2020). These findings are also supported by previous work that has been conducted in several other countries in Asia (Wu, 2010).

Boffy-Ramirez (2013) explained that the minimum wage can affect workers in migration and the size of the minimum wage that changes in a district/city greatly determines how migrant workers migrate. Ren, et al. (2020) also agree in stating that a high minimum wage in an area can attract workers to migrate to the region, by focusing on rural to urban workers. Thus, the minimum wage is thought to influence the size of migrant workers entering a region in this study. The description of the area has the potential to influence economic activities in rural/local areas (Joan, et al., 2020). The economy is not as advanced as the economy in the city centre, which triggers migration. Kleemans (2015) stated that negative shocks, for example, agricultural shocks due to drought, natural disasters, and price fluctuations, households in rural areas may decide to send people elsewhere to earn additional income.

Faizin (2020) stated that regional PDRB has a significant influence on labour migration abroad. The PDRB of the destination area is higher, encouraging people to migrate in the hope that it will improve their economic welfare. Hermawan (2018) produced research that the number of poor people influences people to work abroad, one of which is due to economic factors. Community initiatives to work abroad have the hope of getting higher wages so that their living needs will be fulfilled. This is reinforced by Harahap's research (2020) which stated that the amount of poverty has a significant influence on labour migration from Indonesia to overseas.

2.3. Migration and Gross Regional Domestic Product per Capita

Jaumotte et al. (2016) explained that migration can have an impact on the level of GDP or GRDP per capita in two ways. First, migration can increase the proportion of the working-age population to the total population in the destination area, considering that migrants are dominated by the working-age population. Second, migration has an impact on the level of worker productivity. Most countries want to attract highly educated migrants because they feel it has direct benefits to high productivity (McConnell et al., 2016).

3. Methodology

This research was conducted to analyze the determinants and the impact of the decisions of migrant workers in East Java Province on economic growth using the two-step Heckman correction approach model. Stage 1 will show the results of the analysis for the determinants of migrant workers' status and stage 2 will indicate the results of the analysis for the impact of migrant workers. The quantitative research approach is utilized because the collected data encompass various quantitative and qualitative variables. Nevertheless, this approach places greater emphasis on the analysis of data based on numerical statistics, and statistical methodologies are often employed to process and analyze the data in order to produce meaningful outcomes. The sample in this study were workers who migrated internally or between regions within East Java Province in 2015. The sample was selected based on the characteristics that fit the research needs to be taken from secondary data sourced from the 2015 East Java SUPAS data. The unit of analysis in this study refers to individuals who undergo residential relocation and originate from East Java, with the characteristic that the targeted geographic area for these individuals is districts/cities as migration destinations. Type of data used in this research is cross-sectional data. A purposive sampling method was used to obtain data on migrants originating and aiming for districts/cities in East Java Province.

The independent variables used in stage 1 are age (X1), gender (X2), level of education(X3), marital status (X4), presence of family members under the age of 5 (X5), type of the widest floor (X6), district/city minimum wage of region of origin (X7), category description of region of origin (X8), PDRB ADHK of region of origin (X9), and number of poor people in region of origin (X10). While the independent variables used in stage 2 are age (X1), gender (X2), level of education (X3), widest floor type (X6), and category description of region of origin (X8). The dependent variable applied in the first stage is the employment status of migrants (Y1), where the value of 0 represents migrants who are non-workers, and the value of 1 represents migrants who are workers. In the second stage, the observed dependent variable is the level of PDRB per capita (ADHK) in the destination area (Y2), a measure of gross income per capita. The differences in the variables used in stages 1 and 2 are statistical considerations, namely variables that are not significant in stage 1 are ignored in stage 2 and are considered economically.

Heckman (1979) argued that bias resulting from a non-random selection process can be considered a specification error. Heckman has two stages of estimation to correct the bias which became known as the Heckman Two Step Estimation. Heckman Two-Step Estimation is a two-step estimation using the selection equation which is estimated with probit, and the main equation using the inverse mills ratio derived from the probit equation as one of the control variables. The Heckman method has a coefficient obtained by regressing all information from each working and non-working respondent in the migration model by including all dependent variables plus additional variables that influence a person's decision to work.

This model arises for several reasons, including the opportunity for selection to enter or exit the sample by individuals being observed in research and sample selection decisions by researchers applied in much the same way as self-selection (Heckman, 1979). The Heckman model is used in the case of a biased and inconsistent estimator which is handled by the sample selection process. This sample selection is carried out on the variable Z_i^* where the value of Z_i^* is denoted to be a value of 0 for a value of Z_i^* which is equal to zero and a value of 1 for a value of Z_i^* which is more than zero which is then symbolized as a variable Z. The probit model assumes that the dependent variable under study follows a normal cumulative distribution function.

To estimate the parameters of the Heckman model, the Heckman Two-Step Estimator procedure is used. The equation used to estimate a Y regression model for a series of explanatory variables X is as follows.

$$Z_i^* = W^T\gamma + u > 0 \tag{1}$$

$$Y = X\beta + \varepsilon \,; E(\varepsilon|X) = 0 \tag{2}$$

The following is a model for estimating the Heckman two-step correction parameter for the PDRB impact estimation model in East Java Province.

$$\begin{aligned} Y_1^* = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_6 X_{6i} + \beta_7 X_{7i} + \beta_8 X_{8i} \\ + \beta_9 X_{9i} + \beta_{10} X_{10i} + \gamma\lambda_i + u \end{aligned} \tag{3}$$

$$\begin{aligned} Y_1^* = \beta_0 + \beta_1 Age_i + \beta_2 Gender_i + \beta_3 Level\ of\ Education_i + \beta_4 Marital\ Satus_i \\ + \beta_5 Family\ Members\ Under\ the\ Age\ of\ 5_i \\ + \beta_6 The\ Widest\ Floor\ Type_i + \beta_7 UMK_i \\ + \beta_8\ Region\ of\ Origin_i + \beta_9 PDRB\ of\ Region\ of\ Origin_i \\ + \beta_{10} Number\ of\ Poor\ People_i + \gamma\lambda_i + u \end{aligned} \tag{4}$$

$$Y_2^* = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_6 X_{6i} + \beta_8 X_{8i} + \gamma\lambda_i + u \tag{5}$$

$$\begin{aligned} Y_2^* = \beta_0 + \beta_1 Age_i + \beta_2 Gender_i + \beta_3 Level\ of\ Education_i \\ + \beta_6 The\ Widest\ Floor\ Type_i + \beta_8\ Region\ of\ Origin_i + \gamma\lambda_i \\ + u \end{aligned} \tag{6}$$

where:

Y_1 : migrant worker status

Y_2 : PDRB per capita ADHK

β, γ : Parameters

X : Independent variables

λ : Value of inverse mills ratio in the first model

u : Error

The population in this study consists of migrant workers in East Java, totalling 271,667 individuals. The sample used comprises migrants residing in and originating from the East Java region, with a recorded count of 24,823 migrants in the year 2015.

The results of the descriptive analysis of the characteristics of migrant workers in East Java Province can be seen in Table 1 below.

Table 1. Descriptive Analysis Results of Migrant Workers in East Java Province

Variable		Number of migrant workers		Mean	Standard Deviation
		Frequency	Percentage		
Age	Non-Productive	1,209	8.71%	0.759	0.428
	Productive	12,668	91.29%		
Gender	Male	8,610	62.05%	0.510	0.500
	Female	5,267	37.95%		
Level of Education	Non-Bachelor's /diploma degrees	11,670	84.10%	0.110	0.313
	Bachelor's/diploma degrees	2,207	15.90%		
Marital Status	Single	1,686	12.15%	0.714	0.452
	Married/divorced/widow/widower	12,191	87.85%		
Presence of Family Members Under the Age of 5	None	8,610	62.05%	0.289	0.453
	Yes	5,267	37.95%		
Widest floor type	Non-wood/soil	13,248	95.47%	0.040	0.196
	Wood/board/soil	629	4.53%		
Minimum Wage of Regency/City	Origin < destination	8,459	60.96%	0.387	0.487
	Origin > destination	5,418	39.04%		
Description of the Category of Origin	Small city	4,090	29.47%	0.710	0.454
	Large city	9,787	70.53%		
PDRB ADHK of Origin	Origin < destination	7,546	54.38%	0.454	0.498
	Origin > destination	6,331	45.62%		
Number of Poor People	Origin < destination	4,857	35.00%	0.647	0.478
	Origin > destination	9,020	65.00%		

Based on Table 1, it can be observed that there are 13,877 migrants with worker status originating from and headed to East Java Province. There are more migrant workers of productive age (workforce) than migrant workers of non-productive age (non-workforce). There are fewer female migrant workers than male migrant workers. Migrant workers with undergraduate/diploma education are fewer than migrant workers with non-graduate/diploma education. There are more migrant workers with married/divorced/widow/widower status than migrant workers with single status. Migrant workers who have family members under the age of 5 are fewer than migrant workers who do not have family members under the age of 5. Migrant workers with the widest type of flooring in the area of origin in the form of wood/board/soil are fewer than migrant workers with the widest type of flooring in the area of origin in the form of non-timber/soil. Migrant workers who come from areas with higher UMK than destination areas are less than migrant workers who come from areas with lower

UMK than destination areas. Migrant workers who come from large urban areas are larger than migrant workers who come from small urban areas. Migrant workers who come from regions with PDRB ADHK higher than PDRB ADHK in the destination area are more numerous than migrant workers who come from areas with lower PDRB ADHK than the destination region PDRB ADHK. Migrant workers who come from areas with a higher number of poor people than the number of poor people in the destination area are more numerous than migrant workers who come from areas with a lower number of poor people than the number of poor people in the destination area.

4. Result and Discussion

The dependent variable in this study for stage 1 is the employment status of migrants. It is divided into 2 types, namely non-working migrants and working migrants. The definition of working migrants refers to migrants who hold a specific position in a job, whereas non-working migrants are migrants who do not hold a specific position in a job. Migrant workers have 4 categories namely, paid workers, employers, employees, and casual workers. In 2015, of the 24,823 migrants originating from East Java Province and heading to East Java Province, there were 13,877 migrants (55.90%) with worker status, while the rest, namely 10,946 migrants (44.10%) were not workers. The status of migrant workers is divided into 4 categories namely, paid workers (3.36%), employers (19.07%), employees (29.58%) and casual workers (3.89%).

Furthermore, analysis was carried out using the Heckman two-step estimation to find out the determinants and impacts of migrant workers on PDRB. The determinants of migrant workers use 10 independent variables which can be seen in Table 1. On the other hand, 5 variables namely age, gender, level of education, type of the widest floor, and description of the category of origin were used for the analysis of the impact of migrant workers on PDRB. The results of the analysis of the determinants and impacts of migrant workers on the economic sector in this study can be seen in more detail in Table 2.

Greene (2003) interpreted the probit regression model and the marginal effect was used. The interpretation of the probit regression model is based on the marginal effect, not based on the coefficients of the probit regression model. The marginal effect shows the magnitude of the probability of the predictor variable on the response variable. Based on the Marginal Effect results in Table 2, it can be concluded that the variables are age (X_1), gender (X_2), level of education (X_3), marital status (X_4), presence of family members under the age of 5 (X_5), category description of the region of origin (X_8), area of origin PDRB ADHK (X_9), and the number of poor people (X_{10}) have a significant effect, while the rest, namely the widest floor type variable (X_6) and the district/city minimum wage region of origin (X_7) do not have a significant effect at the real level of 5%.

The age variable shows that migrant workers of productive age have a 0.3 times higher chance of moving and becoming migrant workers than migrant workers of non-productive age. In line with the work of Regmi et al (2019) which has obtained that the age variable has a positive and significant influence in determining a person's decision to migrate. This is also in line with the study of Roca Paz and Uebelmesser's research (2020) which examined the relationship between individual attitudes about risk and migration decisions based on several variables, one of which is age.

Table 2. Results of Determinant Analysis and Impact of Migrant Workers on Economic Growth

Variables	*Heckman Two Step Estimation Test*		
	Step 1	*Marginal Effect*	Step 2
X1 Age	0.7013113	0.2669352	85,836.26
	0.000	0.000	0.000
X2 Gender	-1.311848	-0.4993194	-34,612.47
	0.000	0.000	0.000
X3 Level of Education	0.4999912	0.1903081	7,211.17
	0.000	0.000	0.015
X4 Marital Status	0.9688954	0.3687839	
	0.000	0.000	
X5 Presence of Family Members Under the Age of 5	0.3421424	0.1302273	
	0.000	0.000	
X6 Type of Widest Floor	0.0721642	0.0274674	-37,126.96
	0.132	0.132	0.000
X7 Minimum Wage of Regency/City	0.0040795	0.0015528	
	0.880	0.880	
X8 Description of the Category of Origin	-0.3515215	-0.1337972	-14,232.60
	0.000	0.000	0.000
X9 PDRB ADHK of Origin	-0.1028796	-0.0391583	
	0.000	0.000	
X10 Number of Poor People	-0.1708799	-0.0650408	
	0.000	0.000	
Mills lambda		76,813.77	
Wald chi square	2,894.41		
n	13,877		
Rho	0.61		
Sigma	125,785.69		
Prob > chi	0.000 (sign)		

The gender variable shows that female migrant workers have a 0.5 times lower chance of moving and becoming migrant workers than male migrant workers. This agrees with the results of Regmi et al (2019) stating that migration decisions are influenced by the number of male family members.

The level of education variable shows that migrant workers with undergraduate/diploma education have a 0.2 times higher chance of moving and becoming migrant workers than migrant workers with non-graduate/diploma education. This finding is supported by Regmi et al (2019) who stated that education level influences migration decisions positively and significantly.

The marital status variable shows that married/divorced/widow/widower migrant workers have a 0.4 times higher chance of moving and becoming migrant workers than single migrant workers. Roca Paz and Uebelmesser (2020) also claimed that marital status has a significant positive relationship to migration.

The presence of family members under the age of 5 shows that migrant workers who have family members under the age of 5 have a 0.1 times higher chance of moving and becoming migrant workers than migrant workers who have no family members under the age of 5. This finding aligns with the results of Botezat and Pfeiffer (2019) who found that the presence of children can positively and significantly influence parental migration.

The widest floor type variable has a Marginal Effect value of 0.027 with p-value = 0.132, the results of the analysis show that there is not enough evidence to suggest that migrant workers with the widest type of floor area of origin in the form of wood/boards/soil have a 0.03 times higher chance of migrating and being a migrant worker compared to a migrant worker with the widest floor type in the region of origin being non-timber/soil. This contrasts with the results of Martaa et al (2020) claiming that floor area per capita influences migration decisions with a significant negative relationship.

In the regency/city minimum wage variable, the area of origin is 0.0016 with p-value = 0.880, the results of the analysis show that there is not enough evidence to state that migrant workers who come from areas with a higher UMK than the UMK in the destination area have a 0.002 times higher chance of move and become migrant workers rather than migrant workers who come from areas with lower UMK than the UMK of the destination region. Mulholland et al (2013) stated that wages have a significant negative effect on someone deciding to migrate.

The variable category description of the region of origin shows that migrant workers who come from large urban areas have a 0.1 times lower chance of moving and becoming migrant workers than migrant workers who come from small-town areas. According to Krishna (2003), the category of area does not determine whether a person migrates.

The PDRB ADHK variable in the region of origin shows that migrant workers with PDRB ADHK in the region of origin which is higher than the PDRB ADHK in the destination area have a 0.04 lower chance of moving and becoming migrant workers than migrant workers with PDRB ADHK in the region of origin which is lower than the regional PDRB ADHK. Keshri (2013) claimed that the country's net domestic product per capita and the rate of labour migration in large parts of the country, have a significant negative relationship.

The variable number of poor people in the region of origin shows that migrant workers who come from areas with a higher number of poor people than the number of poor people in their destination areas have a 0.07 times lower chance of moving and becoming migrant workers than migrant workers who come from areas with poor people which are lower than the number of poor people in the target area. On the contrary, Du et al (2005) found that poverty has a positive relationship in determining a person to migrate, the worse a person's economic condition will increase the possibility of migrating.

Based on the analysis in Table 2, there are 2 positive significant variables for migrant workers, namely age (X_1) and level of education (X_3). Meanwhile, the variables with significant negative values were gender (X_2), the widest floor type (X_6), and category description of the region of origin (X_8). The influence of the variable category description of the region of origin (X_8) which is significant in influencing the PDRB ADHK of the destination area is in line with the results of Bovea and Elia (2016) stating that the more population or the larger the area category can reduce the economic growth of a region. In addition, this study also looks at the effect of PDRB on economic growth which has a significant negative result. The age variable that has a significant positive effect is in line with the study of Lobo and Mellander (2020) which has analyzed the positive effects of the economy for individuals who live in neighbouring ethnic neighbourhoods. Table 2 shows the results of the Heckman two-step estimation analysis in stage 2 that has obtained the equation model for PDRB in East Java Province as follows.

$$\begin{aligned} Y_2^* = 85{,}836.26\ Age_i - 34{,}612.47\ Gender_i + 7{,}211.17\ Level\ of\ Education_i \\ - 37{,}126.96\ Widest\ Type\ of\ Floor_i \\ - 14{,}232.60\ Region\ Category\ Description_i + 76{,}813.77\lambda_i \end{aligned} \tag{7}$$

It can be seen from equation 7 that migrant workers of productive age contribute Rp. 85,836.26 billion higher than migrant workers of non-productive age to the PDRB of the destination area. Female migrant workers contribute IDR 34,612.47 billion, which is lower than male migrant workers to the PDRB of the destination area. Migrant workers with undergraduate/diploma education contribute Rp. 7,211.17 billion higher than migrant workers with non-graduate/diploma education to the PDRB of the destination area. Migrant workers originating from areas with the widest type of flooring in the form of wooden/plank/soil housing contribute IDR 37,126.96 billion lower than migrant workers originating from areas with the widest type of flooring in the form of non-timber/soil housing to the PDRB of the destination area. Migrant workers who come from large urban areas contribute IDR 14,232.60 billion lower than migrant workers who come from small urban areas to the PDRB of the destination area. The results of the analysis of the impact of migrant workers on PDRB in the destination area show that migrant workers are of productive age, male migrant workers, migrant workers with bachelor/diploma education, migrant workers who come from areas with the widest floor type in the form of non-timber/land dwellings, and migrant workers who come from small urban areas contribute the most to the PDRB of the destination region.

5. Conclusions

This work focuses on the determinants and impacts of migrant workers in East Java Province on PDRB ADHK in the destination region. It was found that the characteristics of migrant workers and job opportunities in destination areas also determine economic growth in destination areas. Where the rate of population growth must be accompanied by economic growth.

Our findings in East Java Province provide information that an increase in migrant workers is an important source of job mobility to maintain economic stability. In answering the objectives of this article, our analysis shows that the characteristics of migrants are of productive age, male migrants, migrants with an undergraduate/diploma education level, migrants who are married/divorced/widow/widower, migrants who have family members below the age of 5, migrants who come from small urban areas, migrants who come from areas with PDRB ADHK lower than the PDRB ADHK of the destination area, and migrants who come from areas with a lower number of poor people than the number of poor people in the destination area have greater opportunities to move and become migrant workers. However, the difference in the type of floor in the largest area of origin and the difference in regency/city minimum wages do not have a significant effect on economic growth in the destination region.

We also found that the impact of migrant workers on the economic sector (PDRB ADHK in destination areas) in East Java Province was significantly related to the characteristics of migrant workers, namely migrant workers of productive age, male migrant workers, migrant workers with bachelor/diploma education, migrant workers originating from areas with the widest type of floors in the form of non-timber/land dwellings, and migrant workers originating from small urban areas making the greatest contribution to the GRDP of the destination region.

It is hoped that Indonesian governments can pay attention to migrant groups according to the characteristics of migrant workers so that the policies provided can be on target. It is hoped that the existence of government policies can be implemented properly in the form of holding skills training for migrant workers who can improve their abilities in entrepreneurship, trade or other fields as a participatory measure to improve the family economy, provide health insurance for migrants as well as adequate educational facilities for their children and provide other supporting facilities.

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ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ
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THE ROLE OF MANAGEMENT/MANAGER PRACTICES IN THE PROCESS OF INTERNATIONALIZATION OF SMEs[3]

Managerial orientation has become a key concept regarding SMEs internationalization even if not all companies have enough experience in this complex process. During the last decades, traditional internationalization practices (exporting), broadened and developed into a multi-faceted and more differentiated activity that enhances the competitiveness of a business. This paper's objective is to present how and if the international activity of a business and its environment are influenced by management strategic decisions. By analyzing the successful internationalization of Romanian cases, this paper aims to establish a connection between certain managerial approaches and the success of the business (risks taken, capabilities, and process in general). The study was conducted over three months, where we collected data using a combination of instruments and methods (such as. surveys, interviews, analysis of data, and online research about the companies). Effective management practices are crucial for the success of SMEs seeking to internationalize. The role of high-quality management and a manager's education can contribute to the company's overall success and its benefits.
Keywords: internationalization; SMEs; managerial practices; business environment; competitiveness.
JEL: F23; G32; L23

Introduction

Nowadays globalization is considered a real phenomenon of the contemporary business world, especially as the economic ties between countries become stronger and more resistant. The internationalization of a company's operations holds the key to its potential for economic development in the context of international trade, considering internationalization not only a key driver of economic progress but for some businesses even essential to their continuance and existence. Irrespective of the firm's size and age, the extent of its activities, or the industry in which it conducts business, internationalization has emerged as a fundamental pillar of the modern economy. They are essential to Europe's competitiveness and prosperity, as well as

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economic and technological sovereignty' while representing 50% of Europe's GDP and consisting of 25 million SMEs in Europe.

Member of the EU since 2007, in Romania, the business environment has undergone significant changes in recent years, nowadays is focused on recovering from the effects of the COVID-19 pandemic, and its business sector becoming more integrated into the global economy. As a result of this, the process of internationalization has become increasingly important for Romanian businesses, leading to the Romanian government implementing several policies and initiatives to support the internationalization of businesses. These include programs to promote exports, support investment and entrepreneurship, and improve access to finance (SMEs Growth; IMM Invest; UpGradeSME). The government has also worked to improve the country's business environment by reducing bureaucracy, simplifying regulations, and promoting transparency and competitiveness. For instance, according to the National Institute of Statistics, Romanian exports increased significantly in 2021 compared to 2020. Also, as per the NIS, Romania exports mostly machinery and transport equipment, raw materials, and other manufactured articles like for example footwear. According to the European Commission, many of the programs created to help and stimulate the internationalization of SMEs are not so well known across the business sector, unfortunately leading to few SMEs taking advantage of these opportunities granted by the EU.

It is a reasonable assumption that the efficiency of both SMEs and MNEs in terms of internationalization is influenced by the managers' foreign perspective, keeping in mind that the CEOs or managers in SMEs are usually the centres of attention during the decision-making process, leading to the influence of managers' international engagement being substantially larger for SMEs. The process of internationalization has been understood from several perspectives, it is not a new phenomenon, and it has been researched using many different approaches, being linked to multinational companies, but also to medium-sized and small enterprises, taking into consideration several cultural or demographic factors, and different methods of joining new markets amongst additional concepts (Coviello, McAuley, 1999; Acedo, Jones, 2007; Dominguez, Mayrhofer, 2017).

Despite the various views on internationalization, enterprises are composed of multiple kinds of management teams with varying characteristics and ways of operating. Effective management techniques can be incredibly beneficial in allowing SMEs to overcome the difficulties of internationalization and seize new possibilities in global markets. This entails having a thorough awareness of the global market, creating strategic plans, and having the ability to create and uphold reliable connections with partners and clients. Therefore, it is crucial to understand the characteristics and actions of managers that influence a firm's decision to join a new market. This understanding can help companies develop towards international expansion while increasing performance and making effective decisions to achieve global success (Herrmann, Datta, 2005; Hutchinson, Quinn, 2006).

To better understand the influence of management on the internationalization process of SMEs, it is important to conduct research and analysis on the subject. This can provide valuable insights and help to identify best practices and potential areas for improvement. The research questions for this study are the following:

1. Which factors influence a Romanian SME's internationalization process and performance?
2. Does managers' international orientation positively influence the internationalization performance of a firm?

These will be tested through a case study analysis of specific SMEs that have internationalized, to understand the role of the manager's characteristics in their success in international markets. The purpose of this paper is to establish a connection between the managers' international perspective and a firm's success in going global. This paper includes a revision of the internationalization process, followed by a presentation of the main concepts regarding the managers' international inclination. Secondly, a case study will be conducted through a qualitative research method to understand how Romanian managers influence the selection of a new market in the internationalization process of a firm. This study was carried out at the end of 2022 and the beginning of 2023, considering a wide range of literature from previous years, interviews, and data collection during the period of September 2022 and March 2023.

Literature Review

Nowadays SMEs are considered extremely important means for the creation of growth and wealth across businesses through employment opportunities and innovation. They play a significant part in the establishment of jobs, being dynamic and adaptable. An SME can have around 250 employees, as in the European Union, even if in the United States the number is 500 employees. The number of employees is only one of the possible criteria to define small and medium enterprises. For example, looking at the financial assets of a business, 'the turnover of medium-sized enterprises (50-249 employees) should not exceed EUR 50 million; that of small enterprises (10-49 employees) should not exceed EUR 10 million while that of micro firms (less than 10 employees) should not exceed EUR 2 million'. Additionally, the third criteria introduced by the OECD are the balance sheets, as 'for medium, small and micro enterprises should not exceed EUR 43 million, EUR 10 million and EUR 2 million, respectively' (OECD, 2005). When it comes to the internationalization of SMEs and how businesses evolve towards an international position, it is a topic of great interest for researchers and the business world as well, being considered a challenging process that requires a great level of commitment. Besides, because of the quickening of the globalization processes, an increasing number of SMEs have been attempting to capitalize on the new environmental conditions, or the opportunities for internationalization that have arisen (Daszkiewich, Wach, 2012: 5). Therefore, internationalization is a topic that has been around for several years and can hardly be considered recent. A firm's internationalization can be perceived in a range of ways depending on the perspectives and concepts used to examine it. As stated in the SME Observatory issued by the European Commission, as mentioned by Daszkiewicz & Wach (2012: 14), the main reason for small and medium enterprise internationalization is the aim to boost the competitiveness level of the business and to access different, vast markets.

To comprehend how a business can develop in terms of international growth, enhance productivity, and effectively make decisions to achieve success, it is essential to comprehend what features and how management affects the selection of a new market in the internationalization process of a firm (Carvalho-Correia, 2015, p. 7). The importance of reliable mechanisms that can help SME managers make the most of expertise processes and methods, approaches, standards, and best practices has been reiterated over the past few years by academic studies as well as practical examples, particularly considering the internationalization process. What these theories have in common is that *management teams*, although having different traits and modes of behaviour, adhere to these strategies.

