

The Role of European Funds in Accelerating Digitalization and Human Capital Development: Impact on Poverty Reduction and Economic Growth

Robert Ștefan URICARU

Bucharest University of Economic Studies, Bucharest, Romania
uricarurobert18@stud.ase.ro

Alexandra Ioana MURARIU*

Bucharest University of Economic Studies, Bucharest, Romania
**Corresponding author, murariualexandra19@stud.ase.ro*

Darius Radu ONEA

Bucharest University of Economic Studies, Bucharest, Romania
onea_dariusradu@yahoo.com

Abstract. *This paper examined the role of European funding in promoting digital transformation by focusing on improving the level of development and innovation of human capital, emphasizing its role in poverty reduction, but also economic development. By supporting e-vocational training programs and initiatives focused on critical thinking and digital skills, these funds help to adapt the workforce within the limits of the evolving requirements of the contemporary economy. As a result, they not only increase employability, but also encourage social inclusion, promoting entrepreneurship, allocating the necessary resources to maintain a level of competitiveness in an economic environment that is constantly changing. The European Commission has required European states to implement the components of the European Social Fund used through a decentralized management framework, established by a common agreement, while ensuring compliance with the principle of sound financial management by the national authorities that are designated. The purpose of this research is to assess the level to which European funds have supported this current digitization process and the way in which human resources in Romania have developed and how these factors lead to poverty reduction and economic growth. The study explored the relationship between the absorption rate of European funds and GDP growth through a linear regression model. The findings underline the existence of a statistically significant positive correlation, indicating that each one-unit increase in the absorption rate leads to an increase of RON 723,798 million. The model demonstrates the existence of a high degree of power, about 82.9% of the GDP variation stimulates economic performance.*

Keywords: European Funds, Economic Growth, Poverty Reduction, Human capital, Digitalization.

Introduction

In the period 2016-2023, Romania as a state benefited from substantial European funding that aims to stimulate economic development, focusing on the digital component and the level of investment in human capital. These resources have helped to reduce economic and social disparities by improving access to digital education, vocational training and a mass development of modern infrastructure. In an increasingly technology-driven global economy, skills development and upskilling has become a strategic priority for most countries, while aligning the workforce with market demands remains a key factor contributing to reducing unemployment

and facilitating the improvement of the national standard of living (European Commission., 2022).

Romania is in a continuous evolution in terms of the digital environment, it tries to capitalize on the financing opportunities in the current budgetary framework at the level of the European Union for the period 2021-2027, the focus is on accelerating the digital transformation and strengthening the economy that captures innovation and inculcation from a social point of view. Today, society has become increasingly economically competitive, being adapted to a rapidly transforming mode, external funding sources, i.e. those provided by the Union, play a crucial role in maintaining competitiveness at this level, but also in the socio-economic development of the Member States. On the basis of these ongoing reform processes, geopolitical tensions are increasing and significant challenges to Member States' cohesion are identified, while regional inequalities persist and, in some cases, intensify.

The war on the borders of the Union has become increasingly complex and difficult to manage, even if the American States play a central role here, the economic challenges are facing the European Union, where it is placed in an uncertain context, accompanied by great strategic pressure. The labor market is one of the key links that has undergone profound changes and regulations, due to mass digitization and automation processes, requiring rapid adaptation from both professionals and organizations.



Figure 1. European Funds: The synergy between Digitalization and Human Capital

Source: Made by the authors'.

European funds are seen as the core of economic activity, they play a central role in promoting and launching innovation actions, digital development, while underlining the continuous need for investment in human development. One of the main instruments used by the European Union that is dedicated to the support and development of human capital is represented by the European Social Fund. It was established within the framework of the Treaty of Rome, many decades ago, being recorded as the first financial instrument, in recent years it has allowed millions of people to apply and access specialized jobs in different fields and in multiple sectors. Moreover, it also contributes significantly to the cohesion component, trying to facilitate access to social education for disadvantaged groups. In Romania, the European Social Fund is essential for financing, implementing and managing projects aimed at increasing labour force participation, developing a set of professional skills and massively promoting social inclusion in today's society (Badea. L., 2024).

Literature review

The European Social Fund finances a project that offers qualification, training, and professional conversion courses to improve the level of insertion on the labor market. Various initiatives of the fund focus on the social integration of disadvantaged groups, by capitalizing on their skills and improving the quality of education and vocational training of vulnerable groups. All these initiatives are based on projects that focus on modernization the educational infrastructure and encouraging entrepreneurship among young people in order to improve the level of regional development.