Although the internationalization process gives companies a chance and opportunity for development and growth, it also exposes them to high risks that can negatively impact their performance. There are several challenges that SMEs must overcome to be successful in the internationalization process. These include the need to adapt to different cultures and business environments, navigate complex legal and regulatory frameworks, and compete with larger, established international firms. To address these challenges and succeed in international markets, SMEs need to have effective management practices in place. As per Eduardsen & Marinova (2020), risk management is an important consideration for businesses that operate internationally, given the uncertainty and unpredictability of entering and operating in foreign markets. The actions of managers regarding the risks involved can affect the strategies chosen by organizations (Virglerova et al., 2020), making it crucial to analyze the role of managers in examining risk in the process of international expansion for companies. How a company enters international markets can have a significant impact on the risks it faces. ‘The risks will also vary with each form of foreign market entry. For example, the risk associated with indirect exports is different than with direct investments in foreign markets (Kubícková, Toulová, 2013, p. 2386). Choosing the right mode of entry is a critical decision for organizations and their managers, as it can involve significant investments in financial and human resources that may be difficult to reverse.

As cited by Maccali et al. (N/A, p. 4), Yeniyurt et al. (2005) suggest that managers may be expected to accept global ideals because of external forces such as competitive pressures, sensitivity to manufacturing costs, government involvement, and opponents, and authors Weerawardena et al. (2007) further support this idea by including that in the case of managers/owners, this inclination can be a result of previous international background, a creative mindset, an entrepreneurial attitude, or an interest in learning. As per Mitan & Vătămănescu (2019, p. 486), to succeed in a highly dynamic environment, handling all organizational procedures with a greater level of professionalism and proactiveness is a prerequisite.

In agreement with Van Bulck (1979), the manager’s international or global orientation is named Global Business Orientation, a construct that illustrates the manager’s approach concerning internationalization and the capacity to adjust to new business circumstances. For other authors, factors such as education, level of management, number of languages spoken or business trips abroad may contribute to the development of a global orientation and mindset (Story et al., 2014, pp. 137-152). ‘Complexity of the role of a leader was shown to directly impact the global mindset. Leaders who have more challenging and complex assignments were found to have a stronger relationship with global mindset’ (2014, p. 152), suggesting this could have an impact on the manager's openness to the process of internationalization in general and their willingness to develop outside the national borders of their business, meaning that if the manager refuses to begin the strategy of internationalization, it will be visible at a business level (Freeman, Cavusgil, 2007; Lloyd-Reason, Mughan, 2002).

According to Tretyak (2017, p. 13), a manager with a high level of international orientation is educated, multilingual, versatile, has a high degree of tolerance for risk and psychic distance and possesses favourable attitudes concerning internationalization. For example, a relevant study by Knight and Cavusgil (1996) found that younger executives were more likely to advocate for international expansion and were more willing to take risks to pursue international opportunities. To further support this idea, we identified a study by Andersson et al. (2004, p. 13), that considers that another important factor that could influence the process of internationalization is the age of the manager/CEO, arguing that 'the age of a CEO could explain why smaller firms continue to grow their international activities, also indicates that the younger generation of CEOs see the world as their marketplace and push for increased international activities'. Ultimately, the age of a CEO is just one factor that may influence a company's decision to engage in international activities, and there are likely to be many other factors at play as well.

As stated by Herrman & Datta (2002), another factor that can influence the manager's decision is their educational level, as well as their background and international experience, including the time lived abroad/travelled abroad. 'They suggest that international experience and associated learning provide CEOs with the mindset, knowledge, and confidence to select full-control entry modes, involving higher levels of information processing along with greater resource commitments and risks' (2002, p. 565). This view is also supported by Stoian and Rialp-Criado (2010), as cited by Lihoussou et al. (2021), 'skills are the result of experience gained through travel, an experience that provides a positive view of internationalisation' (2021, p. 122).

An additional factor that can intervene in this process is the manager's ability to speak foreign languages. In Romania for example, since a significant part of the Romanian SMEs trade with nations that are not Romanian speaking, it becomes obvious that foreign language proficiency has been regarded as essential to a business' successful internationalization, these abilities being often considered necessary in international operations. As per Knowles et al. (2006), 'skill in foreign languages is usually achieved following a great deal of hard work. Decision-makers with such skills have demonstrated a conscientious, well-motivated commitment to enhancing communication with foreigners and understanding of things foreign' (2006, p. 623), emphasizing the idea that having strong language skills can be an important asset in a globalized world as it can facilitate communication and facilitate cross-cultural understanding.

Further, as indicated by Knowles et al. (2006), another concept that analyzes the characteristics of the manager is 'the internationalization web', as introduced by Lloyd-Reason and Mughan (2002, p. 127). The authors, therefore, use this concept to illustrate the connections between the demographic and psychological features of the managers/CEOs and to further develop the concept of 'cultural orientation' viewed as a mix of both demographic and psychological features such as ‘language skills and also education, knowledge of overseas competitors, experience of foreign cultures, foreign networks of friends and colleagues, attitudes to visits abroad and willingness to welcome foreign visitors’ (Knowles et al., 2006: 623). Finally, we conclude that the primary factors that influence a manager's levels of international engagement are their knowledge and involvement in foreign operations, which encompasses previous leadership experience, strategy and business expertise, and cultural and linguistic competency.

Methodology

The study was conducted over a period of three months, during which time we collected data using a combination of methods, including interviews with the managers of the selected companies, analysis of company documents and financial data, and online research on the companies and their industries. Additionally, the firms that have taken part in this study represent different business sectors: *beauty and cosmetics, construction, manufacturing* etc. The above discussion leads to a few research questions:

- Which factors influence the internationalization process and performance of a Romanian SME?
- Does managers’ international orientation positively influence the internationalization performance of a firm?

The use of a multiple case study design allowed us to gain a rich and detailed understanding of the internationalization processes and performance of SMEs in various industries in Romania. This research method also allowed us to examine the relationship between the role of managers, and success in international markets, and to identify the factors that may contribute to this relationship. Conducting a more qualitative analysis of the interviews, permitted us to look at the nuances and complexities of the data and consider the experiences and perspectives of the managers in more depth.

We collected the data using semi-structured interviews with the managers of the selected SMEs. The interviews were conducted in person, over the phone, or via videoconference, depending on the availability of the managers. The interviews lasted approximately one hour/one hour and a half and covered a range of topics related to the organizational structure, internationalization strategies, and the role of managers in the internationalization process of the companies, as well as their performance in international markets.

Results and Findings

According to the European Commission (2022), ‘in 2021, SMEs in Romania grew by 13.3% in value-added and 2.6% in employment, outperforming large enterprises, which grew by 9.8% and 0.9 %, respectively’ (2022). The report also mentions that according to the National Institute of Statistics, the exports in Romania have experienced a growth in 2021 compared to 2020. As per the Observatory of Economic Complexity Index in 2020 (the most recent data available), our country was number 41 in total exports and 36 in total imports, exporting significantly to Germany, Italy, France, Hungary, and Bulgaria, and importing from Germany, Italy, Hungary, China, and Poland. Also, regarding access to finances, the Commission mentions that there have been both developments as limitations. For example, there was an increase 'in the number of SMEs that did not apply for loans (77% in the first part of 2021), thus limiting themselves to internal resources, which can limit company growth'. However, in terms of funding for Romanian start-ups, it is considered to have become 'more sustainable and diversified' (EC, 2022). Unfortunately, in terms of innovation and skills, Romania continues to perform poorly, being situated under the European average.

A manager's international view affects their decision-making about the internationalization of their company to a higher extent than other factors. Although it plays a less significant role in MNEs than in SMEs, managers' international orientation nevertheless has an impact on how well a company can expand internationally. This study primarily examines managers' global perspectives of 5 Romanian SMEs of different sizes:

Table 1. Companies' information

Company name	Industry	Turnover (RON)	Net profit (RON)	Number of employees	Funding year	1st year of internationalization
Company A	Manufacturing	1.216.380	63.491	4	2010	2010
Company B	Cosmetics/Beauty	16.227.499	4.810.144	11	2005	2005
Company C	Chemical	20.167.944	2.375.817	72	2005	2011
Company D	Cosmetics/ Beauty	4.004.091	43.064	5	2014	2020
Company E	Constructions	1.321.611	347.802	1	2014	2016

Source: Author's own creation based on company data

The interviews were developed based on a timeline, using a chronological sequence, as this helped us provide more detailed responses and answers evidence-based. Based on the REM model for internationalization developed by Liuhto & Jumponnen (2002, p. 22) the model is comprised of three components: (1) the R factor – a reason to internationalize, (2) the E factor – environmental selection and (3) the M factor – the modal choice. This was useful for our study to create a structured approach, as it provided a framework for internationalization considering the three different dimensions of the process. As a result, the motivation/reason for internationalization will contrast and compare internal and external drivers and obstacles for the selected Romanian SMEs. Further, the environment selection will consist of a comparison of the main factors which determine this selection, and finally, this study will examine the choice of entry modes, including a comparison of the operational modes.

To clarify the first question of the study, we focused on four dimensions during the interviews:

(a) the external and internal reasons for internationalization as identified by the managers,

(b) the external and internal barriers to internationalization,

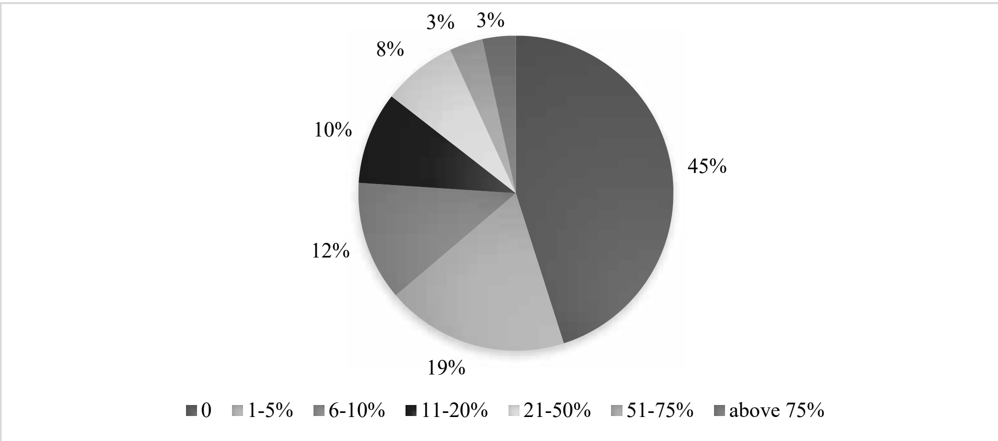
(c) the main criteria which determine environment selection,

(d) and the operational mode selected.

Regarding the first dimension approached during the interviews: the external and internal reasons for internationalization, there were no major differences between the mindsets of the managers interviewed. The most prominent external and internal reasons impacting the internationalization of the selected SMEs are the small domestic market and the motivation to increase profits, but also the competitive pressure and the unstable business environment in Romania, leading to a desire to avoid the risk. Risk avoidance was one of the most frequent reasons mentioned by the respondents to our research. In respect of profit goals, it was identified by most managers as the most stimulating internal reason for foreign markets' internationalization.

However, all managers mentioned that the barriers have impacted the strategic decisions of the companies to become more competitive in the markets/industry and more innovative. In all five small and medium-sized enterprises, it was found that the manager played a crucial role in the process of internationalization. In each case, it was the manager who came up with the idea and initiated the necessary steps to expand the business into foreign markets, while also consolidating the process, ensuring that all aspects of the expansion were well-coordinated and efficiently executed. Regarding the level of innovation in their businesses, most of the managers acknowledged that it is still a challenge nowadays and a concern that is currently on their list of priorities. This view is confirmed by the European Commission (2022), mentioning that in terms of innovation and skills, Romania continues to perform poorly, being situated under the European average.

Figure 2. Investments in innovation at the SMEs level in Romania

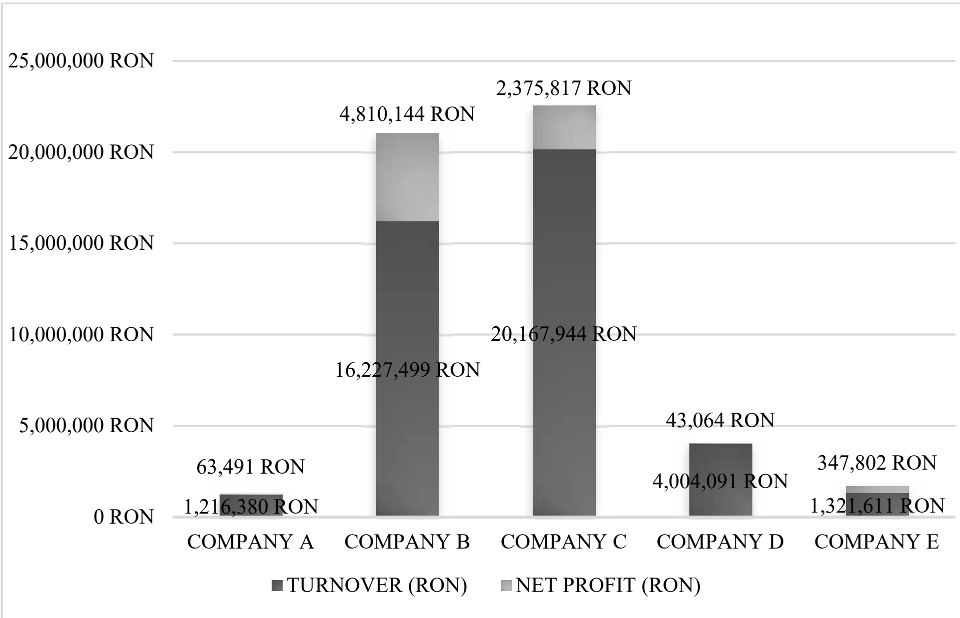


Source: CNIPMMR, 2021, p. 322.

Regarding the SMEs we analyzed, all the respondents have declared that there is still room for improvement when it comes to the innovation capabilities of their businesses – however, all the companies have mentioned they are currently making efforts to digitalize their business and mentioned using ERP systems for better coordination between the different departments of their business.

As for the second dimension of our analysis, the results of the interviews allow us to conclude that the most frequent external barriers are the intense competition abroad and the bureaucracy. Further, regarding the internal barriers, the managers identified the following: limited managerial skills, mostly limited financial resources (for example compared to MNEs which have greater financial power), but also a lack of marketing capabilities. It became clear during the interviews that the scarcity of resources is hindering the opportunity for a firm to start doing business abroad. To overcome these barriers of limited financial resources, the interviewed managers referenced more than once the need to be creative and resourceful in finding ways to access the necessary funds, these involving loans or grants, finding investors or partners, or looking for ways to reduce costs and increase efficiency.

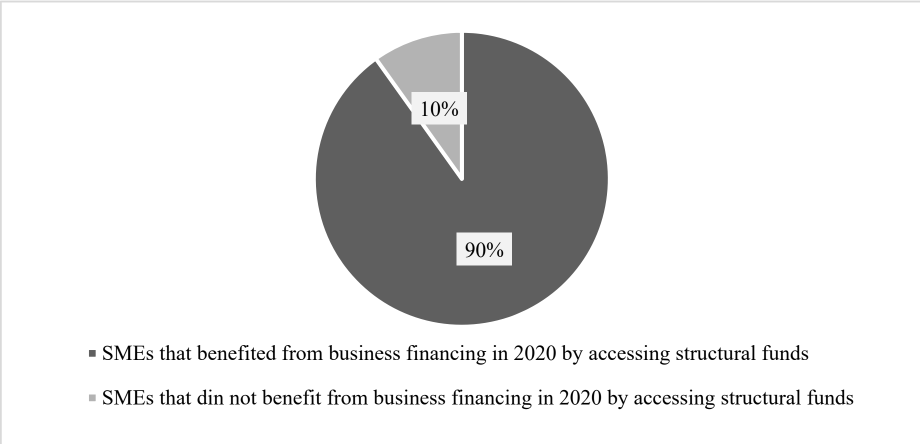
Figure 3. Turnover (RON) & net profit (RON/SME)



Source: Author's own creation

For example, in 2022, according to an official proposal, private companies in Romania should have been able to access minimis aid worth a total of 15 million RON (approx. 3 million euros) from the state budget to attend international trade shows and exhibitions or to participate in paid online events through the Program for Supporting the Internationalization of Romanian Economic Operators. It is hoped that this support will help businesses to expand their reach and improve their competitiveness in global markets (Romanian Government). Out of the five SMEs examined, none of them received governmental or European funds for internationalization. All the managers expressed the belief that they do not receive sufficient support from the government in their efforts to internationalize and consider this lack of financial and institutional support as hindering their ability to succeed in foreign markets.

Figure 4. Companies' external sources of funding



Source: CNIPMMR, 2021, p. 197.

Respecting the third dimension of the analysis, the environment selection, 5 out of 5 respondents mentioned the entrepreneur's accumulated expertise and diverse experience. The responses we got allow deducing that Romanian SMEs observe criteria such as geographic proximity, potential growth of markets or informal relationships with family members or friends, as well as the established partnerships or formal connections with other stakeholders in the industry. Interestingly enough, the managers did not highlight the *psychic distance* as a major factor when it comes to the environment selection, which is further proof that it is becoming less admissible, as markets become more uniform and communication and infrastructure advance, becoming easier for businesses to operate and compete in a global context.

Also, another important aspect acknowledged during the interviews was that most of the managers (4 out of 5) mentioned preferring entering new markets through connections, networks, and even personal acquaintances, normally following a step-by-step, unrushed, and prudent process, characteristics of the Uppsala model. The responses during the interviews allowed concluding that the Romanian SMEs normally prefer internationalizing in the Eastern or Central part of Europe, apart from Iceland. For example, in the case of Company B of our study, this market was selected (Iceland), according to the manager's declarations, based on their relationships in the market and the country in general.

If we look further and analyze how many Romanian SMEs have received training focused on international expansion, according to the data provided by the White Paper of SMEs in Romania, the results are not encouraging, only 9% of the SMEs have benefited from specialized training. This is also valid in the case of the 5 SMEs from our study, with 100% of the respondents revealing that none of them or any members of the firm have benefited from this kind of learning experience. It was edifying to observe that out of the five companies analyzed, the two (Company A & Company B) that internationalized directly in their first year of operation, had managers who had previous experience working and studying abroad, as well as a network of international contacts. This can be an indicator of the fact that having an international background and connections may have given them the knowledge and resources necessary to successfully navigate the challenges of entering foreign markets.

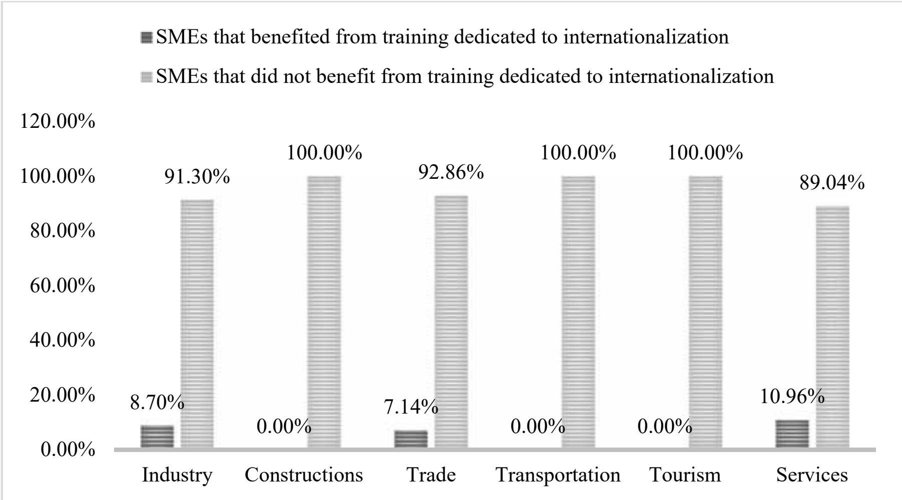
Figure 5. Training inside the companies

Source: CNIPMMR, 2021, p. 159.

According to the White Paper on SMEs in Romania, 2021 (2021:161) and their analysis of data to the field of activity shows that the highest proportion of firms that have benefited from training dedicated to internationalization is in the service sector (10.96%), followed by those in the industry (8.70%) and trade (7.14%). The highest proportion of SMEs that have not benefited from training dedicated to internationalization is in the construction, transportation, and tourism sectors, as also confirmed during the interviews with managers of companies in the construction sector.

Finally, moving further to the last dimension of our analysis: the selection of the operational mode, we concluded that the most common operational mode is exporting, especially considering the businesses interviewed and considered for this research are still at the beginning of their internationalization process. Another common operational mode can be the creation of own representatives, or subcontracting. The responses obtained agree with the Uppsala model, considering that exporting is the first and most popular operational mode selected to achieve international experience, as it tends to be less risky and more cost-effective (with the manufacturing of the products in the home country and selling them to customers in other countries).

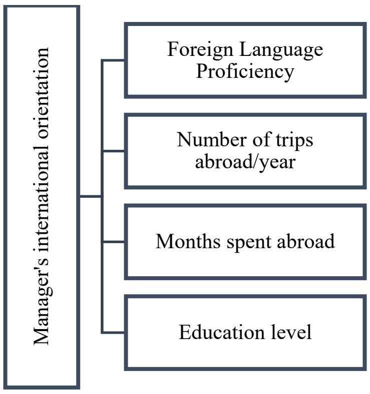
Figure 6. Percentage of companies that benefited or not from training dedicated to internationalization



Source: CNIPMMR, 2021, p. 161.

To respond to the second research question, which focused specifically on the manager's role in the process, we decided to analyze the following points based on the literature review presented above (a) the education level of a manager; (b) the number of trips for a year; (c) the experience of living abroad; (d) and the foreign language proficiency.

Figure 7. Elements of the second research question



Source: Author's own creation

As per the education level of the manager, it is generally accepted that a higher level of education is not necessarily a guarantee of business success. It is interesting to note that, out of the five managers interviewed, four of them have higher levels of education, with two of them holding a PhD. This can be an indicator of the fact that higher levels of education can be an asset for managers, as it can provide them with a stronger foundation of knowledge and skills in business and leadership. Higher education can also indicate a certain level of dedication and motivation, as earning a degree typically requires a significant investment of time and effort.

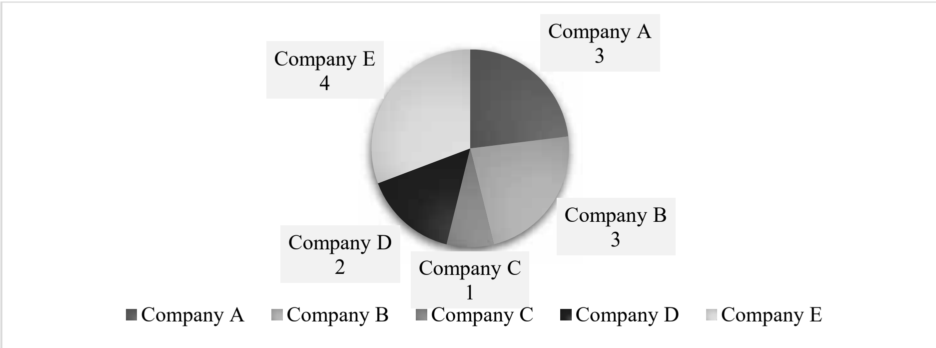
While conducting interviews with the five managers, however, it was curious to note that one of them, responsible for the most profitable business of the group and the business with the highest number of employees (72 employees, Company C), does not have a formal higher education. Considering also the following (Company A – master's degree, Company B – bachelor's degree, Company C – high school, Company D – PhD, Company E – PhD). This suggests that a manager's educational level is not the only factor that determines their ability to achieve business success. It is not necessarily the case that a manager with higher levels of education will automatically be more successful than one who does not have such education.

Regarding the number of trips abroad that a manager has taken or the experience of living abroad, it can be a useful indicator of their level of international experience and cross-cultural awareness. Based on the responses obtained during the interviews, it was possible to conclude that the number of trips abroad can be particularly valuable in the internationalization process as a useful indicator of the level of cross-cultural knowledge. All managers mentioned that these skills proved to be extremely useful when it comes to forming stronger connections with foreign partners and ways of doing business. The interviewed general managers have a range of international experience, with some having travelled abroad more frequently than others. Based on the data provided by the documents offered to us by the SMEs, considering the year 2022, the first manager travelled abroad three times, the second manager six times, the third one five times, the fourth one ten times, and finally the fifth manager only two times. Two of them, have not only travelled abroad frequently but have also studied and worked abroad for an extended period before starting their business and initializing the internationalization process. By them, this additional level of international experience and immersion in different cultures provided them with several advantages in the process.

Finally, regarding the number of foreign languages spoken/the level of proficiency, out of the five general managers interviewed, all of them speak at least one foreign language, and recognize the importance of using a foreign language in international business.

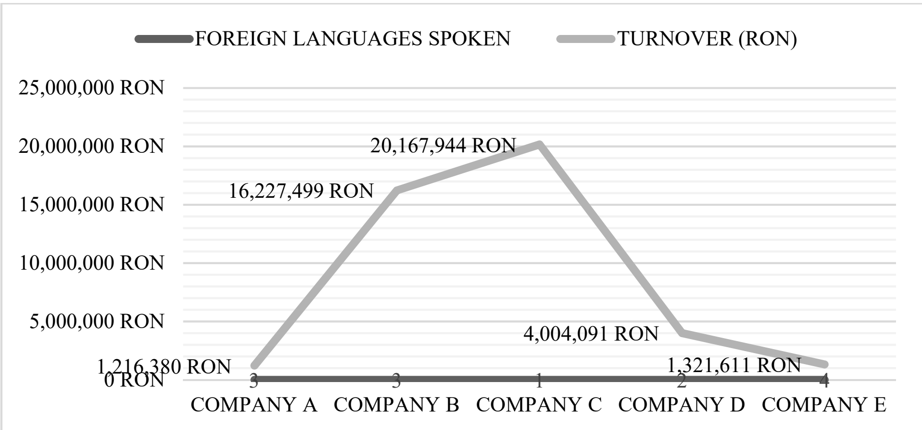
It is worth noting that the foreign languages spoken by the managers do not always align with the countries where the SMEs have internationalized. For example, the managers discussed internationalization in the Republic of Moldova due to cultural similarities, proximity, and the language spoken. In addition to the Republic of Moldova, the other countries chosen for internationalization were for Company A: Republic of Moldova and Hungary, for Company B: Hungary and Iceland, for Company C: Austria, Hungary, Republic of Moldova and Poland, for Company D: Poland and Republic of Moldova, and for company E: France. This mismatch between the languages spoken and the target countries highlights that language proficiency is not the only factor that determines the success of internationalization efforts.