One of the most important key components is human quality, with human capital becoming a key factor in the transition to smarter production. Serving as an essential factor for the integration of various advanced technologies into production systems, a transformation that is increasingly facilitated thanks to the use of European funds. In light of the new technological changes emerging, companies that depend not only on physical assets but also on the infrastructure itself, are increasingly focusing on an attentive and well-trained workforce, one that is digitally qualified, we could say, capable of managing and optimizing intelligent systems. The transition to smart manufacturing not only reconfigures the way companies have to adapt to market demands, but also contributes to the redefinition of specific skill sets necessary for employees. Thus, the development of human capital is no longer a result of digitalization but rather a prerequisite for the effective foundation and implementation of the success of technological innovation (European Commission., 2022).

In his valuable work on the role of human capital, Becker (1964) stated that economic development and technological progress irrevocably and fundamentally depend on the quality and formation of human capital. This element, human capital, is understood as an aggregation of competences, skills and knowledge acquired through different channels, including early education, continuing professional training and professional experience. It serves as a determinant of both productivity and long-term economic growth. Becker points out that, like physical capital, human capital also needs multiple investments to produce returns, which manifest themselves in the form of profit, that is, individual gains or generally improved economic performance (Becker, 1964).

In the current period of digital transformations and the emergence of knowledge-based economies, Becker's theory has an increased relevance, the intelligent production he describes, as well as the development of emerging technologies require a much better trained, highly qualified workforce, we could say. This workforce must be able to operate complex work systems, based on data and advanced computing tools. In conclusion, both private companies and public state institutions should give priority to the level of investment allocated to the fields of education and professional development, which should also capture professional qualification, professional conversion and continuous training. In this way, it ensures that future employees have the necessary skills and qualifications, but above all, if the workers have the necessary adaptability to meet the dynamic demands of the labor market, this market is in a continuous dynamic development. Without the implementation of such investments, there is a risk that economic and social disparities will increase, causing damage and increasing economic inequalities, which leads to ever deeper socio-economic imbalances (Becker, 1964).

In order to facilitate technological and economic progress, European funds are seen as a financial intermediary, being strategically allocated in order to support education and training programs but also to develop digital skills. These initiatives have a direct impact on the skills of the workforce and employability. A central challenge for countries striving to close the

development gap has been continuous analysis to determine the ways in which economies can develop sustainably and also create their own distinct development patterns. The classical theory, that traditional economic theory, mentions especially in the case of the product life cycle that emerging economies are predisposed to adopt technologies that are no longer current, these being taken over from developed countries as part of their industrial progress.

Contrary to expectations, Becker's theory of human capital emphasizes the critical role of education, vocational training and workforce skills as strategic investments that have the role of stimulating productivity and long-term economic growth. This concept is described by the author as a cumulative set of skills, abilities and knowledge acquired through formal education and vocational training, these elements actively and directly contribute to the degree of increasing efficiency and innovation. As in the case of the physical capital, the superior development of a human capital requires a significant allocation of resources and consistent investments, however these investments are amortized over time leading to medium and long-term benefits. Some of the benefits that may occur are related to the increase of individual incomes, the improvement of permanent economic performance.

In the context of the digital economy based on knowledge and intelligent production systems, it requires a workforce as competent and highly qualified as possible, capable of executing complex tasks and managing the problems that may arise. Becker points out that without effective investment in education and training, the workforce will not be able to adapt to technological developments, thus hampering innovation and deepening existing economic inequalities. Essentially, the acquisition of skills through education is seen as a necessity to be realized in order to harness a nation's ability to innovate and successfully integrate new technologies, making it a prerequisite for sustained economic development.

In conclusion, human capital is defined as a set of all competences, skills and knowledge acquired in various ways, such as early education, vocational training and experience, being a determinant of productivity and economic growth. The author emphasizes that, like physical capital, human capital requires a significant investment weight, so that its returns are visible both in increasing individual incomes and in valorization of overall economic efficiency. In particular, given the context of digital transformation and the transition to a knowledge-based economy, Becker's theory becomes much more relevant, since smart production and the creation of new technologies require a highly skilled workforce capable of operating data-driven systems and advanced algorithms. Thus, companies and governments must priorities investments allocated to vocational education and training in order to ensure a decent level of adaptability of workers to the current demands of the modern labor market.