Figure 8. Number of foreign languages spoken



Source: Author's own creation.

Figure 9. Foreign languages are spoken vs. net turnover (RON)



Source: Author's own creation based on company documents.

It was possible to note that the company with the highest profits among those analysed, has a manager who speaks only a single foreign language (English), and only at a conversational level according to their confession. On the other hand, company E, which has a manager who speaks four foreign languages (English, French, Spanish and Serbian), did not experience as much success and encountered various challenges in foreign markets. The manager of company E pointed out the importance of properly selecting the market and noted that speaking multiple languages does not guarantee success. The SMEs are typically internationalized in Eastern and Central Europe (apart from Company B – Iceland, where the general manager admits to not speaking the local language but using English during business visits). There is currently also a debate about the necessity of speaking a foreign language beyond English. Most of the respondents believe that English is sufficient because it is widely spoken, and they are willing to use interpretation services if communication in English is not possible.

In conclusion, it appears that none of the four characteristics that were investigated in this study (i.e. education level, foreign languages spoken, number of trips abroad, and experience of living abroad) can be solely considered essential for the success of the internationalization process. While each characteristic may influence the internationalization process and contribute to success in certain cases, it is not possible to identify a characteristic as definitively determinative of internationalization success based on the interviews conducted with the general managers.

Conclusions

Effective management practices are crucial for the success of SMEs seeking to internationalize. Our article has various advantages as it describes the current research on the topic, such as understanding the idea behind internationalization and its connection to the manager/management team. However, there were several potential limitations of the current study, as it was based on only five interviews with small and medium-sized enterprises (SMEs). With only five interviews, the sample size of the study was quite small, making it difficult to generalize the findings to a larger population, as the perspectives of the managers interviewed may not be illustrative of the larger population of SMEs.

Overall, based on the findings of this study, our recommendations would be for managers to continue learning and improving their skills (at a national level, the level of internationalization training was very low), while developing efficient strategies for their companies (e.g. innovation and digitalization of the business). Additionally, we support the idea that governments and different other institutions/NGOs can learn from this type of research and show greater support towards initiatives that include internationalization.

Finally, based on our study we identified that there are very few studies focused on Romanian SMEs and the importance of their general managers, and we encourage further research on this topic, hoping that the current paper will continue to be developed in multiple directions. It is also our intention to improve the validity and generalizability of our findings by increasing the sample size of the study. We support the idea that interviewing more SMEs can lead to more representative results of the larger population of small and medium-sized enterprises.

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ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ
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ABSORPTION OF FORMAL AND INFORMAL SECTOR WORKERS THROUGH THE MINIMUM WAGE: STUDIES IN INDONESIA[5]

This study aims to determine the effect of the minimum wage on employment in the formal and informal sectors in Indonesia. This study has a panel data set with a total of 170 observations consisting of 34 provinces in Indonesia during the 2017-2021 period. The use of the Ordinary Least Square (OLS) method, fixed effect, and random effect are used to compare the results of the three methods used. The results explain that the minimum wage has a negative and significant effect on the absorption of formal sector workers, while the minimum wage has a positive and significant effect on the absorption of informal sector workers.
Keywords: minimum wage; formal sector; informal sector
JEL: J23; O17; O46

1. Introduction

The Minimum Wage Policy has become an important policy on employment issues in many developed and developing countries. This minimum wage policy aims to meet the minimum living needs of workers and their families. Thus, the minimum wage policy aims to (a) guarantee workers' income so that it is not lower than a certain level, (b) increase worker productivity, and (c) develop and improve companies with more efficient production methods (Sumarsono, 2003).

The minimum wage policy in Indonesia has a long history. This policy was first introduced in 1956 and then formally started to be implemented in the early (Comola & De Mello, 2011). Even so, at the beginning of its implementation, the minimum wage policy was only

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symbolic, because at that time the minimum wage regulations were non-binding. The new minimum wage policy became binding in the early 1990s, mainly as a result of pressure from countries outside Indonesia to stop the "sweatshop" practice that suppressed low wages, long working hours, and an inhospitable workplace (Pratomo, 2014).

The Minimum Wage Policy in Indonesia is regulated based on Law Number. 13 concerning Manpower which is described in Government Regulation No. 13 of 2003 concerning Manpower and then elaborated again in Government Regulation No. 78 of 2015 concerning Wages. Based on this Law, the minimum wage is the lowest monthly wage consisting of wages without allowances or basic wages including fixed allowances. The minimum wage only applies to workers or labourers with less than one year of service at the company concerned. In its development, Job Creation Law No. 11 of 2020 and Derivative Regulations on the Job Creation Law No. 11 of 2020 emerged, in which President Joko Widodo issued Government Regulation Number 36 of 2021 concerning wages, which are derived from regulations from the Law. No. 11 of 2020 concerning job creation states that the minimum wage consists of the provincial minimum wage, district/city minimum wage, and minimum wage set based on economic and employment conditions. The minimum wage policy is directed at achieving Decent Living Needs in addition to providing guarantees for workers/labourers receiving wages to make ends meet.

The program for achieving the minimum wage for Decent Living Needs shows real improvement. It is intended that the fulfilment of life's needs will be achieved in stages. Article 27 paragraph 2 of the 1945 Constitution also states that everyone has the right to work and a decent living. This means that every Indonesian citizen has the right to prosper his life by having a decent job. Employment and a good standard of living should be used as criteria for setting the minimum wage. The minimum wage policy is a wage system that has been widely implemented in several countries, which basically can be seen from two sides. First, the minimum wage is a means of protection for workers to maintain that the value of the wages received does not decrease in meeting their daily needs. Second, as a means of protection for companies to maintain worker productivity

Despite this, in reality, many wages received by workers in most provinces in Indonesia are lower when compared to the necessities of a decent life. The increase in prices has increased the need for Decent Living and will further increase the minimum wage. Viewed from the company's perspective, wages are costs, which are usually used as a reference for setting prices. The Provincial Minimum Wage (UMP) is usually used as a reference for setting wages for workers in the formal sector, therefore an increase in UMP that is higher than worker productivity will be detrimental to companies because it can increase production costs. High production costs mean that output prices are competitive, and in the end, the company will reduce its output. The continuous increase in wages has been one of the main causes of unemployment since the financial crisis occurred in 1997–1998 (SMERU, 2001; Suryahadi et al, 2003) in Comola & De Mello (Comola & De Mello, 2011).

The first minimum wage in Indonesia was already introduced in 1956, followed by a national wage council established in 1969 and minimum wage legislation implemented in the early 1970s (Saget 2008). However, until the late 1980s, minimum wages had more of a symbolic character since they were neither binding nor enforced (Pratomo 2012).4 Under increasing pressure from domestic and international groups against low wages and labour standards in the growing economy, the Indonesian government implemented new minimum wage legislation in 1989 that states that minimum wages have to be based on minimum physical needs,5 local costs of living, and labour market conditions (Rama 2001). In 2001, in line with a national devolution policy, the responsibility for minimum wage setting was given to provincial governments. That is, district wage commissions calculate annual subsistence living needs based on annual survey data and prepare a recommendation for a district minimum wage (Widarti 2006). Based on these district-level recommendations, the governor and the provincial wage council elaborate a recommendation for a provincial minimum wage before the governor announces the final rate. The minimum wage legally applies to all workers/labourers (every person who works for a wage or other forms of remuneration) (International Labour Organisation ILO 2004), leaving the self-employed and unpaid family members uncovered. Given that they account for around half of the workers in our dataset, these groups have to be taken into account when analyzing the labour market effects of the minimum wage policy.

Based on the Regulations stipulated by the government, the minimum wage is the lowest monthly wage earned by workers. Then, Government Regulation Number 36 of 2021 was issued concerning wages which is a derivative of Law No. 11 of 2020 concerning Job Creation which contains the Provincial Minimum Wage (UMP), District/City Minimum Wage (UMK), and the determination of the minimum wage based on economic and employment conditions.

Employment is a fundamental aspect of human life because it includes social and economic dimensions. Economic development is based on opening up opportunities in the labour market to balance the growth of the labour force, which is faster than the growth in employment opportunities. The imbalance between labour force growth and job creation will impact increasing unemployment. This increase in unemployment will impact wasting resources, becoming a significant source of poverty, increasing social unrest, and hindering economic development. Unemployment conditions in Indonesia continue to increase, in 2012 it was at 5.7%, and this figure is increasing and it has skyrocketed in 2020 by 7.07%; 2020 countries in the world were shocked by the Covid-19 pandemic; the pandemic was not spared attacking Indonesia so it has an impact on increasing the percentage of unemployed.

Research on the effectiveness of the minimum wage as a redistributive policy tool is still quite controversial among policymakers and economists, where there are various effects ((Cengiz et al., 2019); (Clemens & Wither, 2019); (Harasztosi & Lindner, 2019); (Neumark & Munguía Corella, 2021); (Zhao & Sun, 2021); (Agarwal et al., 2022)). The study above explains most topics that focus on the impact or influence of labour absorption on the labour market. According to Pratomo (Pratomo, 2016), the effect of the minimum wage on labour has been the main focus of many studies on the labour market. The effect of the minimum wage on the labour market is quite complex, especially in developing countries, where the labour market is segmented between the formal and informal sectors. The average Indonesian minimum wage from 2017-2021 is explained in Figure 1.

Figure 1. Average Minimum Wage in Indonesian

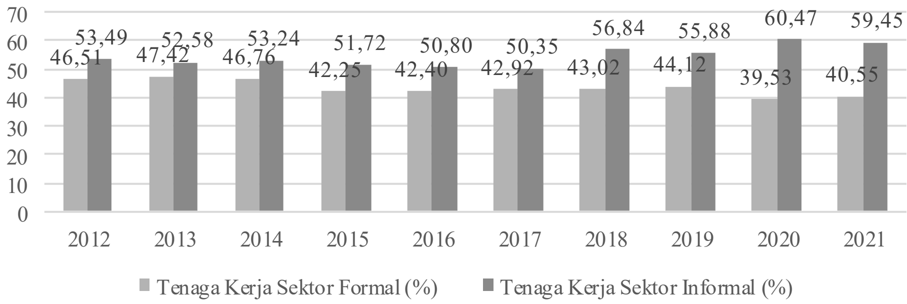
Source: Badan Pusat Statistik (BPS), 2023.

Figure 1 shows that the average minimum wage in Indonesia increased during 2017-2021. The exception is in 2021 when 2021 the Minister of Manpower issued Circular Letter Number M/11/HK.04/2020 addressed to the Governors of all of Indonesia concerning the Setting of the Minimum Wage for 2021 at which time Indonesia was experiencing the coronavirus disease 2019 (COVID-19) pandemic. The Minister of Manpower explained that there was a need for national economic recovery, in the context of providing protection and continuity of work for workers/labourers and maintaining business continuity, so it was necessary to make adjustments to the setting of the minimum wage in the economic recovery situation during the Covid-19 pandemic.

The effect of the minimum wage on the development of the formal and informal sectors is quite controversial. Comola and De Mello (Comola & De Mello, 2011), for example, show that an increase in the minimum wage affects the number of workers in the informal sector, which has an impact on increasing employment in the informal sector. Hohberg & Lay (Hohberg & Lay, 2015) in Indonesia stated that the minimum wage significantly positively affects the formal sector, while it does not affect the informal sector. Andres Ham (Ham, 2018) in Honduras shows that higher minimum wages reduce formal sector employment and increase informal sector employment. Holtemoller & Pohle (Holtemöller & Pohle, 2020), emphasized that the minimum wage has a significant adverse effect on the informal sector and a significant positive effect on the formal sector. Then Maarek and Moiteaux (Maarek & Moiteaux, 2021) stated that the decline in the absorption of formal sector workers in the labour market and the level of labour participation depends on the minimum wage level that applies in the European labour market. The conditions of the formal and informal sectors in Indonesia are described in Figure 2.

Research on the impact of the minimum wage on employment in the labour market in Indonesia is essential for several reasons. First, research on the impact of the minimum wage on employment in the formal and informal sectors is interesting to re-examine because there is a decentralization of setting the minimum wage from the central government to the provincial government. This is unlike the prediction of the dual labour market model introduced by Welch (1974), which states that the minimum wage will reduce the absorption of formal sector labour and increase the absorption of labour in the informal sector. Welch (1974) introduced a dual labour market model to capture spillover effects on the informal sector.

Figure 2. Percentage of the Proportion of Formal and Informal Sector labour in Indonesia



Source: Badan Pusat Statistik (BPS), 2023.

According to Welch (1974) the minimum wage will reduce the number of workers in the formal sector and increase the number of workers in the informal sector because there is a shift in labour from the formal sector. Indonesia is a developing country where the minimum wage policy cannot be fully implemented (incomplete coverage) because there is an informal sector labour market not covered by the minimum wage policy. This makes the impact of the minimum wage on employment different from that of developed countries because the impact is not only in the sector covered by the minimum wage (formal) but there is also a spillover effect in the sector that is not covered (informal). Second, regarding the issue of the effect of the minimum wage on employment in the labour market in Indonesia, the minimum wage phenomenon cannot be separated from the phenomenon of absorption of labour in the labour market, where the effect of the minimum wage on employment in the formal sector labour market and everyday needs to be considered, as well as the condition of the influence of the minimum wage on unemployment.

The contribution of this research is twofold: first, this research can be used by the government as a reference in implementing a minimum wage policy that increases every year so that it can be beneficial in the employment sector; it can improve welfare and not have a negative impact on some workers covered by the policy. the minimum wage is in the formal sector. Second, this study simultaneously estimates the impact of the minimum wage on employment in the formal, informal, and unemployment sectors. In contrast, previous empirical studies for Indonesia and other developing countries have partially estimated the effect of the minimum wage on employment. Previous research ignored the interdependence between the minimum wage on employment in the formal sector and informal sector labour market, as well as unemployment. As Pratomo (Pratomo, 2014) sees changes in the minimum wage for working hours of workers in Indonesia; Pratomo (Pratomo, 2016) examines young workers in the informal sector; Neumark & Munguía Corella (Neumark & Munguía Corella, 2021) looks at the workforce with low education and income; Maarek and Moiteaux (Maarek & Moiteaux, 2021) stated that the effect of a decline in the formal workforce in the labour market and the level of participation depends on the prevailing minimum wage in the local labour market as seen from education and labour skills. Therefore, this research explains the estimated interdependence of the minimum wage on employment in Indonesia's formal, informal, and unemployed sectors

2. Literature Review and Hypothesis

Minimum wages are minimum monthly receipts as Remuneration provided by employers to employees for work or services that have been or will be performed and valued in the form of money determined based on agreements or laws and regulations and paid based on work agreements between employers and workers including benefits, both benefits for workers and benefits for their families. Government Regulation no. 8/1981 stipulates that minimum wages can be set regionally. The minimum wage consists of a basic wage and fixed benefits, but in government regulations, it is clear that only the basic wage does not include benefits, this has implications for controversies between employers and workers regularly and regardless of the level of attendance of workers or the output produced, such as family allowances and benefits based on seniority (Pratomo & Saputra, 2011).

The labour market, like other markets in the economy, is governed by the forces of demand and supply, the imbalance between demand and supply of labour will determine the wage rate. However, there are differences in the labour market, namely the decline in labour demand (derived demand) is very dependent on the demand for the output it produces (Borjas, 2010; N. Gregory Mankiw, 2017). In Indonesia, there are four types of labour market, namely: (1) Perfect Competition Market; (2) Monopsony Market; (3); Monopoly Market; and (4) Bilateral Monopoly. The table below will describe the types of markets in Indonesia, as follows:

Table 1. Types of Labour Market

No	Market Type	Labor Market Conditions	Company Condition	Wage Rate
1	Perfect Competition Job Market	Lots of them (no union)	Many	Same with the equilibrium wage
2	Monopoly labour Market	Joining in one force (union)	Many	The wage is above the equilibrium
3	Monopsony labour Market	Joining in one force (union)	Only 1 (one) company	Can be above or below the equilibrium wage
4	Bilateral Monopoly labour Market	Multiple (no union)	Many	Above the equilibrium wage

Source: Mankiw, 2012.

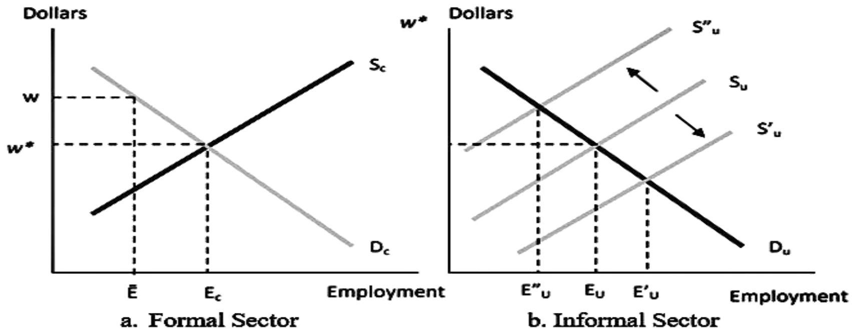
Labor is one of the factors of production used in the production process to produce goods and services. The relationship between the production of goods and services and the demand for labour is one of the factors that determine the balance of the minimum wage. Ricardo (2009) in Sulistiawati (2012) states that the exchange value of an item is determined by the costs incurred to produce an item, which includes the cost of raw materials and labour wages, which are only sufficient to survive (subsistence) for these workers. This wage is a natural wage. The amount of natural wages is determined by local customs or culture. The natural wage rate rises, in accordance with people's standard of living. As with other prices, the price of labour (wages) is determined by demand and supply, so under conditions of theoretical equilibrium, workers will receive wages that are proportional to the value of their work in producing products and services (N. Gregory Mankiw, 2017). This is explained in the following figure:

Welch (1974) in Nuhradi and Widyawati (2019) introduced a dual labour market model to capture spillover impacts in the informal sector, minimum wages will cause a decrease in the workforce in the formal sector and an increase in the workforce in the informal sector due to the mobility of workers from the formal sector. The Welch model developed by Mincer and Gramlich (1976) in Nuhradi and Widyawati (2019), considers not only looking at the movement of labour from the formal sector to the informal sector but also the movement of labour into or out of the labour market. Assuming that formal sector job vacancies always exist periodically, the impact of the minimum wage will not only cause a shift in labour from the formal sector to the informal sector but also enter the formal sector from the informal sector or the non-labour force. The existence of inflows and outflows from the informal sector makes the impact of the minimum wage on employment in the informal sector ambiguous, while the effect of the minimum wage in the formal sector is the same as what Welch (1974) said, namely the results are negative.

Setting a minimum wage policy will reduce the demand for labour in the formal sector. This excess supply of labour in the formal sector will be absorbed by the informal sector, whose wage rate is not protected by the minimum wage policy. This excess supply of labour will result in the informal sector lowering wage rates. If the share of employment in the informal sector is lower, the impact on income distribution will worsen. As we can see in Figure 5, before the existence of the minimum wage policy, wages in the formal and informal sectors were assumed to be the same, namely at the level w* (at the intersection of the supply curve Sc and the demand curve Dc in the formal sector, and on the supply curve Su and Du's demand curve in the informal sector). With the increase in the minimum wage, the wage rate in the formal labour market, which was initially at w*, eventually increased to w. Ē). In the dual sector model, workers who lose their jobs in the formal sector will move to the labour market in the informal sector. The excess supply of workers in the formal sector which causes an increase in the supply of workers in the informal sector (Eu to E'u) causes a shift in the supply curve for workers in the informal sector from Su to S'u, so that the wage rate in the informal sector decreases. When informal sector workers move to the formal sector, this causes a shift in the supply curve for workers in the informal sector to S "u, the number of workers falls to E" u, and the wage rate in the informal market increases.

The relative value of the minimum wage has shifted workers from the "queuing" unemployed to the openly unemployed population or the informal sector (Comola & De Mello, 2011). Honduras provides evidence supporting the dual-sector minimum wage model, which suggests that a change in the composition of the labour force i.e. a 10% increase in the minimum wage, reduces employment by 8% and increases by 5% in the informal sector. In particular, employment in the formal sector has decreased while the informal sector has increased (Ham, 2018). In addition, the research looks at the impact of minimum wage policies on the labour market in Chile, indicating that employment in the private sector has increased relatively compared to the public sector (Navarro & Tejada, 2022).

Figure 3. Minimum Wage in the labour market



Source: Borjas, 2008.

A study on the impact of the minimum wage on employment by considering the spatial dependence of the labour market using IFLS (Indonesian Family Life Survey) data and the Annual Survey of Industrial Companies (SI), as well as statistical analysis of spatial differences Magruder (2013) found that a lower minimum wage has a negative effect on employment in the informal sector and has a positive effect on employment in the formal sector and is different from Yamagishi's (2021) spatial equilibrium model, where an increase in the minimum wage has a positive effect on the labour market as seen from the increased demand for housing rent.

The impact of the labour market depends on the elasticity of labour supply (as workers are more likely to leave the labour force than find work in the informal sector) and on the demand for and the size of the informal sector. The LIC shows a negative regulatory effect on the formal sector and a positive compensatory effect on the informal sector, the effect on aggregate employment and the unemployment rate is less clear/ambiguous (Nataraj et al., 2014). The results of Comola and De Mello's research (Comola & De Mello, 2011) show that an increase in the relative value of minimum wages in Indonesia is associated with a weakening of the informal sector, which is in line with previous empirical evidence. The most interesting result is that the increase in the minimum wage affects increasing the number of workers in the informal sector, which has an impact on increasing employment in the informal sector. The evidence from the Neumark and Munguía Corella study (Neumark & Munguía Corella, 2021) on the impact of minimum wages on employment in developing countries is contradictory. One explanation is that there is no clear evidence of the impact of unemployment in developing countries. In contrast, however, this study finds evidence that heterogeneity is systematic, with often more negative predictive effects in relatively more feature-rich studies where other factors are present. Institutional and competitive models more strongly predict negative effects. A study estimating the effect of the minimum wage on the German labour market using panel data regression at the level of industrialized countries found that there is a strong positive-negative effect of the minimum wage on the informal sector and a strong positive effect on workers in the formal sector

(Holtemöller & Pohle, 2020). Regarding the number of jobs, the results show a negative effect overall.

The labour market is becoming increasingly polarized as the formal sector workforce dwindles. In the flexible US labour market, this has limited impact on the labour market as strong labour market growth in the informal sector and low wages make it impossible for the working workforce to move to the high-wage formal sector. The OLS and IV estimates show that polarization has a negative impact on employment and participation rates in countries with only high minimum wages. Minimum wage increases reduce the likelihood of youth working in the covered (formal) sector, i.e. paid work in the covered sector, and increase the likelihood of youth working in the unreached (informal) sector, including self-employment, unpaid family work, and paid employment in the informal sector (Pratomo, 2016). The hypothesis in this study is as follows:

H1: Minimum wage has a positive impact on the absorption of formal-sector workers

H2: Minimum wages have a negative impact on employment in the informal sector

3. Data and Method

This analysis presents the determinants affecting the employment of the formal sector and the informal sector in the period from 2017 to 2021. This study uses all provinces in Indonesia, totalling 34 provinces in Indonesia, so an approach with panel data is used. Panel data is data that has spatial (individual) and time dimensions (D. Gujarati, 2004). In panel data, the same cross-section data is observed according to time. If each cross-section unit has the same number of time series observations it is called a balanced panel and vice versa if the number of observations is different for each cross-section unit it is called an unbalanced panel. Merging cross-section and time series data in panel data is used to overcome weaknesses and answer questions that cannot be answered by cross-section and time series models. The advantages of using panel data provide many advantages according to Baltagi (2005), including the following:

1. Able to control individual heterogeneity. This method of estimating can explicitly include individual heterogeneity elements.
2. Providing more and various data to reduce collinearity between variables, increase degrees of freedom, and be more efficient.
3. It is better for studying the dynamics of adjustment. Observation of repeated cross-sections, then panel data is better at studying dynamic changes.
4. Better at identifying and measuring effects that simply cannot be addressed in cross-sectional data only or time series data only.
5. Can be used to build and test more complex models than pure cross-section or time series data.

This analysis presents all good data using the Ordinary Least Square (OLS) method, fixed effects, and random effects into a research model that aims to determine whether the minimum wage affects the formal and informal sectors in Indonesia. The presentation of the three methods above is used as a form of comparison in the research results. The specification of the method in the research is described as follows:

Common Effect / Ordinary Least Square

A common effect is a combination of cross-section data and time series data. This approach assumes that there are similarities in data behaviour between individuals in various periods because they do not pay attention to the time and individual dimensions of research observations. This model is estimated using the Ordinary Least Square (OLS) method. The equation is written as follows:

$$yit = \alpha + \beta Xit + \varepsilon it \qquad (1)$$

Where yit and xit are the dependent variables and independent variables for each individual i in period t, α is the intercept, while the slope is written as β. Furthermore, εit is the residual/error value for each individual i in period t.

Fixed Effect

The fixed effect approach is based on different intercepts between individuals, but is time-invariant, while the slope in this model is the same or fixed. This model uses a dummy variable to determine whether there are intercept differences between individuals. The technique commonly used is called the Least Square Dummy Variable (LSDV), which is a fixed effect model using a dummy variable for each unit cross-section to be able to capture differences between individuals. The model equation is as follows:

$$yit = \alpha + \beta 1Xit + \beta 2D1i + \varepsilon it \qquad (2)$$

Random Effect

The random effect model is an estimation model that assumes that there are intercept differences both between individuals and over time. The difference between the two intercepts can be accommodated as an error. Because there are two kinds of error components in the random effects model that can contribute to the formation of errors, the errors will be broken down into individual and time component errors. The parameter estimation of this model uses Generalized Least Square (GLS). Adapt model specifications as follows:

$$yit = \alpha + \beta 1Xit + \beta 2X1i + \varepsilon it; \qquad \varepsilon it = uit + vit + wit \qquad (3)$$

where:

uit = error component between individuals
vit = intertemporal error component
wit = combined error component

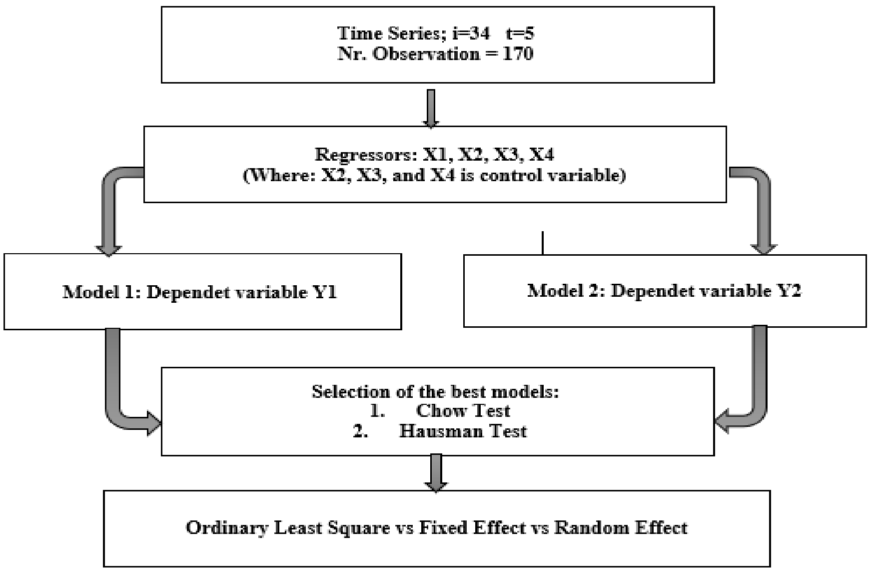
In this study, the type of data used is secondary data obtained from several data providers that have been published. The data used in this study are described in the following table:

Table 2. Description of Research Variables

Variable	Description of Variable	Research Study by
Dependent Variable		
Formal Sector	Percentage of formal sector workers	Hohberg & Lay (2015); Ham (2018); Neumark (Neumark & Munguía Corella, 2021)
Informal Sector	Percentage of informal sector workers	Comola & De Mello (2011); Nataraj et al. (2014); Pratomo (2016)
Independent Variable		
Minimum Wage	The minimum wage of each province in Indonesia	Roosmawarni (2015); Ham (2018); Susilowati & Wahyuni (2019); Neumark (Neumark & Munguía Corella, 2021)
Control Variable		
Productive Age Population	Number of the labour force	Muravyev & Oshchepkov (2013); Brzezinski (2017)
Education	Number of the labour force with higher education	Hohberg & Lay (2015); Amar Jusman (2018)
GRDP	Gross Regional Domestic Product	Hohberg & Lay (2015)

This study uses Stata software to be able to measure the relationship between the variables to be studied. The research design is explained in the following figure:

Figure 6. Design of the analysis



4. Empirical Results

Research on the impact of the minimum wage on employment in developing countries is limited. The conventional theoretical framework is a dual economy or two-sector economy, in which the formal sector operates as in the neoclassical model (eg increases in the minimum wage in the labour market), and minimum wage provisions do not apply in the informal sector ((Fang & Lin, 2015); (Menon & Rodgers, 2018); Mincer, 1976; Brown et al., 1982). So that an increase in the minimum wage reduces the labour market in the formal sector and increases the informal sector, where workers from the formal sector are concentrated in the informal sector. The results of Comola and De Mello's research (Comola & De Mello, 2011) show that an increase in the relative value of the minimum wage in Indonesia is associated with a weakening of the informal sector.

Table 3. Statistic descriptive

Variable	Obs	Mean	Std.dev	Min	Max
Formal sector	170	41.235	10.586	19.53	71.55
Informal Sector	170	58.767	10.595	28.45	80.47
Minimum Wage	170	163.763	37.204	89.41	295.17
GRDP	170	10.481	0.542	9.381	12.072
Productive Age	170	14.582	1.022	12.709	17.024
Education	170	12.320	0.983	10.024	14.629

Source: Stata, processed data (2023).

Table 3 describes the statistical description of each variable. The number of observations is 170 data originating from 34 provinces in Indonesia from 2017 to 2021. The dependent variables used are the formal sector and the informal sector, the results of the statistical analysis explain that the formal sector has a mean of 41,235 and the informal sector is 58,767. The two sectors, both formal and informal sectors have different *min* and *max* values. The results explain that the informal sector dependent variable has a max value of 80.47 while the min number comes from the formal sector with a value of 19.53.

The main variable in this study is the minimum wage variable which is used in USD currency to capture inter-year inflation. The results of the statistical analysis explain that the highest minimum wage value is USD 295.17 which is in the DKI Jakarta province in 2021 and the lowest is in the DI Yogyakarta province in 2017 amounting to USD 89.41. The standard deviation value describes the distribution of data in the sample that is close to the mean or average value. If seen from the distribution of data from the research sample, the formal sector-dependent variable has a standard deviation value that is not far from the average value. This means that the sample data used can represent the entire population used in the study. Meanwhile, the independent variable in the form of the minimum wage has a standard deviation value that is very different from the average value. This condition indicates that there are various samples or a very wide distribution of sample data.

Maarek and Moiteaux (2021) studied the effect of decreasing the proportion of formal labour in the labour market and the level of participation, depending on the level of the minimum wage, on the local European labour market. An increase in the minimum wage in the formal sector using microanalysis found a decrease in labour absorption (Del Carpio et al., 2015) and Hohberg & Lay (Hohberg & Lay, 2015) found different results, where the minimum wage has led to an increase in labour absorption capacity work using macro analysis. Variations in data between districts within the province using panel data reveal the impact of reduced employment in the formal sector due to an increase in the minimum wage. The results of the analysis carried out in this study are described in Table 4.

Table 4. Result of analysis

	Formal Sector			Informal Sector		
	OLS	FE	RE	OLS	FE	RE
Minimum Wage	-0.049***	-0.030	-0.049***	0.041**	0.021	0.041**
	(0.019)	(0.022)	(0.019)	(0.019)	(0.022)	(0.019)
lnProductiveage	-3.343**	-3.190**	-3.343**	2.824*	2.649*	2.824*
	(1.552)	(1.554)	(1.552)	(1.541)	(1.540)	(1.541)
LnEduc	3.517**	3.611**	3.517**	-2.996*	-3.088*	-2.996*
	(1.592)	(1.598)	(1.592)	(1.581)	(1.585)	(1.581)
lnGRDP	15.537***	14.856***	15.537***	-15.532***	-14.798***	-15.532***
	(1.235)	(1.287)	(1.235)	(1.226)	(1.276)	(1.226)
Constant	-108.129***	-107.520***	-108.129***	210.500***	209.913***	210.500***
	(13.738)	(13.683)	(13.738)	(13.641)	(13.568)	(13.641)
Observations	170	170	170	170	170	170
R^2	0.551	0.555		0.558	0.564	
Adj. R-sq	0.540	0.533		0.548	0.543	

Note: The value in brackets is the standard error. (*)(**)(***) describes the (10)(5)(1) percent level of significance

Source: Stata, Data Processed 2023

Table 4 explains that an increase in wages can lead to a decrease in the formal sector and an increase in the informal sector. This is because when there is a decrease in the workforce it will cause a shift in the informal sector so that it can make an increase in the sector and vice versa. The results of this study are following previous research conducted by Comola & De Mello (Comola & De Mello, 2011).

The results of the study explain that the formal sector has a negative relationship to the minimum wage. An increase in the minimum wage will reduce the absorption of formal sector workers by 0.049. Meanwhile, the informal sector has a positive relationship with the minimum wage, where an increase in the minimum wage will increase the employment of the informal sector. This explains the absorption of labour in the formal sector against the informal sector. The selection of other control variables, both using the workforce, education, and economic growth, shows a significant influence on employment in the formal sector and the informal sector.

Table 5. Selection of the best model

Best Model	Chow Test	Hausman Test
Formal Sector	0.2527	0,4744
Informal Sector	0.2153	0,1114

Source: Stata, Data Processed (2023).

The results of selecting the second-best model used the formal sector dependent variable. The results of the Chow test explained that the P value (prob>chi2) > alpha 0.05 which has a value of 0.2527, the best choice is used by OLS. The same is true for the formal sector. The Hausman test is still being carried out to check the accuracy of the analysis results. On the results of the Hausman test, it is explained that the p-value (prob>chi2) > alpha 0.05 is 0.4744, so the best choice is Ordinary Least Square.

5. Discussion and Conclusion

Economic development and development in other fields always involve human resources as one of the agents of development, therefore the population in a country is the main element in development. A large population does not always guarantee the success of development and can even become a burden for the sustainability of this development. A population that is too large and disproportionate to the availability of jobs will result in part of the population who are of working age not getting a job. The dimensions of the employment problem are not just limited fields or job opportunities and low productivity, but are far more serious with different causes. In the past decade, the main problem has centred on the failure to create new jobs at a rate commensurate with the growth rate of industrial output. In line with the changing macroeconomic environment of the majority of developing countries, the rapidly increasing number of stimulus was mainly due to "limited demand" for labour, which was further reduced by external factors such as deteriorating payment conditions, increasing foreign debt problems and other policies, which in turn has led to a decline in industrial growth, wage rates, and ultimately, providing employment (Todaro, 2000).

The minimum wage policy is a wage system that has been widely implemented in several countries, which basically can be seen from two sides. First, the minimum wage is a means of protection for workers to maintain that the value of the wages received does not decrease in meeting their daily needs. Second, as a means of protection for companies to maintain worker productivity (Simanjuntak, 1992 in Gianie, 2009). Wages depend on subsistence needs, namely seeing the minimum needs required by workers in order to survive. The minimum needs referred to by Ricardo are needs that depend on the environment and culture. If the standard of living increases, the wages demanded of workers also increase (Nugroho et al., 2022). Wages are defined as the price for the use of labour, this is the result of an agreement on labour demand and labour supply. The minimum wage can be adjusted based on the factors that affect the payment of payments, namely the value of economic growth, inflation and other variables.

This study aims to determine the effect of the minimum wage on employment opportunities in the formal and informal sectors. The results of the study explain that the minimum wage significantly affects employment in the formal and informal sectors. The minimum wage has a significant positive effect on the informal sector, while the formal sector has a significant negative effect. So we can see that an increase in the minimum wage can cause a decrease in the formal sector and an increase in the informal sector with the assumption that a decrease in employment in the formal sector will be absorbed in the informal sector so that there is a difference between employment opportunities due to an increase or decrease in the minimum wage. The absorption of labour is expected to improve people's welfare. absorption of labour will directly increase household income which can be used in improving the quality of life. Improving the quality of life carried out by the community can help reduce poverty in Indonesia, which is a common goal in supporting the Sustainable Development Goals (SDGs).

The results of other studies explain that the workforce which is included in productive society groups has a negative relationship with the formal sector, and conversely has a positive relationship with the informal sector. Meanwhile, education is an investment that will improve the quality of human resources, including labour in an area. Education can also be used as a workforce capital to get better and decent jobs. Educated or highly educated workers, including industrial workers, will certainly have better cognitive abilities and skills compared to uneducated or low-educated workers, so they tend to be more easily absorbed into leading sectors, including them. industrial sector. The results of other studies explain that included education has a positive relationship with the formal sector, and vice versa has a negative relationship with the informal sector. this illustrates that an increase in education will be able to increase the opportunity for the community to be able to participate in absorbing the formal workforce, while the informal sector has smaller opportunities to absorb the workforce. This increase in education is in line with the desire of the community to participate more in the formal sector. This is supported by research conducted by (Yunie, 2020; Hilmi, 2022).

In addition to improving education, an increase in the economic growth of a region must be continuously improved so that it can balance with the conditions of society. Economic growth is a macro indicator of development success so that all countries try to achieve high economic growth in order to create social welfare, especially for developing countries. The results of the research conducted explain that growth has a positive effect on the absorption of formal sector workers, and vice versa has a negative effect on the absorption of the informal sector. This illustrates that an increase in the economy of a region will help people's welfare, especially in the formal sector. This is in accordance with research conducted by (Panca Erni, 2017; Claudiu, 2013)

Based on the results of the research as a whole, it is explained that there are various factors that affect employment, both in the formal sector and the informal sector. Overall, the results of the research show that there is a significant difference between the magnitude of changes in the absorption of the two sectors. The formal sector and the informal sector have results that tend to be the opposite, this is because there is a shift in labour absorption depending on the influencing factors. The main results that are the focus are the negative effect between the formal sector and the minimum wage, as well as the positive effect between the informal sector and the minimum wage.

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ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ
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DOES INTERNAL ORGANIZATION COMMUNICATION ENHANCE EMPLOYEE ENGAGEMENT?[5]

Despite the acknowledged significance of organization communication in achieving positive organizational outcomes, there is a dearth of empirical knowledge regarding internal organization communication (IOC) influence on employee engagement (EE), particularly in Balkan countries. The aim of this study is to fill this research gap by measuring the effect of IOC in EE, thereby providing a significant contribution to the growing domain of organizational communication. Specifically, this paper investigates the relationship between eight dimensions of IOC (such as communication climate, supervisory communication, organizational integration, media quality, co-worker communication, company information, personal feedback, and subordinate communication) and three dimensions of EE (employee vigour, employee dedication, and employee absorption). The present study involved the administration of a survey to a sample of 152 employees working in public secondary education institutions within the Republic of North Macedonia. The data was subjected to analysis using SPSS software. The results of the study indicate that several IOC dimensions play a crucial role in predicting various dimensions of EE, such as employee energy, dedication, and absorption within the organization. The findings of this study make a substantial contribution to the existing knowledge on the relationship between IOC and EE in non-profit organizations.

Keywords: Internal Organizational Communication; Employee Engagement; Media Quality; Company Information; Employee Dedication
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1. Introduction

The concept of employee engagement is increasingly gaining popularity as a framework for understanding how organizations seek to foster collaboration with their stakeholders. The concept of EE has garnered significant attention over the decades (Hallberg & Schaufeli, 2006). Recent research indicates that there is a higher prevalence of disengaged employees compared to engaged employees in contemporary times. According to the Gallup Institute, globally only 15% of workers can be described as fully engaged in their work, while 85% are not engaged or are actively disengaged (Gallup, 2017). Indeed, the studies conducted on this topic demonstrate some variations in their findings, but they generally agree on a common conclusion: that EE plays a substantial role in enhancing an organization's competitive advantage. (Salanova & Schaufeli, 2008; Teng et al., 2007). Considering the potential advantages associated with EE, such as enhanced work performance (Gruman, Saks, 2011), decreased absenteeism and turnover (Brunetto et al., 2012), and increased customer loyalty (Salanova et al., 2005), it becomes imperative to recognize the significance of adopting an approach where engagement serves as a crucial driver of competitive advantage. EE enables organizations to foster innovation and effectively compete in the marketplace (Welch, 2012). Therefore, the examination of EE holds significant importance as it greatly contributes to the body of literature in the field of human resource management.

It is widely recognized among contemporary scholars that employee communication and engagement play a crucial role in determining the overall effectiveness of an organization. The evaluation of an organization's performance is heavily reliant on the efficacy of IOC (Bourne et al., 2013; Mmutle, 2022; Otieno et al., 2015). Employees who are actively involved in their work and demonstrate qualities such as diligence, ethical behaviour, and a strong sense of responsibility play a crucial role in creating a positive work environment (Verčič, Vokić, 2017). Thus, researchers are primarily focused on identifying the determinants that potentially contribute to heightened levels of EE within an organizational context (e.g., see Al-dalahmeh Mahmoud et al., 2018; Narayanamma et al., 2022; Saks & Gruman, 2014; Sun, Bunchapattanasakda, 2019). The existing literature (Smidts et al., 2001) has established a noteworthy correlation between employee commitment and organizational identity, wherein effective communication within the organization plays a crucial role in shaping this identity (Melewar, Jenkins, 2002).

IOC is widely regarded as a crucial component in addressing various aspects associated with employee engagement. Communication within an organization is characterized as a key force that facilitates employee coordination and establishes the necessary conditions for organizational behaviour (Myers, Myers, 1982). Management has the ability to foster increased commitment and seriousness among employees by improving communication regarding assigned tasks and ensuring that relevant information is effectively directed to the appropriate positions (De Vries, Van den Hooff, De Ridder, 2006). In their study, Guest and Conway (2002) ascertain that effective communication plays a crucial role in an employee's performance, encompassing both regular work-related communication and the calibre of feedback received. Also, continuous communication with employees has a positive impact on employee effectiveness, such as employee productivity and satisfaction (Islami et al., 2018).

To achieve a competitive edge in the contemporary global market, organizations must prioritize the attraction, engagement, development, and fostering of employee loyalty (Abduraimi et al., 2023) through effective IOC. Given these circumstances, it is undeniable that there is a significant need to examine and evaluate the correlation between IOC and EE. It is worth mentioning that this study expands on a prior investigation by Abduraimi et al. (2023), which examined the influence of organizational culture on employee engagement. Despite the fact that several researches have investigated the impact of organizational communication on employee engagement (e.g., see Jiang & Luo, 2020; Men et al., 2019; Verčič & Men 2023; Mishra et al., 2014; Tkalac et al., 2021; Verčič & Vokić, 2017). Still, there is a lack of empirical research that specifically investigates the degree to which organizations, motivated by intense competition and pursuit of achievement, place importance on IOC as a means to improve EE within their workplaces.

Indeed, despite the extensive body of research conducted on this topic, there remains a significant level of inconsistency and contradiction regarding the impact of organizational communication on employee engagement. To fill this research gap, this study investigates the degree of employee engagement in the organizational process and explores the significant impact of IOC dimensions on the various dimensions of EE. This study specifically examines the potential statistical relationship between IOC and the ability to predict EE among individuals working in public secondary schools in the Republic of North Macedonia. The study is of utmost importance for non-profit organizations due to the limited attention given to the concept of EE in academic literature. Additionally, the development of a measurement model for EE would greatly benefit human resources departments in their practices. The study’s conclusions and suggestions are intended for non-profit organizations (the education industry) as the primary beneficiaries. This research provides evidence in favour of non-profit organizations' initiatives aimed at enhancing employee engagement.

2. Research Background and Hypotheses Development

Extensive scientific research has been devoted to investigating the advantages of embracing a more constructive approach to managing the workforce. These studies propose the prioritization of employee engagement over the pursuit of strategies employed by competitors (e.g., see Avey et al., 2008; Bakker & Schaufeli, 2008; Luthans & Avolio, 2009; Luthans & Youssef, 2007; Seligman et al., 2005). The concept of engagement has gained significant recognition as a prominent area of study within the field of organizational sciences (Sonnentag, 2011). EE is a theoretical construct that encompasses the motivational condition of individuals in the workplace (Meyer & Gagné, 2008; Rich et al., 2010). It is characterized by the active and wholehearted involvement of employees in their work roles (Kahn, 1990). Engagement can be conceptualized as a complex phenomenon encompassing behavioural, moment-to-moment, and trait-like dimensions (Macey & Schneider, 2008).

The existing body of literature provides substantial evidence to support the proposition that there is a significant correlation between EE and organizational performance (Akanpaadgi & Binpimbu, 2021; Kazimoto, 2016; Motyka, 2018). The potential impact of EE on organizational performance is widely recognized. As an example, previous studies have demonstrated a positive relationship between EE and a range of outcomes, such as productivity (Rich et al., 2010), organizational commitment (Chalofsky & Krishna, 2009), and organizational citizenship behaviours (Moliner et al., 2008). On the other hand, previous research has indicated that engagement is inversely associated with outcomes such as turnover intentions and burnout (Schaufeli et al., 2009). Indeed, EE is widely recognized as a motivating factor that plays a role in the attainment of an organization's goals. (Kazimoto, 2016). The three dimensions of employee engagement, namely vigour, absorption, and dedication, have a substantial influence on organizational performance (Schaufeli et al., 2002). These three EE dimensions pertain to the level of energy, commitment, and engagement that employees exhibit in their work. The operational definition of vigour, dedication and absorption in this study are adopted by Abduraimi et al. (2023, p. 111).

Organizational EE is regarded as a significant issue, particularly in the management of organizations. This is because organizational EE is linked with job satisfaction and both are directly associated with organizational profitability and superior competitiveness (Abdullah & Antony, 2012). Presently, it is a prevailing practice to classify organizations as entities involved in the process of communication (Clegg et al., 2021). The benefits associated with effective communication include higher efficiency, improved service and product quality, heightened levels of trust, engagement, and commitment, increased staff input and creativity, elevated employee job satisfaction and morale, improved workplace relationships, greater acceptance of change, decreased absenteeism, reduced staff turnover, diminished industrial unrest and strikes, reduced costs, and optimized resource utilization (Bedwell et al., 2014; Bucăţa & Rizescu, 2017; Clampitt, 2013; Ellwardt et al., 2012; Al Jenaibi 2010).

It is noteworthy to mention that a number of studies have provided evidence regarding the significance of communication in enhancing work engagement (Jiang & Men, 2015; Verčič & Men, 2023; Verčič & Vokić, 2017). Indeed, communication is a crucial element of the organizational environment that plays a significant role in determining the level of employee engagement (Bakker et al., 2011). This is primarily because effective communication has the ability to convey the values of the organization to all employees and actively involve them in the pursuit of organizational goals (Welch, 2011).

Effective communication plays a pivotal role in actively involving employees. The existence of this association has been demonstrated through empirical research conducted in several studies (e.g., Men, et al., 2019; Mishra et al., 2014; Verčič & Vokić, 2017). In the context of examining the increased significance of communication in fostering employee engagement, Mishra et al. (2014) posited that internal communication plays an essential role in cultivating a sense of trust between organizations and their employees, thereby facilitating employee engagement. Similarly, the study conducted by Verčič and Vokić (2017) developed a relationship between various aspects of communication satisfaction and the extent to which employees experience vigour, absorption, and dedication within the organizational context. This finding further underscores the significance of effective communication in fostering EE. Communication satisfaction has a positive effect on EE and job satisfaction (Pongton & Suntrayuth, 2019). The communication satisfaction dimensions have a significant influence on EE (Jaupi & Llaci, 2015). Among all the predictors, two-way communication and internal crisis communication content predicted EE the most, followed by internal crisis communication objectives and new methods of working (Dhanesh & Picherit, 2021).

Despite extensive research and scholarly inquiry, there exist different opinions regarding the influence of communication on environmental education (EE). Given the presence of numerous contradictions, the central inquiry revolves around the impact of communication on EE. There exists an immediate need for additional research to address this gap, primarily due to the predominant focus of research efforts in developing nations. Drawing from the preceding discourse, this study proposes these hypotheses:

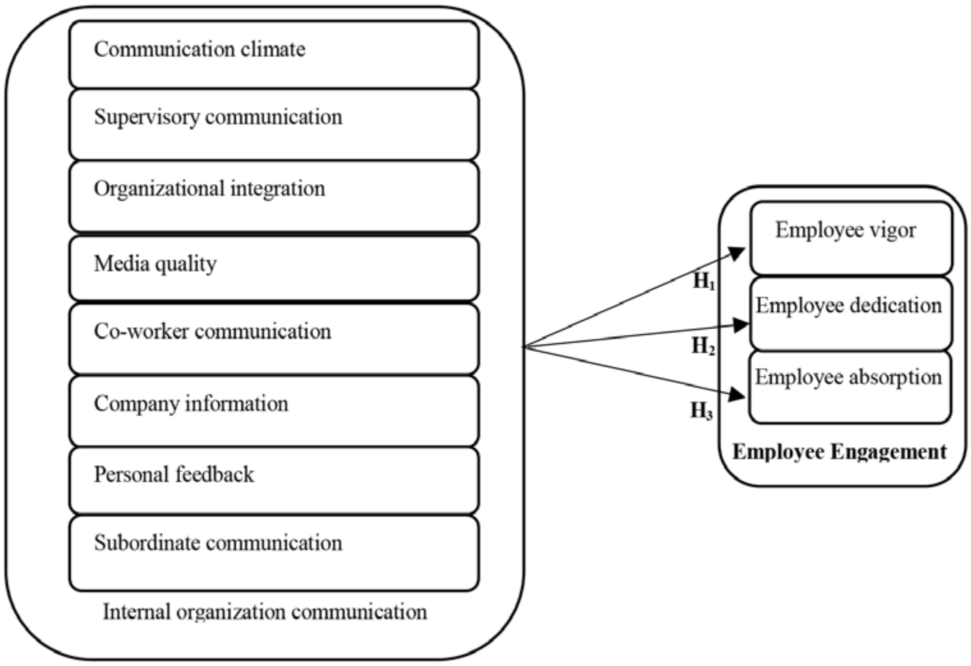
H1: Internal organization communication has a positive influence on the vigour of employees.

H2: Internal organization communication has a positive influence on the dedication of employees.

H3: Internal organization communication has a positive influence on the absorption of employees.

2.1. Conceptual model of the study

Figure 1. Conceptual model



The organization is influenced by several internal factors, but this research considers only two factors. It covers both internal organizational communication and employee engagement, both of which have demonstrated a significant impact on the success of an organization (Jiang

& Men, 2015; Verčič & Men, 2023; Verčič & Vokić, 2017). The conceptual model of this paper is adopted by authors and it is based on the models used by Downs et al. (1988) and Schaufeli et al. (2002). Were, according to Clampit & Downs (1992) organisational communication consists of eighth dimensions (communication climate, supervisory communication, organizational integration, media quality, co-worker communication, company information, personal feedback, and subordinate communication). Whereas, employee engagement consists of three dimensions: energy, dedication and absorption (Abduraimi et al., 2023; Schaufeli et al., 2002). The image below shows visually the impact that observed variables of IOC have on EE (see Figure 1).

3. Research Methodology

This study employs a quantitative approach, utilizing statistical procedures and research instruments as means to assess the extent of the association between IOC and EE. Therefore, conclusions are derived from an in-depth analysis of data obtained via the administration of questionnaires. The questionnaires employed in this study were designed specifically to gather primary data, which facilitated the identification of significant findings and the formulation of study recommendations. It is noteworthy to mention that the quantitative study was preceded by a full investigation conducted over several years by the first author of this research. The focus of this study was on the examination of human resource practices, specifically exploring the integration of the concept of EE and its significance within the IOC.

In order to gather the viewpoints of directors, administration, and teachers on the IOC and EE within their respective educational organizations, an extensive survey methodology was employed. This involved a combination of both field-based and online questionnaires, which were administered to public high schools operating within the jurisdiction of the Republic of North Macedonia. The sampling methodology was selected in order to obtain a comprehensive dataset. The research was carried out in the urban areas of Skopje, Tetovo, and Gostivar, involving the staff members of the public educational institutions located in these cities.

3.1. Questionnaires design

The formulation of the questionnaire is grounded in the theoretical framework of the study. The creation and carrying out of survey items in the EE section have been based on the theoretical framework put forth by Schaufeli et al. (2002). The questionnaire for the communication section was developed and employed using the model established by Clampitt and Downs (1992). The construction of the questionnaire has been designed in a manner that enables the systematic collection of responses related to variables (Abduraimi et al., 2023; Tanur, 1993). See Appendix 1. It is worth noting that the methodology utilized for data analysis and result extraction is in line with that employed by Abduraimi et al. (2023).