The leapfrogging theory (Lee, 2021), suggested that the discrepancy between developing and developed states, the first developing states have the potential to evade the realization of all stages of the technological process both by direct investments in emerging and advanced technologies and by subsidizing different states. This process raises questions, these economies are capable of reviving the development path of some industrialized states, especially if they adopt established technologies and strategies, or they will always look for an alternative method to evade the realization of the stages and the acceleration of technological frontiers.

Do they therefore need to follow the same trajectory as advanced economies (copying already established technologies and strategies)? - Or should they create a new path, skip certain technological milestones and reach cutting-edge innovations faster? Tech leapfrogging is based on the idea that some "lagging" economies can avoid certain traditional stages of development by switching directly to more advanced technologies or even innovating their own technologies –

avoiding costly investments in outdated technologies. The first mention of a similar concept was made by Gerschenkron (1962), with the idea of the latecomer's advantage. He argued that developing countries can adopt more modern technologies without going through all the technological stages taken by advanced economies. Freeman and Soete (1997) and Perez and Soete (1988) added a new dimension, suggesting that the emergence of a new technological paradigm may allow backward countries to jump straight into new industries without being "locked" into old technologies.

Example: 1. Mobile telephony in Africa – many African countries have jumped over the landline stage and switched directly to mobile networks and digital payments (e.g. M-Pesa in Kenya). 2. China and Artificial Intelligence – instead of following the traditional model of the hardware industry, China has invested aggressively in AI, avoiding dependence on old Western technologies.

The human capital theory and the concept of leapfrogging are not opposing ideas but rather complementary in explaining accelerated economic development. The correlation between them lies in the fact that investment in human capital creates the necessary conditions for technological leapfrogging. The two theories become complementary and help each other in outlining a stable and useful theoretical framework in understanding accelerated economic development. Their intersection consists in the premise of a middle solution, an alternative in which human capital is subsidized by investments in order to provide a favorable environment suitable for successful technological leaps towards premature development. Such a well-educated population, equipped with advanced digital tools, will possess the ability to implement, absorb and adapt new technologies (Lee, 2021).

Becker studied and demonstrated through advanced calculations that education significantly increases productivity. Building on this argument, education also indirectly encourages innovation and flexibility, allowing both employees and entrepreneurs to engage with cutting-edge technologies in creative and effective ways. Statistically accurate studies reinforce this connection between variables. In the case of the Central and Eastern European states, there is a strong and positive correlation between digitalization and human capital, a synergistic link that ultimately contributes to improving the well-being of society. In other words, economic digitalization and human capital development are mutually reinforcing processes, and their link plays a key role in promoting economic growth. Human capital theory provides the engine, while jump theory provides direction. A convincing analogy, drawn from the literature, is the race between Achilles and the tortoise (Lee, 2021).

Analogy: If Achilles –representing an emerging economy-attempts to catch up with the tortoise-symbolizing an advanced economy-by following the same path, he will never surpass it. The reason is that each time the emerging economy draws closer, the advanced economy moves ahead again through continuous innovation. In order to remedy the process, an alternative path must be chosen that allows emerging economies the chance to evolve, skipping certain stages of the technological process in which they avoid direct competition on an already oversaturated market of great powers.

If all emerging economies try to develop in the same industries, "economic traffic" is created that prevents rapid advancement. Example: All emerging countries that seek to develop their economy through exports of textiles and electronics will face oversupply and falling prices (Spence, 2012; Lee & Ramanayake, 2018).

The solution is for the emerging economy to change its trajectory – that is to innovate alternatively and enter a new path. However, to sustainably change trajectory, it needs the fuel of

skills and knowledge. Investments in education, research and digital skills development provide this intellectual fuel. Therefore, the correlation between these two theories manifests as follow – the more developed the human capital, the greater the capacity to achieve leapfrogging. This correlation explains why in practice, countries that have achieved notable technological leaps, have intensive and consistently invested in education and digital skills training.

McKinesy & Company (2015) demonstrated that business models are less sustainable in the past because technology is rapidly changing economic conditions. Factors accelerating the transformation of business models: Rapid growth of digital technologies (AI, IoT and automation are fundamentally changing the industry). Adaptation of economic models (Companies must integrate data and digital technologies to remain competitive) Market „disruption” effect (Companies that adopt digitalization more quickly can eliminate traditional competitors). The effect of implementing new technologies will consist in the creation of cyber-physical systems, where the physical and virtual spaces will be integrated with the help of the IoT. The transition to Industry 4.0 involves structural changes to business models toward digitalization, leading to increased productivity and competitiveness in manufacturing for companies that adapt the fastest. Transformations will take place across all components involved in organizing the values chain, with the goal of fully integrating them in a context of constant communication between workers, production equipment and products.