3.2. Characteristics of the sample

What factors contribute to the selection of this specific country? The education system in the Republic of Northern Macedonia has encountered numerous challenges in recent years across various domains. According to the report conducted by the State Education Inspectorate, which examined 162 public high schools for the academic year 2016/2017, it was found that the quality of the educational process is not adequately developed. There exist numerous factors contributing to the suboptimal functioning of schools. Public high schools have been found to exhibit weaknesses across various aspects, including learning equipment, curriculum implementation, teaching staff qualifications, supervision, and student knowledge and awareness levels. Hence, if the focus of communication is geared towards enhancing energy efficiency in non-profit organizations, it is plausible that certain challenges can be effectively addressed.

The survey questionnaire was administered to a total of 160 respondents. However, the final dataset comprises responses from only 152 participants, as the remaining respondents did not furnish the requisite information. The survey instrument was assessed utilizing a five-point Likert scale, ranging from 1 to 5. The survey included a diverse group of participants from public high schools, encompassing individuals of various genders, schools, ages, subject specializations, and job positions (see Appendix 2). This approach aimed to ensure that the sample was as representative as possible.

4. Findings of this study

4.1. Internal analysis of the IOC and EE dimensions

Mauchly's Test of Sphericity was employed to conduct the internal analysis of the research variables. Firstly, Table 2a provides evidence that there is a range of 0.76 between the averages of the lowest and highest-rated dimensions. In a general context, it is apparent that the dimensions of company information (mean = 3.088) and organizational integration (mean = 3.105) display notably lower and higher values when compared to the other six dimensions. On the other hand, the recorded measurements of the quality of communication channels indicate a mean value of 3.846. Similarly, the mean values for supervisory communication, climate of communication, and communication from subordinates are 3.724, 3.742, and 3.832, respectively. At this point, it is crucial to determine whether the disparities mentioned possess enough significance to be considered valid or if they are simply coincidental. To effectively investigate this inquiry, it is imperative to analyze the statistical significance of the variances observed during the evaluation of the eight dimensions of the IOC. Therefore, Table 2b presents the implementation of Mauchly's Test of Sphericity, which assesses the statistical significance of the observed variations in the assessment of the eight dimensions of the IOC.

Table 2. a) Descriptive statistics of IOC dimensions, n=152

	Mean	Std. Deviation
Communication climate	3.742	0.675
Supervisory communication	3.724	0.638
Organizational integration	3.105	0.713
Media quality	3.846	0.764
Co-worker communication	3.638	0.628
Company information	3.088	0.837
Personal feedback	3.386	0.691
Subordinate communication	3.832	0.814

b) Mauchly's Test of Sphericity[a] for IOC

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	Df	Sig.	Epsilon Greenhouse-Geisser	Epsilon Huynh-Feldt	Epsilon Lower-bound
IOC	0.350	155.664	27	0.000**	0.765	0.797	0.143

c) ANOVA for repeated measures: significance of the differences between the eigth dimensions of the IOC

	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Partial Eta
Sphericity Assumed	102.028	7	14.575	64.715	0.000**	0.300	0.548
Greenhouse-Geisser	102.028	5.571	18.314	64.715	0.000**	0.300	0.548
Huynh-Feldt	102.028	5.809	17.563	64.715	0.000**	0.300	0.548
Lower-bound	102.028	1.000	102.028	64.715	0.000**	0.300	0.548

d) ANOVA for repeated measures: IOC in the school – posthoc test (Pairwise Comparisons)

(I) IOC	(J) IOC	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
1	2	-0.728*	0.062	0.000**	-0.850	-0.605
	3	-0.282*	0.054	0.000**	-0.389	-0.174
	4	0.017	0.054	0.751	-0.089	0.124
	5	-0.637*	0.055	0.000**	-0.745	-0.528
	6	-0.407*	0.053	0.000**	-0.512	-0.301
	7	-0.741*	0.057	0.000**	-0.854	-0.629
	8	-0.619*	0.055	0.000**	-0.727	-0.511
2	1	0.728*	0.062	0.000**	0.605	0.850
	3	0.446*	0.057	0.000**	0.333	0.559
	4	0.745*	0.064	0.000**	0.619	0.871
	5	0.091	0.055	0.099	-0.017	0.199
	6	0.321*	0.060	0.000**	0.203	0.439
	7	-0.014	0.056	0.810	-0.125	0.098
	8	0.108*	0.053	0.043*	0.004	0.213
3	1	0.282*	0.054	0.000**	0.174	0.389
	2	-0.446*	0.057	0.000**	-0.559	-0.333
	4	0.299*	0.055	0.000**	0.190	0.408
	5	-0.355*	0.049	0.000**	-0.452	-0.259
	6	-0.125*	0.053	0.019*	-0.229	-0.021
	7	-0.460*	0.059	0.000**	-0.577	-0.343
	8	-0.338*	0.054	0.000**	-0.444	-0.232

(I) IOC	(J) IOC	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval Lower Bound	Upper Bound
4	1	-0.017	0.054	0.751	-0.124	0.089
	2	-0.745*	0.064	0.000**	-0.871	-0.619
	3	-0.299*	0.055	0.000**	-0.408	-0.190
	5	-0.654*	0.060	0.000**	-0.773	-0.535
	6	-0.424*	0.063	0.000**	-0.548	-0.299
	7	-0.758*	0.062	0.000**	-0.881	-0.635
	8	-0.636*	0.064	0.000**	-0.763	-0.509
5	1	0.637*	0.055	0.000**	0.528	0.745
	2	-0.091	0.055	0.099	-0.199	0.017
	3	0.355*	0.049	0.000**	0.259	0.452
	4	0.654*	0.060	0.000**	0.535	0.773
	6	0.230*	0.046	0.000**	0.139	0.322
	7	-0.104*	0.039	0.009**	-0.182	-0.027
	8	0.017	0.038	0.643	-0.057	0.092
6	1	0.407*	0.053	0.000**	0.301	0.512
	2	-0.321*	0.060	0.000**	-0.439	-0.203
	3	0.125*	0.053	0.019*	0.021	0.229
	4	0.424*	0.063	0.000**	0.299	0.548
	5	-0.230*	0.046	0.000**	-0.322	-0.139
	7	-0.335*	0.050	0.000**	-0.434	-0.235
	8	-0.213*	0.043	0.000**	-0.297	-0.129
7	1	0.741*	0.057	0.000**	0.629	0.854
	2	0.014	0.056	0.810	-0.098	0.125
	3	0.460*	0.059	0.000**	0.343	0.577
	4	0.758*	0.062	0.000**	0.635	0.881
	5	0.104*	0.039	0.009**	0.027	0.182
	6	0.335*	0.050	0.000**	0.235	0.434
	8	0.122*	0.041	0.003**	0.041	0.203
8	1	0.619*	0.055	0.000**	0.511	0.727
	2	-0.108*	0.053	0.043*	-0.213	-0.004
	3	0.338*	0.054	0.000**	0.232	0.444
	4	0.636*	0.064	0.000**	0.509	0.763
	5	-0.017	0.038	0.643	-0.092	0.057
	6	0.213*	0.043	0.000**	0.129	0.297
	7	-0.122*	0.041	0.003**	-0.203	-0.041

Source: first author.

According to the results presented in Table 2c, the analysis of variance (ANOVA) conducted for repeated measures, with the Huinh-Feldt correction applied, reveals a statistically significant difference ($F=64.715$, $df=5.809$, $p<0.000$, Partial Eta=0.548) among the eight dimensions of IOC. The Partial Eta index, which was calculated to be 0.548, indicates a substantial effect size (Leech et al., 2005). Furthermore, this outcome substantiates that the observed disparities in the assessment of the eight dimensions of the IOC within this particular sample are not attributable to random chance. To provide further clarification, the Huin-Felt correction was employed in situations where the assumption of sphericity was violated. This violation was determined through a specific test, which is included as a default procedure in the ANOVA for repeated measures analysis in SPSS. When conducting a statistically significant test of sphericity, it is recognized that one of the initial assumptions required for calculating this particular ANOVA is violated. In such cases, it is advised in the literature to employ the Huin-Felt correction as it provides a more reliable approximation, especially when the Epsilon index exceeds 0.75 (Leech et al., 2005).

The post-hoc test, as shown in Table 2d, effectively determines the level of statistical significance between each pair of average values, considering all possible combinations among the eight dimensions of the IOC. The tabular overview primarily reinforces the observations made during the initial inspection, indicating that the dimension of organizational integration is generally perceived to have a lower rating in comparison to all other dimensions of IOC, except for information from the organization. In contrast, the value attributed to information originating from the organization is generally regarded as relatively lower when compared to other dimensions, with the exception of organizational integration. Furthermore, the significance of communication channels' quality is greatly esteemed in relation to all other aspects, with the exception of communication from individuals in higher positions. The perceived value of communication from higher-ranking individuals is generally considered to be greater than other factors, with the exception of communication channel quality and communication climate. In the interest of conciseness, this discourse will refrain from offering an exhaustive examination of the intricate interconnections between different dimensions of the IOC. Nevertheless, the aforementioned relationships are indeed incorporated and readily available in the comprehensive overview provided in Table 2d.

Secondly, Table 3a presents the analysis pertaining to the internal structure of the measuring instrument employed, specifically, the questionnaire. The graphical representation provided illustrates that the participants, as a whole, exhibit relatively consistent viewpoints and evaluations with respect to the various aspects of environmental education (EE) within the organization. The disparity between the mean values of the least and most highly rated dimensions is merely 0.21.

Table 3. a) Descriptive statistics of EE dimensions, n=152.

	Mean	Std. Deviation
Vigor	4.010	0.665
Dedication	4.198	0.725
Absorption	3.987	0.738

b) Mauchly's Test of Sphericity[a] for EE

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
EE	0.979	3.250	2	0.197	0.979	0.992	0.500

c) ANOVA for repeated measures: significance of the differences between the five dimensions of the EE

	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared	Partial Eta
Sphericity Assumed	4.074	2	2.037	13.229	0.000**	0.081	0.090
Greenhouse-Geisser	4.074	1.958	2.081	13.229	0.000**	0.081	0.090
Huynh-Feldt	4.074	1.983	2.054	13.229	0.000**	0.081	0.090
Lower-bound	4.074	1.000	4.074	13.229	0.000**	0.081	0.090

d) ANOVA for repeated measures: ENGAGEMENT at school - post-hoc test (Pairwise Comparisons)

(I) Engagement	(J) Engagement	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval Lower Bound	Upper Bound
1	2	-0.188**	0.042	0.000**	-0.272	-0.105
	3	0.023	0.048	0.636	-0.072	0.117
2	1	0.188**	0.042	0.000**	0.105	0.272
	3	0.211**	0.045	0.000**	0.123	0.299
3	1	-0.023	0.048	0.636	-0.117	0.072
	2	-0.211**	0.045	0.000**	-0.299	-0.123

Source: first author.

Based on the current framework, the assessment of the statistical significance pertaining to the observed variances in the assessment of these three dimensions of environmental education within the organization is conducted in accordance with the prescribed methodology outlined in Tables 3b and 3c. The results of the repeated measures ANOVA indicate a significant difference (F=13.229, df=2, p<0.000, Partial Eta=0.090) among the average scores of the three dimensions of EE evaluation in non-profit organizations (schools). The Partial Eta index obtained from the calculation, which is 0.090, indicates a significantly low effect strength (Leech et al., 2005). The limited magnitude of the effect does not undermine the statistical significance of the differences observed in the evaluation of the three dimensions of EE in this particular sample. However, it does raise concerns about the extent to which these differences can be generalized to the broader population (Balow, 2017). Table 3a provides the arithmetic means and standard deviations for the three dimensions (subscales) of EE. The post-hoc test, as shown in Table 3d, effectively identifies the statistically significant disparity between the ICO dimensions and the EE dimensions. A comprehensive examination of the descriptive data presented in Table 3a reveals that dedication exhibits a higher magnitude as a dimension of EE within the organization (specifically, the school) when compared to the other two dimensions. It is important to note that the following analysis presents a statistical calculation examining the correlation between IOC, which is considered as a collective independent variable, encompassing all eight dimensions, and each of the three distinct dimensions of EE.

5. Testing Hypotheses

In order to examine the first hypothesis, a multivariate regression analysis was employed to assess the influence of independent variables on the dependent variable "vigour". Based on the results of regression analysis, it is determined that the independent variables included in the analysis account for 42.1% of the variance observed in the dependent variable "vigour". The F value of 14.707 (sig. 0.000) indicates that the model holds statistical significance at the α= 0.05 level, suggesting its importance. Three dimensions of IOC were found to be statistically significant at the 0.01 and 0.05 significance levels, respectively. The results indicate a positive relationship between communication climate and the dependent variable "vigour". Specifically, communication climate predicts 34.3% of the variance in vigour (b=.343, p=.003). This suggests that a 1% increase in the pursuit of autonomy is associated with a 34.3% increase in employee vigour, holding other variables constant. The independent variable supervisory communication exhibits a positive relationship with the dependent variable "vigour" by predicting it for 25.5% (b=.255 & p=.027). This implies that a 1% change in the application of the focus strategy will result in a 25.5% change in employee vigour. Additionally, the incorporation of organizational integration demonstrates a positive effect on the dependent variable "vigour," as it predicts an 18% increase (b=.180 & p=.030). This implies that a 1% change in the application of the focus strategy will result in an 18% change in employee vigour. In contrast, five additional IOC dimensions were found to be statistically insignificant in this model. Upon close analysis of Table 4, it can be inferred that the independent variable communication climate shows a greater influence on enhancing employees' vigour when compared to the other seven IOC dimensions. Based on the obtained results, it can be concluded that the first hypothesis is partially supported.

Table 4. Regression analysis of dependent variable “Vigor”, n=152

Model I	R^2	ΔR^2	β	b	S. E	F	t	p	VIF
	.451	.421				14.707			
(constant)				1.446	.320		4.520	.000	
Communication climate			.348	.343	.114		3.014	.003	3.476
Supervisory communication			.244	.255	.114		2.237	.027	3.111
Organizational integration			.193	.180	.082		2.198	.030	2.002
Media quality			.074	.065	.100		.647	.519	3.445
Co-worker communication			-.051	-.070	.112		-.628	.531	1.715
Company information			-.036	-.029	.074		-.394	.694	2.231
Personal feedback			-.094	-.090	.087		-1.034	.303	2.146
Subordinate communication			.053	.044	.073		.597	.551	2.083

Note: b=Un-standardized Coefficients, S. E=standard error of variables, β=standardized coefficients, t=t-statistic, p=significance level. R^2= square, ΔR^2=adjusted R square.

For the purpose of investigating the second hypothesis, a multivariate regression analysis was employed to assess the influence of independent variables on the dependent variable "dedication". The regression analysis reveals that the independent variables included in the analysis account for 47.5% of the variation observed in the dependent variable, "dedication". The F value obtained in this study is 18.097, with a significance level of 0.000. This indicates that the model holds statistical significance, as determined by the chosen alpha level of 0.05. Two dimensions of IOC were found to have statistical significance at a significance level of 0.001. The results indicate that media quality and subordinate communication are positively associated with the dependent variable "dedication". Media quality predicts dedication by 50.6% (b=.506, p=.000), whereas subordinate communication predicts dedication by 36% (b=.360, p=.000). However, it was found that six other dimensions of IOC were not statistically significant in this model. Upon close analysis of Table 5, it can be inferred that the independent variable media quality exerts a greater influence on enhancing employees' dedication in comparison to the other seven IOC dimensions. Based on the obtained findings, it can be concluded that the second hypothesis is partially supported.

Table 5. Regression analysis of dependent variable "Dedication", n=152

Model II	R^2	ΔR^2	β	b	S. E	F	t	p	VIF
	.503	.475				18.097			
(constant)			1.550		.332		4.667	.000	
Communication climate			-.143	-.133	.118		-1.211	.228	3.476
Supervisory communication			.091	.080	.118		.769	.443	3.111
Organizational integration			.107	.105	.085		1.259	.210	2.002
Media quality			.480	.506	.104		4.626	.000	3.445
Co-worker communication			.032	.021	.116		.275	.784	1.715
Company information			-.063	-.073	.076		-.829	.409	2.231
Personal feedback			-.142	-.135	.091		-1.565	.120	2.146
Subordinate communication			.321	.360	.076		4.233	.000	2.083

Note: b=Un-standardized Coefficients, S. E=standard error of variables, β=standardized coefficients, t=t-statistic, p=significance level. R^2= square, ΔR^2=adjusted R square.

To test the third hypothesis, a multivariate regression analysis was utilized to evaluate the impact of independent variables on the dependent variable "absorption". The findings derived from the regression analysis suggest that the independent variables incorporated in the analysis explain approximately 28.9% of the variability observed in the dependent variable "absorption". The F value of 8.675 (sig. 0.000) demonstrates that the model possesses statistical significance at a significance level of α= 0.05, thereby indicating its significance. Statistically significant findings were observed in five dimensions of IOC at a significance level of 0.05. A positive correlation has been observed between autonomy and the dependent variable "absorption". The variable of communication climate demonstrates a significant predictive relationship with absorption, accounting for 30.7% of the observed variance (b = .307, p = .029). This finding suggests that a 1% increase in the pursuit of autonomy is associated with a 30.7% change in employee absorption, holding all other variables constant. As shown in Table 6, there is also a positive relationship between the independent variables' organizational integration, media quality, personal feedback, and subordinate communication and the dependent variable "absorption". However, it was determined that three additional dimensions of IOC did not exhibit statistical significance within this particular model. Through a careful examination of Table 6, it can be deduced that the variable communication climate exerts a more pronounced impact on augmenting employees' absorption in comparison to the remaining seven dimensions of IOC. Based on the findings obtained, it can be inferred that the third hypothesis is partially supported.

Table 6. Regression analysis of dependent variable "Absorption", n=152

Model III	R^2	ΔR^2	β	b	S. E	F	t	p	VIF
	.327	.289				8.675			
(constant)				1.919	.393		4.882	.000	
Communication climate			.281	.307	.140		2.199	.029	3.476
Supervisory communication			-.136	-.158	.140		-1.127	.262	3.111
Organizational integration			.263	.272	.100		2.708	.008	2.002
Media quality			.270	.261	.123		2.119	.036	3.445
Co-worker communication			.031	.048	.137		.350	.727	1.715
Company information			-.121	-.106	.090		-1.179	.240	2.231
Personal feedback			-.252	-.269	.107		-2.507	.013	2.146
Subordinate communication			.210	.190	.090		2.122	.036	2.083

Note: b=Un-standardized Coefficients, S.E=standard error of variables, β=standardized coefficients, t=t-statistic, p=significance level. R^2= square, ΔR^2=adjusted R square.

6. Discussion

This study employed empirical measurements and analysis to investigate the effects of IOC on EE in North Macedonian public secondary schools. Several dimensions of IOC have a significant positive correlation with the three dimensions of EE, according to the study's findings. The study demonstrates that IOC has a significant and positive influence on EE in non-profit organizations, educational institutions, and beyond. This effect can be attributed to employee vigour, dedication, and absorption. The improvement of EE within an organization can be attributed to its members' effective communication and mutual comprehension. The employee's ability to contribute optimally to the achievement of the organization's objectives is enhanced by the favourable working environment provided. Engagement with the organization as a whole is measured by the organizational engagement metric, which reflects employees' attitudes toward senior management. This factor relates to the confidence individuals have in an organization's leadership as well as their perceptions of trust, impartiality, values, and respect. It incorporates how individuals prefer to be treated by others in their personal and professional lives.

After analyzing the literature from a variety of sources and time periods, it is safe to conclude that communication satisfaction has a statistically significant positive effect on EE. Therefore, organizational managers must attempt to utilize the communication tool to engage employee comprising of vigour, dedication and absorption for the physical and psychological involvement of the employees (Jain, 2020). EE is related to employee/internal communication management; employee engagement increases supportive employee communication behaviours and decreases turnover intent (Kang & Sung, 2017).

In addition, social connection was found to mediate the relationship between new methods of working and EE. Effective communication is a fundamental aspect of organizational efficacy because it facilitates the exchange of information between senior managers and employees, thereby fostering positive internal relationships. Effective communication plays a critical role in fostering employee awareness of both potential opportunities and imminent threats, while concurrently cultivating employee comprehension of the organization's shifting priorities. The results of this study are consistent with those of other research indicating that communication has a close relationship with EE and is one of its influencing factors (e.g., see Dhanesh & Picherit 2021; Jaupi & Llaci, 2015; Kang & Sung 2017; Pongton & Suntrayuth 2019; Jain, 2020). Similarly, the results of this study indicate that IOC has a significant impact on EE, with the quality of communication channels playing a prominent role and having the greatest influence. This dimension relates to the quality of information shared between employees.

The dimension that exhibits the greatest value is the quality of communication channels. This paper examines the process of channel and medium selection in order to optimize the effectiveness, accuracy, and depth of communication. The individuals maintain the perspective that school administrators exhibit meticulous deliberation in their selection of media platforms. Employees also hold the perception that the coordination of school publications, meetings, and gatherings is effective. Furthermore, employees perceive the written directives and reports as clear and concise, thus cultivating a favourable attitude towards communication. The participants hold the perception that their supervisors exhibit active listening skills and display responsiveness in addressing matters pertaining to communication channels. The study's findings suggest that the dimension of company information displayed lower mean values in comparison to the other dimensions. This dimension pertains to the degree to which an employee is provided with information regarding the goals, current state, and overall strategies of the organization. According to school employees, there is a perception that the communication of information related to school policies and objectives, as well as updates affecting the school, the disclosure of financial information, and the documentation of the school's successes and areas for improvement, is not adequately adjusted or balanced. The potential for enhancing employee engagement exists through the increased dissemination of organizational information to employees.

The arrangement of the workspaces is strategically designed to enhance the longitudinal environment, thereby promoting efficient communication among employees. Through rigorous scholarly investigations and empirical research conducted on both domestic and global scales, it becomes evident that there is substantial importance in understanding and implementing strategies that aim to promote EE within organizational contexts. The lack of extensive scholarly inquiries and their associated methodologies within our country leads to a deficiency in knowledge in this field, which is evident not only in academic research but also in the distribution of knowledge to local organizations. The integration of EE measurement and improvement into organizational practices is crucial for enhancing the competitive advantages of an organization.

6.1. Research implications

The findings of this study recommend that non-profit organizations incorporate the measurement of EE into their current procedures, as it is not standard practice at present. It is essential to identify and define each aspect of engagement. The findings of this investigation strengthen the validity of this recommendation. An indicator of the impact of organizational communication on employees is their increased work commitment. This recommendation relates to the notion that, in order to increase EE, it is essential to focus on IOC. The process by which administrators align the expectations of employees with those of the organization is facilitated by organizational communication. This facilitates the incorporation of employees into the organizational framework and increases their participation at multiple levels of inclusiveness. This will aid organizations in the development of distinct and precise strategies for managers to increase EE in the investigated sector.

This discussion begins with a comprehensive overview of the examination and scholastic scrutiny of communication and EE in the context of developing non-profit organizations. In addition, it provides an exhaustive presentation of the most relevant contemporary literature on the subject in a systematic manner. The exhaustive analysis of this corpus of literature represents an early and significant contribution to the field of EE research. In addition, the purpose of this study is to develop a comprehensive assessment instrument for measuring employee engagement in an underexplored sector, particularly in developing countries where such research is scarce and becoming increasingly difficult. Furthermore, the study can serve as a useful instrument for public schools to assess internal matters, such as identifying and resolving internal issues, and to increase employee engagement through the implementation of effective communication strategies. The addition of an empirical analysis enhances the significance of the study by providing a more comprehensive examination of the various examined facets of communication, which in turn influence employee commitment.

7. Conclusion and Recommendations of the Study

This paper takes an integrative approach using the SPSS program to examine the effect of IOC on EE in a systematic manner. It responds to three research queries: (1) Do organizations with high levels of IOC have high levels of employee vigour? (2) Do organizations with high levels of IOC have high levels of employee dedication? (3) Do organizations with high levels of IOC have high levels of employee absorption? To resolve these measurements, a comprehensive, valid, and dependable model for evaluating IOC dimensions and EE was developed. In addition to convergent validity, reliability, and validation of constructs, rigorous statistical testing was conducted on the models. This study provides empirical evidence that several dimensions of IOC have a positive and direct effect on three EE dimensions, but it was unable to demonstrate that all dimensions of IOC significantly increase EE dimensions. These findings contribute to the existing body of knowledge regarding the relationship between organizational communication practices and employee engagement and provide significant guidelines for firm managers, particularly human resource managers. In addition, it represents an important scientific and academic contribution (Islami, 2021; Islami, 2022; Islami & Topuzovska Latkovikj, 2022) related to the relationship between IOC dimensions as significant indicators and their impact on employee engagement in non-profit organizations in North Macedonia, the region, and beyond.

The findings of this study provide several recommendations aimed at addressing challenges related to IOC in non-profit organizations. First, there exists a necessity to improve the existing IOC practices concerning the dissemination of organizational information within public educational institutions. This requires the adoption of updated strategies and techniques in the IOC process, aiming to enhance employees' understanding of their respective educational institutions. Second, based on the findings of this study, it is evident that there is a need for public secondary schools to make adjustments to their IOC practices with employees in relation to the dissemination of organizational information. The significance of this matter lies in the tendency of numerous employees to perceive themselves as undervalued by the organization, a phenomenon that can be partially attributed to organizational changes stemming from legal revisions. The role of effective IOC is vital in facilitating the timely and accurate distribution of information, allowing individuals and organizations to respond and adapt more efficiently to changing circumstances. Third, IOC comprises a range of strategies that are designed to cultivate EE in their professional pursuits. Although it is not essential for a manager to possess an exhaustive understanding of all communication theories, being acquainted with specific theories can offer a notable advantage in bolstering workplace commitment. Fourth, IOC encompasses various strategies aimed at fostering EE in their professional endeavours. While it is not imperative for a manager to possess comprehensive knowledge of all communication theories, familiarity with certain theories can provide a distinct advantage in enhancing workplace commitment.

7.1. Limitations of the study and future research

This section is adopted by Abduraimi et al. (2023). The study has some limitations due to the environment in which it was conducted. The fact that the study was conducted over a period of time, spanning several months, is one of its limitations. In this context, the data obtained for the study are, of course, subject to that moment, which may reflect the dedication of employees during that time period. The second method of quantitative data collection was a survey involving the completion of a questionnaire and an online questionnaire completion method. Due to its high rate of non-response, complex and confusing, and frequently lengthy questions, this method of data acquisition poses challenges for researchers (Cooper & Schindler, 2003). The responses of respondents may also vary based on how different groups, such as age, gender, and company hierarchy, perceive them. Thirdly, there are relatively few participants in the investigation (152). In light of this, careful consideration must be given to the generalization of this study's findings (Mulolli et al., 2020). Fourthly, the data was collected at a single point in time, not at various times. If the data had been collected over various time intervals, the study would have been more useful for comprehending the dynamics of the OC components and EE dimensions. Lastly, there is a need for additional research to cover the remaining gap in this field. We recommend that future research be conducted primarily in developing nations so that results can be compared across developing nations.

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Appendices

Appendix 1. CFA results of constructs

Items	*Loading*
Please express your opinion on the following expressions using a scale of 1 to 5 according to their importance: 1 – I absolutely disagree to 5 – I completely agree.	
Internal Organization Communication (IOC)	
Communication climate (a = .802)	
Organizational communication motivates and stimulates enthusiasm for achieving goals.	0.802
The members of my organization have great communication skills.	0.654
The communication of the organization makes me identify or feel a vital part of it.	0.767
I get the necessary information I need for my work on time.	0.764
Conflicts are resolved correctly through appropriate communication channels.	0.744
Supervisory communication (a = .860)	
My supervisor listens and pays attention to me.	0.749
The supervisor provides support and guides me in solving the work problems I have.	0.786
My supervisor trusts me.	0.834
My supervisor is open to the ideas I give him.	0.631
I have adequate supervision.	0.766
Organizational integration (a = .713)	
The evaluation of the progress of my work is made known to me and shared with me.	0.588
Personnel data is shared with me.	0.752
Information about the policies and goals of the department where I work is shared with me.	0.731
Information about my job requirements is shared with me.	0.757
Information about benefits and payments is shared with me.	0.609
Media quality (a = .801)	
Publications, announcements of my company are interesting and necessary.	0.712
Our meetings are well organized.	0.925
Directives and reports are clear and concise.	0.892
Co-worker communication (a = .760)	
* Grapevine (rumor) communication is active in our organization.	-0.478
Horizontal communication with other employees is correct and works normally.	0.810
Communication practices are designed to be adapted even in times of emergency.	0.609
The work group I belong to is compact.	0.821
Informal communication is active and accurate.	0.751
Company information (a = .810)	
I am given information about company policies and goals.	0.728
It is available to me and I have knowledge about government decisions and policies that have an impact on the company where I work.	0.668
Information about changes in our organization is made available to me.	0.804
Information about the organization's financial condition is available.	0.757
Information about the achievements and/or failures of the organization is made available to me.	0.811
Personal feedback (a = .753)	
I get information about how my work compares to others.	0.807
I receive information about how I am evaluated by others.	0.744
I get feedback about my efforts at work.	0.726
Reports are made available on how labor issues are managed.	0.767
My supervisors know and understand the problems faced by subordinates.	0.491
Subordinate communication (a = .911)	
In our organization there is adequate communication.	0.902
Subordinates respond in time to top-down communication.	0.896
Subordinates precede my information needs.	0.885
Subordinates are inclined, open, towards development, suggestions and criticism.	0.862
Subordinates feel that they have to initiate and develop a bottom-up communication.	0.738

Work Engagement		
Vigor (a = .850)		
In my work I feel overwhelmed with energy		0.850
In my work I feel strong and energetic		0.796
When I wake up in the morning, I go to work with desire		0.784
I can continue to work for long periods of time during the work day		0.733
In my work I am very fresh, mentally, I recover quickly		0.811
Dedication (a = .936)		
In my work I am very persistent even when things do not go well		0.762
The work I do seems to me to have clear and meaningful objectives		0.910
I'm enthusiastic about the work that I do		0.919
The work I do inspires me		0.912
I'm proud of the work I do		0.894
The work I do is challenging for me		0.840
Absorption (a = .878)		
When I work time flies		0.782
When I work, I forget about everything else around me		0.845
I feel happy when I work harder		0.849
I feel immersed in my work		0.785
When I work, work totally takes me	0.762	
I find it difficult to separate myself from work	0.712	

Note: *a* – reliability. Items with an asterisk (*) have been eliminated from the final instruments.

Appendix 2. Key characteristics of the respondents (n = 152)

Characteristics	***Number***	***%***
Gender		
Male	107	70.39
Female	45	29.61
Age		
To 30 years	19	12.50
31–40 years	57	37.50
41–50 years	53	34.87
More than 51 years	23	15.13
Job position		
Director	5	3.28
Teacher	130	85.53
Administration employee	17	11.19
Work experience		
To 10 years	49	32.24
11–20 years	77	50.66
21–30	24	15.79
More than 31 years	2	1.32
Education level		
Higher education	105	69.08
Master	39	25.66
PhD	8	5.26

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BUSINESS MANAGEMENT: COMMUNICATION AS A KEY COMPETENCE[5]

The research relevance is predefined by the importance of communication as a necessary competence of process management in the enterprise. The main aim is to analyse the key principles of building communications in the management of business processes of modern enterprises. The results were obtained to illustrate the importance of building communication both within the enterprise, regardless of its affiliation to a particular area of business. The interrelation of social, technical, and managerial components of the communication system within a single enterprise, determines communication in general. The practical significance lies in the possibility of their use in the construction of business, based on a high-quality task setting for all participants of the communication process, tracking the overall level of its perception and execution.
Keywords: business environment; management sector; competitive advantage; professional contacts; corporate culture; counterparties
JEL: D83; J53; M14

1. Introduction

The research problem is the need to scientifically justify the importance of communication as a working competence, the mastery of which is necessary to build effective business process management of a modern enterprise. Communication in a business environment is the key to the successful functioning of any company. It is necessary for precise planning of employees' activities, coordination of all processes of modern enterprise and formation of its development perspectives. Communication as an effective competence in business management is necessary to ensure compliance with all partnership agreements and to successfully cooperate with customers and business partners. A key aspect of communication

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as an effective business management competence is the process of information transfer. This concerns the interaction between actors within a given enterprise, but also the building of communication in the context of the relationship between the enterprise itself and its external environment. The quality and timeliness of information transfer is of key importance in this context, as it determines the ultimate effectiveness of communication, in terms of managing the business and solving all its objectives (Shcherban et al., 2022).

B. Sahihtiri et al. (2020) in a joint research study looked at options for unlocking solutions in knowledge-intensive businesses specialising in business services. According to scientists, today's business service markets around the world are extremely competitive, which necessitates the provision of effective business management solutions based on communication building. This will provide additional business management opportunities and investment in the competencies needed to maintain the ability to solve customer problems in a quality manner. For their part, D. Koponen et al. (2019) study on sales and business management competencies point out that the steadily increasing demands on international sales have placed high demands on the interpersonal communication of sales professionals. According to the researchers, the quality of communication in business management is inextricably linked to the quality of interpersonal communication among sales and management personnel (Kerimkhulle et al., 2023).

Moreover, Z. Wang et al. (2021) in a joint scientific study of several problematic aspects of business innovation application in the construction of enterprise management processes draw attention to the fact that business evolution is impossible without building an effective communication model of interaction between all its parts. According to scientists, communication as an effective working competence in business management is necessary at all stages, as otherwise, it is impossible to build corporate management of customers and staff. B. Yang et al. (2023) in their study of several problematic aspects of the artificial intelligence systems application in the management of a particular company draws attention to the fact that in recent years AI has become increasingly popular in the business environment. In particular, the authors point out that the use of such systems (in particular, the use of chatbots to communicate with customers) requires a high degree of technical literacy of personnel to keep them up and running (Kassenova et al., 2020). This causes additional difficulties and does not always lead to the desired results.

I. H. A. Alqudah et al. (2022) study considered several problematic aspects of improving the quality of enterprise HR management by improving the quality of communication between employees. According to the researchers, today employee readiness for change is extremely important for the organisation of numerous initiatives in the enterprise. In this context, improving the quality of communication among employees enhances their emotional commitment and readiness for transformation, which will benefit the management of the enterprise (Abudaqa et al., 2019).

The research aims to examine the basic principles of building effective communication as a key component of business management.

2. Materials and Methods

The methodological approach in the research is based on a combination of separate theoretical study methods of general communication process construction principles for business management. The theoretical basis of this research is the analysis of results of several scientists from different countries (Ukraine, Kazakhstan, China, Thailand, Poland) who studied various aspects of communication as an effective competence in business process management of modern enterprise and in terms of building its relationship with the external environment.

The systematic analysis of the general principles of communication design and implementation in the business process management system of a modern enterprise allowed to establishment of several key varieties of communication as a business management competence. This allowed us to establish the key elements of the communication system of the enterprise of any business area, as well as to determine their properties and characteristics. In this case, a systematic analysis of the key aspects of building communication as an effective business management competence implied the study of processes of information transfer-reception both within the enterprise (between its employees, and representatives of various hierarchical levels) and in its external environment (counterparties, suppliers, customers, etc.). This provided the basis for the creation of a communicative interaction model for the employees of the enterprise, based on a communication starting point (communication event). In addition, the definition of the key elements of the communication system of the enterprise, as well as their properties and characteristics, allowed us to establish the main components of the business management system based on communicative interaction and redistribution of information flows.

The synthesis method of information obtained during system analysis allowed to develop a general communication model of business management. This model includes several constituent components that determine the effectiveness of business process management both within an individual enterprise and in the context of interaction with the external environment. In addition, the use of the synthesis method of information obtained using the scientific research method described above made it possible to determine the order and patterns of information exchange between the components of the communication management system. The directions of information flow to be received and transmitted during the construction of the process of interaction of the components of the developed business management model are established. This is necessary to create a coherent system of understanding the importance of building communication interaction on the scale of an individual enterprise and in terms of assessing the effectiveness of business management.

The combination of the above-mentioned methods in the research allowed the develop a theoretical model of business management, functioning based on incoming and outgoing information flows, regulating the main aspects of doing business. This allowed obtaining objective data on the general principles of building a communicative exchange of data and information between the individual entities within the enterprise and building the management of these processes. In addition, certain aspects of the interaction of the enterprise with the external environment in the context of business management were highlighted. The data obtained were used to create a theoretical assessment of the impact of communication as an effective working competence in business management in the configuration of communication processes within a single enterprise.

3. Results

Building effective communications in business management is a mandatory part of the interaction between the different levels of the enterprise hierarchy. This is attributable to the fact that the effectiveness of human resources management in any business enterprise is in direct proportion to the quality of the communication processes within the business structure (Chen et al., 2020). Poorly constructed communication channels result in wasted working time to solve various problems, complicate the prospects of getting the desired result, and cause numerous conflicts and other unpleasantness. At the same time, effective and professional internal communications enhance the enterprise management process, which in turn reduces the undesirable time wasted on the "adjustment" of employees and provides a smooth process of interaction with the changes introduced by the enterprise personnel. If an enterprise quickly and effectively establishes all necessary communication links, its response to changes in the labour market is significantly accelerated, the quality of customer service of the enterprise increases, and the motivation of the staff increases significantly (Kulikanova and Raklova, 2018).

Communication, as an effective working competence in business management, is fundamentally a process of transferring certain information from the sender to the receiver. In this case, the adequacy of the recipient's understanding of the information conveyed is determined by how well the sender articulates and communicates it. The next stage in the perception of the information is the clarification of details and the active discussion of the information. The final stage is the call to action. The success of the communication depends on whether the recipient's behaviour and attitude towards a particular issue or range of issues changes (Kussainova et al., 2018).

Business management communications can come in several varieties. They can be divided according to the level of formality into:

- formal, involving the exchange of information between groups or individuals, with communication aimed at discussing a range of issues that are within their professional sphere of competence;
- informal, involving communication between friends and acquaintances as well as colleagues who work in the same company.

Informal communication does not necessarily follow the ethics and relationship rules of the corporate culture of an individual enterprise. Corporate culture is a set of shared values, practices, and beliefs that govern how people behave in organizations. It has a pervasive impact on employees' interactions and the ways they interpret information from their environment. It sets the tone for the relationships among employees, management, and the outside world. It is also an important aspect of an enterprise's identity, often distinguishing one company from another.

In the context of communication, corporate culture plays a key role. Communication styles, norms, and channels often stem from the corporate culture that an organization cultivates. For instance, an enterprise with a culture of openness and transparency is likely to encourage open dialogue, utilize collaborative platforms, and promote two-way communication. Conversely, a culture that values hierarchy and formality may rely more on structured, one-way communication channels. However, the relationship between corporate culture and communication is mutual.

While corporate culture can shape the way communication is conducted within an organization, the patterns of communication over time can also influence the development of corporate culture. For example, regular communication of company values and vision can gradually build a culture that embodies these ideals. In order to cultivate a positive and productive corporate culture, it's important for businesses to recognize the role of communication. By promoting effective, respectful, and open communication, businesses can foster a corporate culture that drives engagement, collaboration, and ultimately, success.

Formal communication is divided into the following types:

- horizontal – set up between groups of people or individuals at the same level of the corporate hierarchy;
- vertical – either 'top-down' or 'bottom-up' in the corporate hierarchy and are designed to communicate current tasks and problems to the staff, as well as to report on progress to management and discuss plans.
- diagonal – involves communication between individuals or groups from different levels and functional areas within the organization. This form of communication allows for a more direct exchange of information, bypassing the traditional hierarchy (Bosak, 2020).

Furthermore, there is a division into specific types of communication in a company, regardless of its affiliation to a particular business area:

- interpersonal, which involves building a communication process between individuals in whatever ways are available to them;
- inter-group, which involves building a communication process between groups of at least three people.

Building horizontal communication within an enterprise involves setting up uniform information exchange systems and electronic document management, as well as supporting and encouraging all horizontal communication measures in any way possible. This allows each employee to form an unbiased image of the corporate culture and values. At the same time, building internal intergroup communications, along with flexible external communications, opens additional business opportunities in human resources management and the development of corporate culture, which generally determines the sustainability of a business (Cabanelas et al., 2023).

To build effective vertical communication within a single enterprise, it is advisable to conduct anonymous surveys of departing employees. This will make it possible to identify the main problematic points of interaction between representatives of different groups in the system hierarchy of the enterprise and to develop a set of measures to overcome existing problems. In this case, the expected result is to build effective vertical communication between representatives of different hierarchical groups of the enterprise, based on the fullest satisfaction of the tasks and needs of each of the groups involved in the communication process.

Implementing diagonal communication effectively within an organization requires a thoughtful and nuanced approach. The aim is to create direct lines of communication that cross different levels and departments, enhancing the flow of information and ideas. This could involve facilitating cross-functional project teams, implementing innovative digital collaboration tools that allow for easy and instant communication across the organization, or setting up routine interdepartmental meetings where employees from different levels and functions can exchange ideas and discuss common challenges. These strategies can help to foster a culture of collaboration and transparency, breaking down silos, and enabling quicker decision-making. However, care must be taken to ensure that diagonal communication respects existing lines of authority and responsibility, and does not lead to confusion or conflicts. Therefore, the implementation of diagonal communication should be accompanied by clear guidelines and potentially training to ensure all members understand their roles within this structure (Bosak, 2020).

In interpersonal communications, the context of the issues discussed may contain an element of secrecy in the case of business and highly specialised communications. This may be a discussion of new technologies or strategic development decisions made by the company. In intergroup communications, the context of the discussion can vary considerably, depending on the topics raised. It is mainly a question of familiarising the staff with current innovations or discussing the results achieved. Communication within the individual enterprise must be provided with all the necessary resources, technologies and other building blocks that are required for effective internal communication. Although these elements are variable and the order in which they are assembled tends to vary considerably, it is worth highlighting the main ones.

The importance of the social communication component as a business management competence lies in the impossibility of achieving full automation of the information exchange process, both inside and outside the enterprise. The enterprise personnel will have a direct influence on the quality and efficiency of communication as long as they process the information they receive. In this context, the level of training of the staff of the enterprise and their ability to use the information technology at their disposal (Nino et al., 2020) is essential. In addition, the psychological characteristics of the employees, their level of communication, as well as the quality of social interaction within teams and the ability to solve tasks, should also be considered.

Building effective communication as a working competence in business management involves studying the organizational structure of the enterprise, and the features of its management system, as well as considering the features of the existing communication system (Lakomý and Alvarez-Galvez, 2022). Unlike one-way communication, where information flows in a single direction without any feedback from the recipient, two-way communication involves an interactive exchange of information. In this process, the recipient responds to the message, providing feedback that helps to ensure the message is understood correctly. This exchange can take place in meetings, conference calls, emails, social media interactions, and any other platform that allows for both the sending and receiving of information.

Table 1. The elements of a company's communication system and their main features

Social components		Technical components	
Elements	Properties	Elements	Properties
Staff training (general professionalism)	Education, professional experience, results of vocational tests, inclination to self-education	Necessary equipment	Number of networked computers and their models used, load level,
Personnel training in information technology	Level of computer proficiency, knowledge of programming languages, proficiency in software packages, knowledge of operating systems	Necessary software	Quantity, types, cost, safety, effect of application, digestibility
Psychological qualities and peculiarities	Ability to learn, ability to adapt quickly, understanding of corporate values, openness, responsibility, initiative, ability to work in a team	Communicational channels	Types, load level, bandwidth, performance, security level, likelihood of failure, noise level
Social interaction peculiarities	Conflict level, concentration, diligence,	Communication networks	Types, security level, sufficiency
Informational components		Management components	
Elements	Properties	Elements	Properties
Internal information equipment	Access time, usage range, ways to access databases,	Management functions	Planning accuracy, motivational responsibility, quality control, responsiveness to system failures
External information equipment	Speed and cost of access, level of information provision	Management ways	Uniformity of information distribution, speed of response to redundant information, clarity of hierarchy, level of information access restrictions

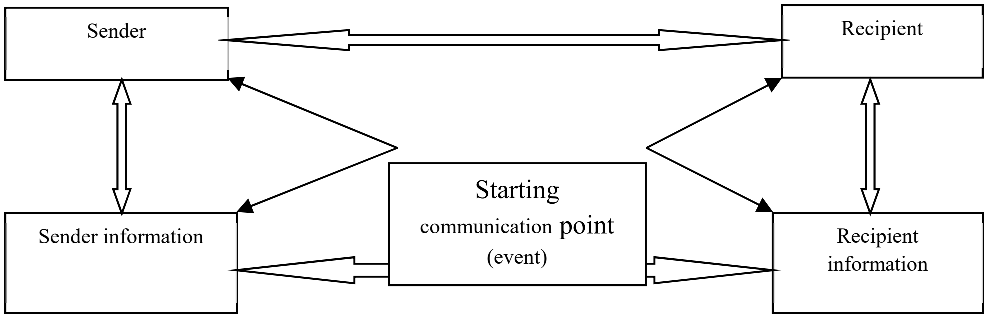
Source: A. O. Bosak (2020).

Two-way communication is essential for a myriad of reasons. It encourages employee engagement, fosters a culture of transparency, promotes a sense of belonging, and allows for better problem-solving. Employees feel valued and motivated when they realize their inputs, thoughts, and feedback are welcomed and considered. In such a communicative atmosphere, they are more likely to actively participate in the problem-solving process, offer innovative ideas, and express their thoughts more openly.

Further, two-way communication provides a platform for continuous learning and development. Employees not only gain insights into the business's strategic direction but also benefit from feedback on their performance. This ongoing interaction empowers them to develop their skills and grow in their roles, which boosts their engagement and commitment to the organization. In the two-way communication process, both parties listen to each other, share information, ask questions, and clarify doubts. This continuous exchange promotes a deeper understanding of each other's perspectives, expectations, and constraints. It ensures that everyone is on the same page, aligning the team's efforts towards common goals.

Such mutual understanding fosters collaboration, as teams become more aware of their interdependencies and the value of collective effort. By discussing ideas and problems openly, they can find effective solutions together, improve coordination, and streamline their activities. However, it's essential that businesses establish norms and guidelines for constructive feedback and open dialogue, to ensure this communication is effective and respectful (Bosak, 2020). In general terms, the model of communication interaction with the exchange of information between entities acting as individual parts of the corporate environment of the enterprise is presented in Figure 1.

Figure 1. A Communication Model for employee interaction in a company



Source: compiled by the authors

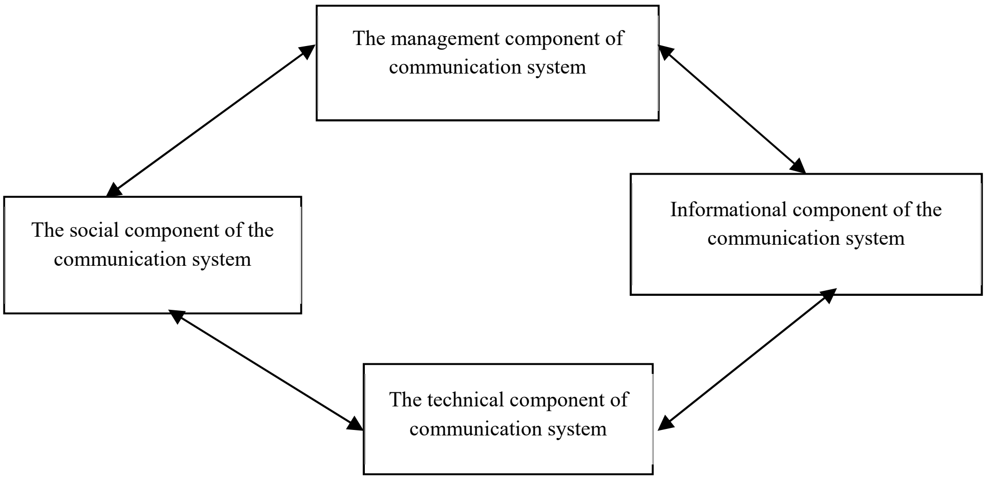
This model reflects the main aspects of information transfer in the communication interaction of enterprise employees. The communication event in this context is the starting point of this process, which determines the sequence of formation of the information message from the sender to the recipient and its overall direction. The sender's information comes into direct contact with the recipient's information, after which a common perception of the communication event (starting point) is formed by the participants in the process.

The communication system of business management will not be sufficiently effective unless the staff of the enterprise are prepared to receive and process a significant amount of information, against the background of creating a favourable psychological background and a certain loyalty of the management team. Ideally, communication implies the implementation of a model in which the management, when preparing orders and communicating information, uses the simplest, most understandable, and correct forms. All decisions made in the context of the application of communication as an effective business management competence should be based on reliable information which fully corresponds to reality is presented promptly to the heads of all divisions of the enterprise and is communicated in an accessible form to rank-and-file employees.

The communication system within a particular business is a combination of interrelated components that ensure the effective exchange of information within the enterprise and with its environment. This system should distinguish the constituent components that represent equivalent business management subsystems: management, information, technical and social (Bosak, 2020). Their interaction is built on the exchange of incoming and outgoing information flows, containing all data describing the sequence of business management.

Figure 2 shows a flowchart of the communication model of business management, based on the effective interaction of incoming and outgoing information flows.

Figure 2. Communicational business management model



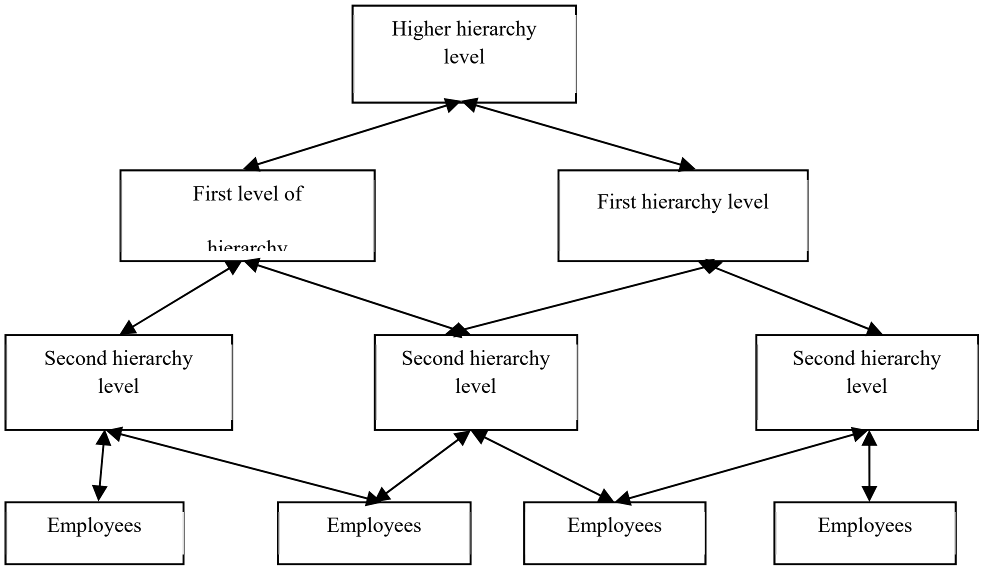
Source: compiled by the authors

The management component of the communications system includes public relations, preparation and launch of product advertising, and reporting of transactions as inbound information flows. The outbound information flows include management technology, experience with management operations, and developed competencies in dealing with counterparties.

The information component of the communication system includes information about the enterprise's products as incoming information flows and information about markets, the supply advantages of competing enterprises, and the legal framework in this area as outgoing information flows. The technical component of the communication system includes information on the software, hardware, communication channels and information technology used as inbound information flows and information on service, software, and maintenance as outbound information flows. The social component of the communication system includes information on labour legislation, labour markets and incentives as incoming information flows, as well as information on customer and counterparty loyalty and feedback on the company's performance as outgoing information flows (Terkenli et al., 2022).

Figure 3 illustrates the sequence of information transfer within a functioning communication management model.

Figure 3. The information transfer within the communication model of governance



Source: compiled by the authors

The sequence of information transmission within a communication management model involves its movement in two directions: from the upper hierarchical level of the enterprise to the lower level and back. Each level of the enterprise hierarchy is responsible for the quality and timeliness of information transfer, as well as its understanding.

Thus, the communication-based business management model, as a working competence of this process, implies the organic interaction of the four above-mentioned components, in the context of ensuring the effective exchange of information. In this context, communication with the external environment is an important aspect, as advertising the enterprise's products, and ensuring sustainable contact with counterparties and suppliers of raw materials (for manufacturing enterprises) are necessary for the effective management of the business and its success in general. These issues need to be addressed in business management regardless of the specific scope and scale of the enterprise.

4. Discussion

D. Wongsansukcharoen and D. Thaweepaiboonwong (2023), in a joint research study, examined the extent to which innovations in building effective workplace communication affect business management. According to scientists, technological innovations in human resource management (HRM) are now being actively implemented around the world. Human resource management is recognised as an important factor for ensuring business success and increasing the effectiveness of enterprises, and communication is an indispensable element of the management process. It is necessary to attract charismatic employees and to increase staff cohesion, which should be recognised as an important competitive advantage (Khushvakhtzoda, 2023). This view is consistent with the findings of this research, highlighting the authors' assessment of team cohesion as an important competitive advantage today.

D. T. W. Wong and E. W. T. Ngai (2021) examined a range of environmental, economic, and organisational opportunities for business sustainability. The authors note that business sustainability issues are attracting increased attention in industry and academia. According to the researchers, building sustainable and effective communication in business management is a prerequisite for business development in the medium and long term. At the same time, it requires a significant amount of time and effort from all the actors involved in this process to create sustainable communication links within the enterprise and with its counterparties (Zaki and Ab Hamid, 2021). The scientists' opinion is fully supported by the results obtained in this research, as it is emphasized that communication is a prerequisite for building a business.

Q. Lu et al. (2023) considered several problematic aspects of enterprise functionality under dynamic changes in the foreign economic situation. The researchers note that the business environment has a positive impact on the relationship between the dynamic development capabilities of the enterprise and its productivity. According to the researchers, all these factors are based on effective communication both within the enterprise, among its employees, and externally – with all its counterparties. This underlines the importance of communication as an effective working competence in business management (Danchuk et al., 2015). The findings of the researchers are fully supported by the results of this research, in the context of the effectiveness of building communication between the employees of an enterprise. However, the impact of the business environment on enterprise perspectives requires further study.

B. Szkudlarek et al. (2020) considered several problematic aspects of communication as part of the culture of modern international business. In their opinion, the culture of communication is central to the business environment, regardless of whether it is international communication or the communication of representatives of enterprises in a particular country. Scholars note the fact that the understanding of the phenomenon of communication as an effective business management competence is inextricably linked to issues of intercultural interaction between individual actors, from the point of view that communication processes involve representatives of different cultures and ethnic groups. The results obtained by the researchers coincide with the results of this research, with the issues of intercultural interaction of actors belonging to different ethnic groups in the context of ensuring effective communication between them requiring further research.

Q. Wang et al. (2020) have examined a wide range of issues related to assessing the role of emotions in business communication processes. The researchers point out that multinational enterprises experience certain difficulties in building communication because they include different language groups. The introduction of a common language in such an enterprise may prove to be an effective solution to such communication problems. To build up efficient communication as a management competence, it is, however, necessary to consider the reactions of employees to the imposed standardisation of communication within the enterprise. This will help to avoid the discontent of individual groups, which can lead to communication problems. The scholar's opinion is consistent with the results obtained in this research study. This opens the prospect of exploring several aspects of intercultural interactions among employees in multinational enterprises.

M. Elnahaas et al. (2022) addressed the issues of internal management of enterprises and the role of communication in this process. They argue that the issues of internal management are inextricably linked to the problems of increasing profitability and enhancing the overall corporate culture. They conclude, based on the experiences of several Asian banks, that certain internal governance mechanisms (based on boards of directors and audit commissions) can improve the overall quality of earnings management and ensure better communication within the enterprise. The results reported by the scholars do not contradict those obtained in this research, but the relationship between the level of corporate culture and corporate profitability is of considerable interest and should be further explored.

At the same time, E. Popkova et al. (2021) considered several issues of corporate social responsibility in conditions of social distancing and communication building in enterprises during quarantine restrictions due to the COVID-19 pandemic. The scientists believed that the competitiveness of the economy, which is largely based on the competitiveness of individual enterprises, is based on the ability of these enterprises to build effective communications, both internal and external. This opinion is fully supported by the results obtained in this study, as it emphasizes the objective need to build effective communications in the operation of the enterprise. However, the impact of COVID-19 quarantine restrictions on the corporate culture of enterprises requires further detailed research.

L. An et al. (2022) addressed several innovations in enterprise management. The scientists point out that with the rapid pace of development of the modern economy, the value of knowledge in building effective communication is becoming increasingly significant. The authors conclude that communication, as an effective business management competence, is essential for disseminating knowledge in the enterprise and enhancing its ability to innovate (An, Chua, Islam, 2022). The researchers' opinion fully correlates with the results reported in this research paper, as they emphasize the importance of effective communication in enhancing an enterprise's ability to innovate.

A. Abbasi and A. Jaafari (2018) examined how project management has evolved as a scientific discipline, in the context of the prospects for managing a single enterprise. The scientists point out that project management issues are often considered in terms of finding specific methods of solving management problems, so universal that they can be applied in the management of a single enterprise of any business direction. Following the authors, the origins of modern project management are closely linked to the quantitative research of planning methods, as well as to the application of techniques for establishing effective communication between all project participants. The findings do not contradict the results of this research, but the relationship between project management techniques and planning requires further research in the context of the impact of effective communication on this relationship.

N.F. Richter et al. (2023) conducted a joint scientific study of intercultural competence in the context of reconciling theoretical constructs and empirical indicators of communication development in business management. According to scientists, in the last few years, there has been an increase in intercultural cooperation and communication development both within enterprises of different business lines and at the level of building relationships between individual companies. It is noted that the relevance of these concepts is not in doubt in business management research, which demonstrates the essential importance of effectively structured communication for business process management. The scientists' conclusion is consistent with the results obtained in this research as it emphasizes the importance of building effective communication between individual companies in building quality business relationships.

Thus, the results of this research in the context of their analytical comparison with the results that have been obtained by other researchers of the problems of building communication as an effective working competence in business management have demonstrated their fundamental correspondence in several key parameters. This is evidence of the scientific validity of the results of this research and the feasibility of their practical use in the development of a communication model of effective business process management.

5. Conclusions

A clear correlation between the communication interaction of employees in any business enterprise with the success of the business was established in the research. Any communication involves the transfer of information from senders to receivers, who are both employees of the enterprise and external counterparties. Achieving a common perception of the communication event (the starting point of communication) by all participants is necessary to ensure the proper management of the business. The quality of perception of information by all participants in the communication process is of paramount importance for the effective management of the enterprise and the success of the business.

Building communication as an effective working competence in business management involves creating a management model based on a set of communication system components. These components include the management component of the communication system, as well as the information, technical and social components. The organic interaction of these components ensures the high quality of information transfer within the enterprise, as well as in the external environment. This involves the effectiveness of management information exchange processes with the enterprise's contractors, suppliers of raw materials and components and other subjects of the external business environment. In this case, the effectiveness of communication in business management lies in the proper structuring of information exchange as well as in preventing undesirable information leaks. The accuracy of information transmission, its reliability and the ability of senders and receivers to convey and understand it correctly are also important.

The prospects for further research into the study of communication as an effective business management competency lie in the need for more accurate, scientifically based information regarding the relationship between the level of established communication and improved business performance. This is necessary to create effective business models in various areas of activity that involve the construction of communication interaction between all hierarchical parts of the enterprise involved in this process.

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ИКОНОМИЧЕСКИ ИЗСЛЕДВАНИЯ
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QUADRATIC MODEL FOR ASSESSING THE IMPACT OF COVID-19 ON THE HR SOFT SKILLS[6]

This article presents a quadratic model to evaluate the impact of COVID-19 on HR soft skills. The pandemic has disrupted the global workforce, necessitating an examination of the effects on communication, collaboration, and adaptability. The model calculates the outcomes and underscores the importance of dedicating resources to the updating of soft skills taking into account remote work, the process of digital transformation nowadays, and shifting job requirements during COVID times. The findings inform policymakers, HR professionals, and organizations in addressing COVID-19 challenges. By understanding the economic implications, organizations can adapt recruitment, training, and talent management strategies for long-term sustainability and growth. This model contributes to existing literature and aids decision-making for a skilled and resilient workforce in a post-pandemic era.
Keywords: Quadratic model; COVID-19; Human resources; Soft skills; Impact assessment; Workforce resilience
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1. Introduction

The emergence of the COVID-19 pandemic has triggered an unprecedented global transformation, challenging various societal dimensions, from economies to workforces. One of the significant ramifications of this transformative period is its influence on the landscape of human resources (HR), particularly in the realm of soft skills development. Soft skills, encompassing a spectrum of interpersonal, communication, adaptability, and problem-solving abilities, have assumed heightened importance as remote work and dynamic environments become the norm.

Amidst the global disruption caused by the pandemic, it has become evident that the traditional paradigms of work and skills have been swiftly redefined. As organizations adapted to remote work arrangements, virtual collaboration, and fluctuating demands, the role of soft skills in maintaining productivity and cohesion has become more pronounced than ever before.

The effects of the pandemic on HR soft skills are multifaceted. On one hand, the sudden shift to remote work has compelled employees to enhance their communication and adaptability skills to navigate the intricacies of digital interaction and asynchronous communication. Remote work environments have magnified the importance of effective virtual communication, with individuals required to convey ideas clearly, demonstrate empathy, and maintain team cohesion despite physical distance.

On the other hand, the pandemic has also underscored the significance of problem-solving and adaptability as organizations faced unprecedented challenges. Businesses have been compelled to swiftly pivot their strategies, reconfigure operations, and innovate to address rapidly evolving market dynamics. This has necessitated employees to exhibit agility, creative thinking, and the ability to troubleshoot novel problems.

However, the transformation in HR soft skills has not occurred without its challenges. Isolation, the blurring of work-life boundaries, and digital fatigue have posed hurdles to effective communication, collaboration, and maintaining a robust work culture. The chapter delves into these challenges and their potential long-term implications on employees' well-being, job satisfaction, and overall performance.

Through an in-depth exploration of real-world cases, industry insights, and empirical evidence, this chapter illuminates the multifaceted impact of COVID-19 on HR soft skills. Furthermore, it seeks to provide actionable strategies that organizations can adopt to foster the development of these skills in a dynamic and evolving work landscape. By navigating these challenges effectively and harnessing the opportunities presented, organizations can build a workforce equipped with the essential soft skills required for success in the post-pandemic era.

The object of this article is to present a quadratic model of mechanism for assessing and overcoming the consequences of the COVID-19 impact on the soft skills of the human resources potential in Ukraine.

The purpose of the article is to confirm the impact of the COVID-19 pandemic on the development of soft skills of employees using mathematical modelling based on the aggregation of survey data of employees and managers.

In order to achieve the formulated objective, the following investigation tasks have been identified:

- Conduct a comprehensive review of existing literature on the impact of the COVID-19 pandemic on the soft skills of the human resources potential in Ukraine.
- Collect and analyze relevant data to assess the current state of soft skills in Ukraine's workforce, considering factors such as employment rates, training programs, and skill gaps exacerbated by the pandemic.
- Identify and evaluate the specific consequences of the COVID-19 impact on soft skills in Ukraine, taking into account the challenges faced by individuals, organizations, and industries.
- Develop a quadratic model that incorporates appropriate indicators and methodologies to assess the consequences of the pandemic on soft skills in Ukraine's human resources potential.
- Apply the quadratic model to assess the magnitude and scope of the consequences of the COVID-19 impact on soft skills in Ukraine, providing a comprehensive understanding of the situation.
- Evaluate the feasibility and practicality of implementing the proposed quadratic model within the Ukrainian context, considering factors such as available resources, government policies, and organizational capabilities.

2. Analysis of Recent Research and Publications

Recent research and publications have focused on understanding the quadratic model and mechanisms for assessing and overcoming the consequences of COVID-19 on the soft skills of the human resources potential in Ukraine. The COVID-19 pandemic has had a profound impact on economies worldwide, and Ukraine is no exception. Businesses and organizations have had to adapt to the challenges posed by the pandemic, leading to an increased emphasis on soft skills within the workforce (Podolchak et al., 2022).

One area of research has involved assessing the specific soft skills that have been most affected by the pandemic in Ukraine. Surveys, interviews, and data collection from organizations have been utilized to understand how soft skills such as adaptability, resilience, teamwork, and communication have been influenced by the crisis (Podolchak et al., 2021).

The economic implications of the impact on soft skills have also been explored. Researchers have examined the relationship between soft skills and key economic indicators such as employment rates, GDP growth, and labour market dynamics. Understanding these connections provides insights into the overall productivity and competitiveness of the workforce in Ukraine (Martyniuk et al., 2021).

In the current job market, soft skills are crucial. Companies focus on developing them, enhancing employee efficiency and task outcomes. Improved soft skills uplift corporate culture, market performance, and competitiveness (Juhász et al., 2023).

Intervention strategies have been a crucial focus of recent research. Developing mechanisms and interventions to mitigate the negative consequences of the pandemic on soft skills is seen as essential. Studies have explored various strategies, including training programs, mentoring initiatives, and policy recommendations, to enhance and rebuild the soft skills of the human resources potential in Ukraine (Martyniuk et al., 2021).

The digital transformation accelerated by the pandemic has also been a significant area of investigation. Researchers have explored the relationship between digital transformation and the demand for soft skills. The findings highlight how individuals with strong soft skills are better equipped to adapt to digital work environments and leverage emerging technologies effectively (World Health Organization, 2020).

Comparative analysis has provided valuable insights as well. By comparing Ukraine with other countries, researchers have identified best practices and lessons learned. These comparisons have examined the resilience of soft skills in different regions and the policies implemented to overcome the consequences of the pandemic. Additionally, government reports and initiatives in Ukraine provide valuable insights into the current efforts being made to assess and address the consequences of COVID-19 on soft skills.

Recent research and publications have not shed light at a high level on the quadratic model and mechanisms for assessing and overcoming the consequences of COVID-19 on the soft skills of the human resources potential in Ukraine. The ongoing pandemic has presented unprecedented challenges for individuals, organizations, and the overall economy. Understanding the impact on soft skills is crucial for devising effective strategies to mitigate the consequences and support the workforce in Ukraine.

Recent research has focused on examining a significant aspect, which is the evaluation of the particular soft skills that have been influenced by the pandemic. Studies have employed methods like surveys, interviews, and case analyses to recognize the shifts and difficulties individuals encountered in areas such as adaptability, resilience, communication, and problem-solving. This evaluation supplies valuable insights into domains that need attention and proactive measures (Vasiliou et al., 2023; Gnecco et al., 2023).

"HR potential" refers to the collective abilities, qualities, and capacities possessed by the human resources within an organization or a workforce. It encompasses factors like the skills, talents, experiences, and potential for growth that individuals bring to the table. On the other hand, "skills" are specific abilities or competencies that an individual possesses and can apply to perform tasks effectively. Skills can be both technical (related to a particular job or field) and soft (related to interpersonal, communication, problem-solving, and adaptability skills). In essence, "HR potential" is a broader concept that encompasses various attributes, including skills, while "skills" refer to the specific proficiencies and competencies possessed by individuals. (Chen, 2023).

The employability rate reflects a nation's progress. In today's diverse workplace, being employable means more than skills – adaptability and initiative matter. Recruiters seek self-taught engineers with extra skills. Besides technical prowess, soft skills and social insights are vital. While technical abilities are prized, the capacity to connect and excel in various settings defines a lasting career (Bataklar & Toy, 2023).

In response to the identified consequences, researchers and practitioners have proposed various intervention strategies. These strategies encompass training programs, workshops, and initiatives aimed at enhancing and developing soft skills. Mentoring programs, career counselling, and online learning platforms have also been explored as means to support individuals in improving their soft skills and adapting to the post-pandemic work environment (Vovk et al., 2022).

Digital transformation has been a significant area of focus in recent research related to the consequences of COVID-19. The pandemic has accelerated the adoption of remote work, virtual collaboration tools, and automation technologies. Researchers have examined how this digital shift has impacted the demand for specific soft skills, such as digital literacy, virtual communication, and remote team collaboration. The findings contribute to understanding the evolving skill requirements in the context of digitalization (Gopika, Rekha, 2023).

Comparative analysis has provided valuable insights by examining the experiences of Ukraine in relation to other countries. By comparing strategies, policies, and outcomes, researchers have identified successful practices that can be adapted to the Ukrainian context (Podavale et al., 2023). Prior to the COVID-19 pandemic, the workforce was already facing disruptions due to evolving technologies and novel work methods, resulting in changes to the skill sets demanded of employees for ongoing relevance. (Manyika et al., 2017) projected that by 2030, around 375 million workers, equivalent to 14% of the global workforce, would need to learn new skills or change professions to keep up with automation and artificial intelligence. A more recent worldwide survey conducted by McKinsey in 2020 revealed that 87% of executives acknowledged ongoing or anticipated skill gaps in the workforce within the next few years (Agrawal et al., 2020).

Similarly, the 2020 ILO’s Rapid Assessment of Information and Communication Technology (ICT) Skills Demand (Wiryasti, et al., 2020) in the world also shows that most hiring companies listed certain soft skills as a requirement in addition to technical skills. Working as part of a team, communication and analytical and logical thinking are the top soft skills required by industries.

Overall, recent research and publications have emphasized the importance of addressing the consequences of COVID-19 on the soft skills of the human resources potential in Ukraine (Chumachenko et al., 2022). By assessing the impact, understanding the economic implications, devising intervention strategies practical insights and recommendations for policymakers, organizations, and individuals in Ukraine.

To effectively address the consequences of COVID-19 on soft skills, it is crucial for policymakers and organizations to prioritize investments in education and training (Strang, 2022). This includes promoting lifelong learning initiatives that focus on developing and enhancing soft skills at all stages of an individual's career (Musnandar, 2021). Collaboration between educational institutions, government agencies, and industry stakeholders is essential to ensure the alignment of educational programs with the evolving skill demands of the post-pandemic economy (Tilman, 2021).

In addition, we can witness the COVID-19 pandemic has disproportionately affected women working in factories in the Philippines. Many are unable to work from home and face the double burden of caring responsibilities. In STEM-related industries, women further confront challenges of staying and progressing in their roles compared to their male counterparts (International Labour Organization, 2020).

Furthermore, research has highlighted the importance of fostering a supportive and inclusive work environment that values and promotes the development of soft skills (Zuma, 2023). Organizations can implement strategies such as mentorship programs, team-building exercises, and recognition systems to enhance collaboration, communication, and problem-solving among employees. Flexible work arrangements and remote work policies can also contribute to improving work-life balance and facilitating the development of self-management and adaptability skills.

In terms of digital transformation, researchers emphasize the need for digital literacy initiatives and upskilling programs to equip the workforce with the necessary skills to thrive in a technology-driven work environment (Ryleeva et al, 2022). This includes training on digital tools, data analysis, cybersecurity, and online communication platforms (Yanto et al, 2022). The integration of digital skills with soft skills is crucial to ensure individuals can effectively leverage technology to enhance their productivity and contribution to the organization.

While research provides valuable insights, ongoing monitoring and evaluation of the implemented strategies are essential. This allows policymakers and organizations to assess the effectiveness of interventions, identify areas for improvement, and make evidence-based decisions (Taula'bi et al, 2023). Regular data collection on the state of soft skills, workforce development programs, and economic indicators can inform policy adjustments and support continuous improvement efforts (Mona, Kawilarang, 2022).

Recent research and publications have contributed to understanding the model and mechanisms for assessing and overcoming the consequences of COVID-19 on the soft skills of the human resources potential in the world. The findings highlight the importance of assessing the impact, considering economic implications, implementing intervention strategies, embracing digital transformation, and conducting comparative analysis. By addressing the consequences of the pandemic on soft skills, policymakers, organizations, and individuals can support the recovery and future resilience of the workforce.

3. The Research Methodology

The research methodology consists of the following elements:

① *Analysis and collection of specific indicators* related to the influence of employees' soft skills during the COVID-19 pandemic:

Here are specific indicators related to the influence of employees' soft skills during the COVID-19 pandemic:

- Remote Communication Skills: Assess the ability of employees to effectively communicate through digital platforms, including video conferencing, email, and instant messaging. Look for indicators such as clarity of message, active listening, adaptability to virtual communication tools, and responsiveness.
- Adaptability and Resilience: Measure employees' ability to adapt to rapidly changing circumstances and their resilience in the face of uncertainty. This can include indicators such as the speed of adjustment to remote work, willingness to learn new technologies, and the ability to cope with disruptions and setbacks.
- Virtual Collaboration Skills: Evaluate employees' skills in collaborating with colleagues and teams remotely. Look for indicators such as effective virtual teamwork, cooperation, and coordination, including the ability to contribute ideas, give constructive feedback, and facilitate online discussions.
- Problem-Solving in Remote Environments: Assess employees' ability to solve problems and make decisions in virtual or remote work settings. Indicators may include their capacity to identify and analyze issues, propose creative solutions, and adapt problem-solving strategies to the virtual context.
- Emotional Intelligence in Remote Interactions: Evaluate employees' emotional intelligence and their ability to understand and manage emotions during virtual interactions. Look for indicators such as empathy, active listening, recognizing and addressing emotions in oneself and others, and maintaining positive relationships remotely.
- Self-Motivation and Time Management: Measure employees' self-motivation and ability to manage time effectively while working remotely. Indicators may include meeting deadlines, managing workload independently, and maintaining productivity in a flexible work environment.
- Digital Literacy and Technology Skills: Assess employees' proficiency in utilizing digital tools and technologies required for remote work. Indicators may include competence in using collaboration platforms, software applications, and online communication tools, as well as the ability to troubleshoot technical issues.
- Leadership and Influence in Virtual Settings: Evaluate employees' leadership skills and their ability to inspire and influence others in virtual or remote work environments. Look for indicators such as providing guidance and support to colleagues, facilitating virtual meetings effectively, and maintaining team morale remotely.

These indicators provide a starting point to evaluate employees' soft skills in the context of the COVID-19 pandemic. You can adapt and refine them based on your specific research or assessment objectives.

Numerical indicators related to employees' soft skills during the COVID-19 pandemic could be formed by using the following system based on actual data (Table 1):

1. Remote Communication Skills (*RC index*):
   - (RC1) Percentage of employees consistently using clear and concise written communication in virtual work environments.
   - (RC2) Average rating of employees' verbal communication skills during video conferences on a scale of 1-10.
   - (RC3) Number of instances where employees actively participated in virtual meetings by asking questions and providing valuable input.

Table 1. Index analysis of experimental data

Year	RC index						AR index					
	RC1	I	RC2	I	RC3	I	AR1	I	AR2	I	AR3	I
2017	40		2		40		0		44		9	
2018	45	1,13	2	1,00	42	1,05	0	0,00	49	1,11	10	1,11
2019	47	1,04	3	1,50	45	1,07	0	0,00	49	1,00	12	1,20
2020	48	1,02	5	1,67	50	1,11	70	0,00	49	1,00	22	1,83
2021	50	1,04	7	1,40	55	1,10	80	1,14	48	0,98	40	1,82
2022	55	1,10	9	1,29	45	0,82	90	1,13	47	0,98	54	1,35

Year	VC index						PS index					
	VC1	I	VC2	I	VC3	I	PS1	I	PS2	I	PS3	I
2017	4		4		0		10		5		5	
2018	4	1,00	5	1,25	0	0,00	10	1,00	8	1,60	4	0,80
2019	5	1,25	5	1,00	0	0,00	10	1,00	5	0,63	5	1,25
2020	8	1,60	5	1,00	60	0,00	70	7,00	60	12,00	40	8,00
2021	9	1,13	7	1,36	50	0,83	80	1,14	50	0,83	55	1,38
2022	10	1,11	8	1,10	70	1,40	60	0,75	40	0,80	75	1,36

Year	RC index						AR index					
	EI1	I	EI2	I	EI3	I	SM1	I	SM2	I	SM3	I
2017	20		5		5		5		20		5	
2018	15	0,00	7	1,40	7	1,40	7	1,40	30	1,50	4	0,80
2019	20	0,00	4	0,57	6	0,86	5	0,71	25	0,83	2	0,50
2020	60	0,00	20	5,00	50	8,33	40	8,00	45	1,80	30	15,00
2021	40	0,67	30	1,50	44	0,88	70	1,75	35	0,78	45	1,50
2022	20	0,50	15	0,50	30	0,68	35	0,50	20	0,57	25	0,56

Year	VC index						PS index						**Integral indicator**
	DL1	I	DL2	I	DL3	I	LI1	I	LI2	I	LI3	I	
2017	15		5		5		5		5		5		**0,94347**
2018	15	0,00	7	1,40	7	1,40	4	0,80	4	0,80	4	0,80	**0,85354**
2019	15	0,00	8	1,14	8	1,14	7	1,75	3	0,75	6	1,50	**5,11045**
2020	40	0,00	20	2,50	20	2,50	30	4,29	65	21,67	80	13,33	**3,25530**
2021	50	1,25	35	1,75	21	1,05	35	1,17	45	0,69	75	0,94	**1,75500**
2022	80	1,60	49	1,40	15	0,71	21	0,60	20	0,44	35	0,47	**0,94347**

2. Adaptability and Resilience (*AR index*):
   - (AR1) Percentage of employees who successfully transitioned to remote work within a specified timeframe.
   - (AR2) Average time taken by employees to learn and adapt to new digital tools or software.
   - (AR3) Number of instances where employees demonstrated resilience by adapting to changing work requirements or handling unexpected challenges.
3. Virtual Collaboration Skills (*VC index*):
   - (VC1) Average rating of employees' ability to work collaboratively in virtual teams based on peer feedback surveys.
   - (VC2) Number of successful collaborative projects completed remotely.
   - (VC3) Percentage of employees who actively contributed to online discussions and shared valuable insights in virtual team environments.
4. Problem-Solving in Remote Environments (*PS index*):
   - (PS1) Average time taken by employees to resolve work-related issues remotely.
   - (PS2) Number of innovative solutions proposed by employees in response to remote work challenges.
   - (PS3) Percentage of employees who successfully applied problem-solving strategies in virtual settings.
5. Emotional Intelligence in Remote Interactions (*EI index*):
   - (EI1) Average rating of employees' ability to demonstrate empathy and active listening during virtual meetings based on supervisor evaluations.
   - (EI2) Number of instances where employees effectively managed conflicts and maintained positive relationships in remote work situations.
   - (EI3) Percentage of employees who actively supported and provided emotional support to colleagues in remote work environments.
6. Self-Motivation and Time Management (*SM index*):
   - (SM1) Average number of tasks completed by employees within designated timeframes while working remotely.
   - (SM2) Percentage of employees consistently meeting deadlines in a remote work setup.
   - (SM3) Number of instances where employees proactively managed their workload and showed high levels of self-motivation.

7. Digital Literacy and Technology Skills (*DL index*):
   - (DL1) Percentage of employees who possess the required digital literacy skills for remote work tasks.
   - (DL2) Average rating of employees' proficiency in using specific digital tools or software platforms.
   - (DL3) Number of instances where employees effectively troubleshooted and resolved technical issues independently.
8. Leadership and Influence in Virtual Settings (LI index):
   - (LI1) Average rating of employees' leadership effectiveness in virtual team environments based on 360-degree feedback.
   - (LI1) Number of instances where employees successfully motivated and inspired team members during remote work situations.
   - (LI1) Percentage of employees who actively facilitated productive virtual meetings and discussions.

② *Index analysis* – application of analytical procedures for generalization and primary data processing. To unify all indicators for one absolute format, the procedure for calculating indices was carried out using the formula:

$$I_n = \frac{P_n}{P_{n-1}} \tag{1}$$

n – period (years) of research;

I_n – indicator index for the analysis period;

P_n – indicator for the period of analysis;

P_{n-1} – indicator for the previous period.

③ *Formation of an Integral indicator of the influence of COVID-19 on soft skills.* At this stage, it was decided to evenly distribute the specific weight and significance level of each indicator of the country's development. The integrated index for each period is calculated by the formula (Table 1):

$$\mathrm{I}_{CP_n} = \frac{I_1 + I_2 + I_3 + \cdots + I_n}{n} = \frac{\sum_{i=1}^{n} I_n}{n} \tag{2}$$

I_{Cm} – an Integral indicator of the influence of COVID-19 on soft skills;

n – period (years) of research;

I_n – indicator index for the analysis period;

The chosen approach for the research methodology provides several arguments for its selection, considering both the diversity of enterprises and the representativeness of the sample.

Firstly, the inclusion of a variety of enterprise types, including agricultural, service, educational, and IT sectors, ensures a well-rounded perspective on the impact of remote work. This choice acknowledges that different industries may experience distinct challenges and benefits when transitioning to remote work. For instance, service sectors might focus on customer interactions, while educational institutions might emphasize virtual teaching methods. Including this range of sectors enables a comprehensive understanding of the broader implications of remote work.

Secondly, the choice to involve a total of 10 enterprises strengthens the representativeness of the study. While the number of enterprises isn't massive, the deliberate selection of two from each sector adds a layer of balance. This allows for a comparative analysis between sectors, enabling insights into potential sector-specific nuances in the effects of remote work.

The sample's representativeness is further supported by the inclusion of employees at various hierarchical levels within each enterprise. By involving individuals from ordinary employees to top management, the study aims to capture a holistic view of how remote work has affected different roles and responsibilities. This approach acknowledges that remote work might influence communication, collaboration, and decision-making differently at various organizational levels.

Furthermore, the use of an anonymous survey during a 4-month period at the beginning of 2023 offers a snapshot of employees' perceptions and experiences within a relatively recent timeframe. This enhances the accuracy and relevancy of the collected data, as it is reflective of the immediate aftermath of the COVID-19 pandemic.

Lastly, the focus on evaluating 24 indicators across 8 main groups, spanning the years 2018 to 2022, provides a comprehensive analysis of the changes in the context of the pandemic. By comparing pre-quarantine and quarantine-introduced periods, the study can discern specific shifts in soft skills development and ascertain if these changes are linked to the pandemic-related remote work arrangements.

In conclusion, the methodology's careful consideration of enterprise diversity, representative sampling from different sectors, inclusion of various hierarchical levels, recent timeframe, and comprehensive indicator evaluation supports the validity and depth of the research findings concerning the impact of remote work on employees' soft skills development.

④ *Quadratic correlation-regression analysis.* Conducting analytical procedures using the technical means of information support Microsoft Excel v. 2016, namely, quadratic correlation and regression analysis, followed by the formation of a polynomial trend line of the fourth degree (Sokil, 2022). The calculation result is shown in Fig. 2.

⑤ *Analysis and forecast of the obtained results*. After visualizing the trend line of the integral performance indicator of the influence of COVID-19 on soft skills, the trajectory and rhythm of sustainable processes within the country for the development of employees' soft skills becomes obvious. When forecasting this trend for 1-2 years, 2 scenarios are possible:

1. Positive if y = ax4 + bx3 - cx2 + dx – e → ∞, then the processes within the country contribute to the sustainable development of employees' soft skills and as a result, this trend could be matched within all countries.
2. Negative if $y = ax^4 + bx^3 - cx^2 + dx – e \rightarrow 0$, then the processes of soft skills development have a negative trend within all countries in accordance.

Authenticity assessment of approximate economic and mathematical models was carried out by the coefficient of determination R^2: the closer its value is to 1, the better the approximation function chosen by us describes the relationship between the studied quantities or phenomena. So if R^2:

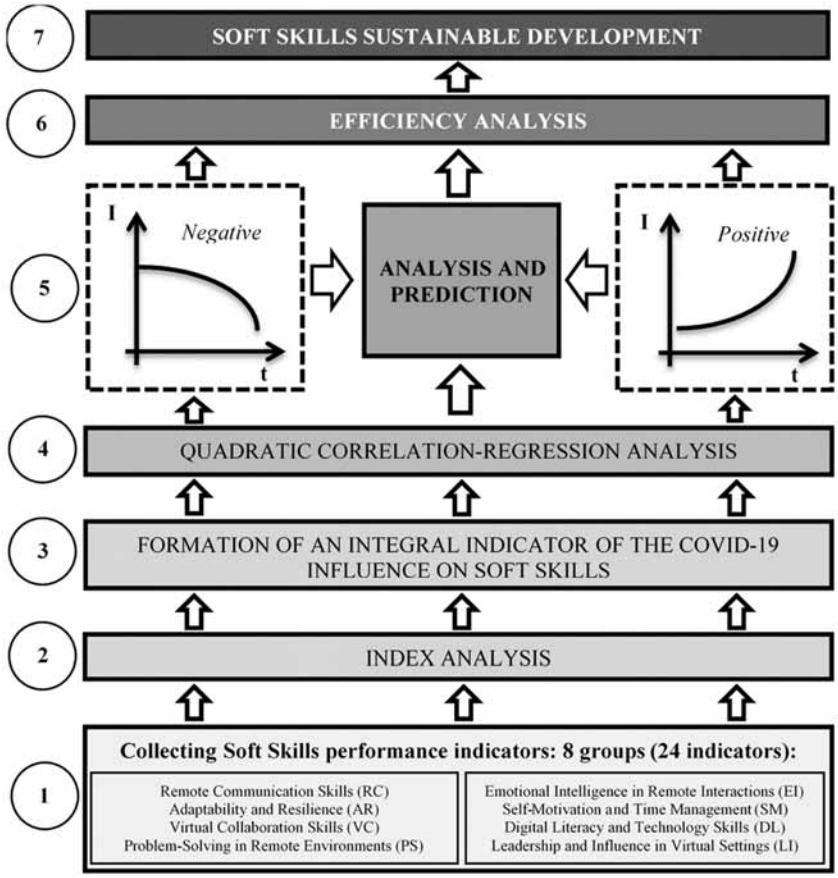
- more than 0.8 - the constructed trend line forecast has higher reliability;
- from 0.5 to 0.8 - the constructed forecast of the trend line has an average reliability;
- up to 0.5 - the constructed trend line forecast has low reliability.

⑥ *Efficiency analysis of the Integral indicator*. Evaluation of the trend line of the performance indicator of the influence of COVID-19 on soft skills. Formation of the final conclusion of the level of the success rate of soft skills development and its dynamics. Confirmation of the theory about: direct and inverse dependence of the trend of COVID-19 spreading on the soft skills development.

⑦ Formation of the research hypothesis: is there a theoretical, methodological and methodological ability of the performance indicator to ensure the relevant trends of the influence of COVID-19 on soft skills?

The whole research methodology is presented in Fig. 1 and will be implemented using separate techniques.

Figure 1. Research methodology

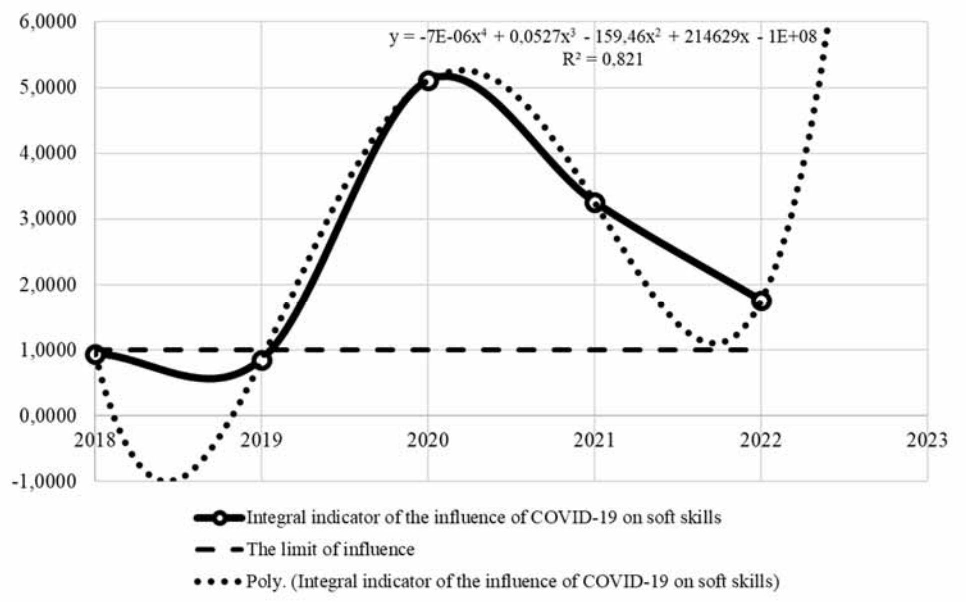


Source: formed by the authors.

4. Results

The procedures for collecting, analyzing and processing information according to the above research methodology (Figure 1) made it possible to build a trend and forecast for an integral performance indicator of the influence of COVID-19 on soft skills in Ukraine, which is shown in Fig. 2.

Figure 2. The trend line of the integral performance indicator of the influence of COVID-19 on soft skills sustainable development in Ukraine

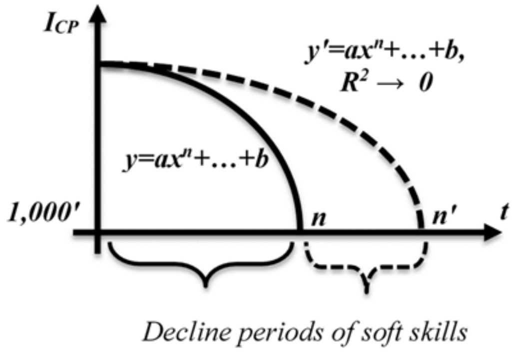


Source: formed by the authors.

In general, with the help of empirical data (Table 1) and Figure 2, we can visualize two options for the flow of events, in which further development of scenarios is possible.

The first scenario is for Ukraine and a gradual decrease in the predicted integral performance indicator, which after a certain time reaches in 2018-2019 a value of less than 1,0 - the point at which the integral performance indicator crosses the line of the limit of achievement (Fig. 2). This point in time is the end of the dominant performance and the beginning of the decline of soft skills. These assumptions can be visualized and represented as a model of the soft skills decrease in Ukraine (Figure 3).

Figure 3. Model of the decrease in the progress of the soft skills

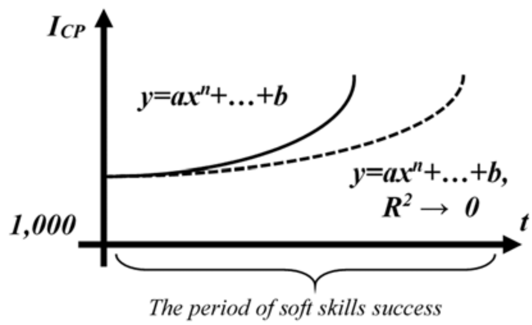


Source: formed by the authors.

The elasticity of the curve line depends on the approximation coefficient: the larger the coefficient, the longer the period of decline of the curve before it intersects with the limit indicator of the academic limit of 1,000.

The second scenario is for Ukraine and an increase in the predicted integral performance indicator, which after a certain time reaches a value of more than 1,000 - the point at which the integral indicator crosses the line of the limit of achievement (Fig. 2). These scenarios were typical in 2020 of Figure 2. These assumptions can be visualized and represented as a model of the soft skills increasing in Ukraine (Figure 4).

Figure 4. Model of the increase in the progress of soft skills



Source: formed by the authors.

In this theory, the elasticity of the integrated index and, accordingly, the success of soft skills are also significantly affected by the level of approximation R2. If R2 tends to zero, then the progress process has features of greater positive effect.

The calculated data made it possible to build a trend line and forecast for 2023 (Fig. 2), where the success of the soft skills by the COVID-19 influence is observed. The level of approximation R2 of the function of the integral indicator of the success of soft skills in Ukraine is 0.821, which indicates that the constructed trend line forecast has average reliability. Accordingly, the trend and forecast line has a positive value and growth in 2023, which indicates the prospect of soft skills in Ukraine in the coming periods.

5. Conclusions

The implementation of the quadratic model has been highly effective as evidenced by the research outcomes. The study has successfully validated the hypothesis, confirming the model's aptness in assessing the impact of COVID-19 on employees' soft skills advancement. The comprehensive findings derived from surveys and empirical analyses not only support these conclusions but also extend their applicability to the broader realm of sustainable development in employees' soft skills.

Moreover, the analysis underscores the emergence of two viable scenarios amid the pandemic's constraints. These circumstances have driven employees to adapt and enhance their competencies, particularly in remote communication, enabling informed decision-making in enterprise management and economic activities.

The rigorous analysis, along with the quadratic model's application, highlights a noticeable decline in the sustainable development of soft skills between 2020 and 2022. However, this setback has catalyzed the mobilization of diverse resources and opportunities, fostering an environment for enhancing and sustainably nurturing soft skills beyond 2023.

The COVID-19 pandemic has the potential to impact workers' soft skills as it changes the work environment and the way people interact. Here are some possible effects:

1. Communication: The shift to remote work can affect communication among employees. The lack of face-to-face contact can make it challenging to interpret nonverbal cues, perceive tone of voice, and ensure effective information exchange.
2. Collaboration and teamwork: Remote work can complicate collaboration and teamwork, as the absence of physical presence can reduce the level of interaction and meaningful communication among colleagues.
3. Leadership: Leaders may find it harder to build effective relationships with subordinates and maintain motivation in remote work settings. The reduced opportunity to observe and interact with subordinates can make it difficult to establish trust and effectively manage a team.
4. Adaptability and flexibility: The pandemic requires workers to quickly adapt to changes. New job requirements, including the use of new technologies and remote communication, may demand flexibility and the ability to learn quickly.

5. Stressors and self-management: Repeated exposure to stressful situations, such as the threat of illness or work-life balance, can affect employees' ability for self-management and emotional control.

The research hypothesis posits that the implementation of remote work due to the COVID-19 pandemic has a significant impact on the development and enhancement of employees' soft skills. Specifically, it is hypothesized that the adoption of remote work environments has led to a notable shift in the way individuals communicate, collaborate, problem-solve, and adapt, resulting in both challenges and opportunities for the sustainable growth of these essential skills.

COVID-19 transformed soft skills as remote work surged. Adaptability, resilience, digital communication, and creative problem-solving gained prominence. The pandemic posed unforeseen challenges, testing quick adjustments and coping mechanisms. Adapting to change, maintaining productivity, and innovative solutions became vital. Overall, COVID-19 reshaped soft skills, highlighting adaptability, resilience, communication, and problem-solving.

While the investigation was conducted within the context of Ukraine, the conclusions drawn from this study possess the potential for broader application beyond the country's borders. The impact of remote work on employees' soft skills is a phenomenon that transcends geographical boundaries. The diverse range of sectors, the longitudinal analysis, and the comprehensive approach to evaluating soft skills changes during the pandemic provide insights that could be relevant to various countries and regions globally. The study's findings offer valuable insights into the broader implications of remote work on employees' skill development across different contexts, extending its relevance beyond the scope of the Ukrainian investigation.

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SUMMARIES

Alla Kirova

THEORETICAL AND PRACTICAL DIMENSIONS OF THE GREEN ECONOMY TRANSITION

The article presents the results of recent implemented and current research on up-to-day trends, challenges, risks and social and economic consequences of the green transition for economic development on a national and European level discussed at the annual scientific conference, organised by the Economic Research Institute at the Bulgarian Academy of Sciences.
Keywords: green economy; sustainable development; growth; labor market; European Union; financing; sectoral and regional policy; green transformation of companies JEL: E00; F00; G00; J00; M00; O1; Q00; R1

Gazmend Amaxhekaj, Driton Qehaja, Atdhetar Gara

THE ROLE OF INSTITUTIONS IN ENERGY TRANSITION AND ECONOMIC GROWTH IN WEST BALKAN COUNTRIES

This article investigates the impact of institutional quality on accelerating the energy transition in the Western Balkans. The region's heavy dependence on energy means the transition to cleaner energy sources will affect GDP growth. However, improving institutional quality can speed up the process by increasing energy efficiency, reducing pollution, and decreasing reliance on energy imports. The Western Balkan countries must adopt the EU's goal of energy transition and reducing CO2 emissions as part of their path to joining the European Union. However, institutional factors such as corruption, weak governance, political instability, and the rule of law have hindered individual countries' progress. This study used data from the World Development Indicator and the International Energy Agency from 2005 to 2020 to investigate the relationship between institutions, energy transition, and economic growth in the Western Balkans. The study employed four econometric models using random and fixed effects regression methods. The results revealed a positive and statistically significant impact from CO2 emissions, governance effectiveness, final consumption expenditures, and trade openness in total energy consumption. Conversely, GDP per capita, the deterioration of controlling corruption and political stability have a negative impact on total energy consumption. In contrast, control of corruption significantly impacts renewable energy growth. The findings also revealed that, even though the increase in total energy consumption raises GDP, it negatively impacts GDP per capita due to energy inefficiency and a large portion of the energy expenses from individual incomes. In contrast, renewable energy consumption positively impacts GDP and GDP per capita.
Keywords: Economic Growth; Institutions; Energy Transition; Renewable energy; CO2
JEL: O43; Q40; Q48; Q01

Nelly Popova

NEXT GENERATION EU AND FISCAL INTEGRATION IN EUROPE

The creation of Next Generation EU in response to the COVID-19 pandemic was a significant milestone in the European integration project. NGEU is an innovative financial instrument with the ambitious tasks to boost economic recovery and to finance long-term investments, thus raising the question if it can be viewed as a common fiscal capacity. The aim of the present article is to analyse in detail the structure of NGEU expenditure from the perspective of the public sector's three main functions (allocation, redistribution and stabilisation) and to draw conclusions about whether this

instrument increases the EU's capacity to perform them. After a concise literature review of the main arguments in favour of a supranational fiscal capacity, the article examines in detail the expenditure side of NGEU's main component, the Recovery and Resilience Facility. It is concluded in the article that NGEU increases the EU's capacity to perform the redistribution function and to some extent the allocation function. However, it cannot be viewed as a macroeconomic stabilisation mechanism. The article discusses several challenges arising from the establishment of the fund.
Keywords: European Union; Next Generation EU; fiscal integration; public sector functions; fiscal federalism
JEL: F15; H7; H87

Atdhetar Gara, Vesë Qehaja-Keka, Abdylmenaf Bexheti, Arber Hoti, Driton Qehaja

IMPACT OF FISCAL POLICY ON ECONOMIC GROWTH: EVIDENCE FROM SOUTH EAST EUROPEAN COUNTRIES

This paper empirically analyses the impact of fiscal policy on the economic growth of the countries of Southeast Europe. The work was carried out with secondary data from the 12-year period and respectively from 2010 to 2021 and includes 11 countries, so the data belongs to the panel type. The purpose of this paper is to analyze social variables such as government spending, income from taxes, public debt, government effectiveness, fiscal freedom, rule of law index, and corruption in economic growth. For this purpose, we employ different econometric models and techniques such as OLS, OLS Robust fixed and random effects models, and GMM (Generalized Method of Moments). The findings from the research show that fiscal policy instruments have a positive impact on the economic growth of the countries of Southeast Europe, while the effectiveness of the government, the rule of law, and corruption show a statistically significant impact on the economic growth of these countries. The recommendations for the countries are for policymakers in the region to prioritize the development and implementation of sound fiscal policies to stimulate economic growth. By strategically managing government spending and taxation, these countries can enhance aggregate demand, encourage investment, and create a favourable business climate. Furthermore, adopting expansionary measures during economic downturns and adopting prudent debt management practices can contribute to stability, confidence, and sustainable growth.
Keywords: Fiscal Policy; Economic Growth; Southeast Europe; Institutions; Government
JEL: O4; O40; H3

Kristina Stefanova

PUBLIC SECTOR IMPACT ON INCOME INEQUALITY IN CEE COUNTRIES

The paper focuses on examining the impact of the public sector, specifically the tax system and expenditure structure, on income inequality in CEE countries from 1998 to 2021. A panel data estimation technique is used to analyse this relationship. The findings of the research indicate that the tax systems in the CEE countries, characterised by limited progressivity and low shares of income taxes in total tax revenues, do not contribute effectively to reducing income inequality (shares of personal income tax, direct taxes and VAT are positively connected with GINI). In contrast, social and education spending are negatively associated with income inequality. These results suggest that expenditure policies have a stronger impact than tax measures in addressing income inequality in CEE countries.
Keywords: income inequality; public sector; CEE countries; panel regression
JEL: D31; E01; H23; H53; D63

Meilinda Trisilia, Susilo, Devanto Shasta Pratomo, M. Pudjihardjo

CHARACTERISTICS OF MIGRANT WORKERS AND ECONOMIC GROWTH: AN INTERREGIONAL MIGRATION IN INDONESIA

Migration bears a significant relationship with the dynamics of economic growth in developing countries. This study aims to investigate whether the allocation of internal migrant workers to specific regional units, as conducted in this research within East Java Province, Indonesia, yields the anticipated effects. The Heckman two-step estimation method was used in analyzing the impact of migrant workers on economic growth in developing countries. The results of this study indicate that the determinants of migrant workers in East Java are significantly influenced by age, gender, level of education, marital status, presence of family members under the age of 5, description of the category of origin, Gross Regional Domestic Product Based on Current Prices (PDRB ADHK), region of origin, and the number of poor people. The results of the analysis of the significant impact of migrant workers on the economic sector (PDRB ADHK in destination areas) on migrant workers in East Java are migrant workers of productive age, male migrant workers, migrant workers with bachelor/diploma’s degree, migrant workers who come from areas with the widest type of floor is in the form of non-timber/soil housing, and migrant workers originating from small-town areas contribute the most to the PDRB of the destination region.
Keywords: Heckman two-step estimation; migrant workers; PDRB
JEL: J60; J61; J62

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THE ROLE OF MANAGEMENT/MANAGER PRACTICES IN THE PROCESS OF INTERNATIONALIZATION OF SMEs

Managerial orientation has become a key concept regarding SMEs internationalization even if not all companies have enough experience in this complex process. During the last decades, traditional internationalization practices (exporting), broadened and developed into a multi-faceted and more differentiated activity that enhances the competitiveness of a business. This paper’s objective is to present how and if the international activity of a business and its environment are influenced by management strategic decisions. By analyzing the successful internationalization of Romanian cases, this paper aims to establish a connection between certain managerial approaches and the success of the business (risks taken, capabilities, and process in general). The study was conducted over three months, where we collected data using a combination of instruments and methods (such as. surveys, interviews, analysis of data, and online research about the companies). Effective management practices are crucial for the success of SMEs seeking to internationalize. The role of high-quality management and a manager’s education can contribute to the company's overall success and its benefits.
Keywords: internationalization; SMEs; managerial practices; business environment; competitiveness.
JEL: F23; G32; L23

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ABSORPTION OF FORMAL AND INFORMAL SECTOR WORKERS THROUGH THE MINIMUM WAGE: STUDIES IN INDONESIA

This study aims to determine the effect of the minimum wage on employment in the formal and informal sectors in Indonesia. This study has a panel data set with a total of 170 observations consisting of 34 provinces in Indonesia during the 2017-2021 period. The use of the Ordinary Least Square (OLS) method, fixed effect, and random effect are used to compare the results of the three

methods used. The results explain that the minimum wage has a negative and significant effect on the absorption of formal sector workers, while the minimum wage has a positive and significant effect on the absorption of informal sector workers.
Keywords: minimum wage; formal sector; informal sector
JEL: J23; O17; O46

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DOES INTERNAL ORGANIZATION COMMUNICATION ENHANCE EMPLOYEE ENGAGEMENT?

Despite the acknowledged significance of organization communication in achieving positive organizational outcomes, there is a dearth of empirical knowledge regarding internal organization communication (IOC) influence on employee engagement (EE), particularly in Balkan countries. The aim of this study is to fill this research gap by measuring the effect of IOC in EE, thereby providing a significant contribution to the growing domain of organizational communication. Specifically, this paper investigates the relationship between eight dimensions of IOC (such as communication climate, supervisory communication, organizational integration, media quality, co-worker communication, company information, personal feedback, and subordinate communication) and three dimensions of EE (employee vigour, employee dedication, and employee absorption). The present study involved the administration of a survey to a sample of 152 employees working in public secondary education institutions within the Republic of North Macedonia. The data was subjected to analysis using SPSS software. The results of the study indicate that several IOC dimensions play a crucial role in predicting various dimensions of EE, such as employee energy, dedication, and absorption within the organization. The findings of this study make a substantial contribution to the existing knowledge on the relationship between IOC and EE in non-profit organizations.
Keywords: Internal Organizational Communication; Employee Engagement; Media Quality; Company Information; Employee Dedication
JEL: O15; J50; L82

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BUSINESS MANAGEMENT: COMMUNICATION AS A KEY COMPETENCE

The research relevance is predefined by the importance of communication as a necessary competence of process management in the enterprise. The main aim is to analyse the key principles of building communications in the management of business processes of modern enterprises. The results were obtained to illustrate the importance of building communication both within the enterprise, regardless of its affiliation to a particular area of business. The interrelation of social, technical, and managerial components of the communication system within a single enterprise, determines communication in general. The practical significance lies in the possibility of their use in the construction of business, based on a high-quality task setting for all participants of the communication process, tracking the overall level of its perception and execution.
Keywords: business environment; management sector; competitive advantage; professional contacts; corporate culture; counterparties
JEL: D83; J53; M14

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QUADRATIC MODEL FOR ASSESSING THE IMPACT OF COVID-19 ON THE HR SOFT SKILLS

This article presents a quadratic model to evaluate the impact of COVID-19 on HR soft skills. The pandemic has disrupted the global workforce, necessitating an examination of the effects on communication, collaboration, and adaptability. The model calculates the outcomes and underscores the importance of dedicating resources to the updating of soft skills taking into account remote work, the process of digital transformation nowadays, and shifting job requirements during COVID times. The findings inform policymakers, HR professionals, and organizations in addressing COVID-19 challenges. By understanding the economic implications, organizations can adapt recruitment, training, and talent management strategies for long-term sustainability and growth. This model contributes to existing literature and aids decision-making for a skilled and resilient workforce in a post-pandemic era.

Keywords: Quadratic model; COVID-19; Human resources; Soft skills; Impact assessment; Workforce resilience
JEL: J24; J63; J82; M12; O15; I18