Table 1. The principal innovations of the 5 industrial revolutions

Industrial Revolution	Period	Principal Innovations	Impact on production
Industry 1.0	1784	Steam machine, mechanization	Increased efficiency of transport and productivity
Industry 2.0	1870	Electricity, Assembly lines	Cost reduction, mass production
Industry 3.0	1970	Robotics, computers	Increase accuracy and reduce manual work
Industry 4.0	2010-present	IoT,AI, Big Data, Cloud Computing, SaaS	Real-time optimization, Smart factories
Industry 5.0	future	Customization, Human-machine collaboration, sustainability	Integrating technology with human and ecological needs

Source: Author’s own research.

The emergence of Industry responds to some of the key limitations of Industry 4.0. Excessive automation has resulted in significant job losses, particularly among low-skilled workers. Moreover, its focus on efficiency and profit often came at the expense of social and environmental considerations. At the same time, consumers are increasingly demanding personalized and sustainable product, which calls for a more adaptable and human-centric production model.

A relevant case is Tesla, which introduces AI-based automation in its manufacturing processes. However, CEO Elon Musk later admitted that full automation was a mistake, pointing out that human workers are often more adaptable in many scenarios.

Industry 5.0 is expected to mitigate some of the job-related downsides of Industry 4.0 while promoting more sustainable production practices. It is seen as the next evolutionary step in industrial development, emphasizing effective collaboration between humans and machines. (Marinaş., 2021)

European fund play crucial role in the economic transformation of UE member states, particularly by advancing digitalization and human capital development. This article examines how these fund have been used to accelerate digital transformation, support vocational training programs, and foster economic growth while reducing poverty. It offers a detailed overview of strategies and initiatives implemented at both national UE levels, highlighting best practices and key lessons learned (European Commission, 2022).

In a global environment where digitalization and skilled labor are essential to economic competitiveness, European funds have become vital tools for modernizing emerging economies. The EU invests heavily in programs that support education, workforce reskilling, and the integration of digital technologies into core economic sectors (Commissions, 2022).

The DESI index measure the digital performance of UE countries by evaluating the adoption of digital technologies among businesses and citizens. It focuses on four key areas:

Table 2. The main indicators followed in the digitalization process

Nr.	DESI domain	Description
1.	Connectivity	The degree of access and quality of internet networks, including high-speed connections and 5G coverage
2.	Digital skills	The level of digital literacy of the population and the availability of specialists in the field of IT&TECH.
3.	Use of digital technologies by companies	The adoption rate of the IT solutions, such cloud computing, artificial intelligence, and e-commerce
4.	Digital public services	The degree of digitalization of public administration and the availability of e-government services

Source: European Commission, The Digital Economy and Society Index (DESI) Shaping Europe's digital future.

Methodology

The theme analyzes the concrete impact of European funds in various economic sectors, with a personalized analysis focused on the case of Romania to highlight the growth rate of the absorption of European funds, but also what are the advantages of incorporating them into the development of a stronger infrastructure for the Romanian economy. The main analysis criteria were based on researching and sorting relevant indicators into datasets, analyzing indices to see the pace of growth and innovation in the labor market, as well as the degree of digitalization recorded at country level. The formulated methodology aims to create an extensive research framework, where correlated data provide a rigorous perspective on human capital development. We have analysed the discrepancies of income recorded at the level of age categories in order to determine what is the average level of revenue centralization recorded on the basis of the market economy. We have also analyzed the correlation of the Gini index, which is a key research factor of the main theme. This coefficient shows what the level of poverty is at the time when a massive threshold of severity has been recorded, highlighting inequality and the poor distribution of income and resources offered among citizens,

This research methodology was carried out by using quantitative analysis methods, based on an econometric analysis to highlight the importance of allocating European funds in Romania's basic sectors. The data processing was carried out directly, using data extracted from official sources, they were downloaded into Excel 2019 and sorted. After preparing the initial variables, we generated the existing graphs and tables in this work using IBM SPSS Statistics.

Results and discussions

The Digital Economy and Society Index (DESI) is a useful common created by the European Commission, in order to monitor and track on a sample basis the progress of the Member States of the Union in their development on this digital path. It also analyzes key aspects such as the level of internal connectivity, people's digital skills, how much companies use this component and what are the availability of companies and public institutions in terms of digital services. DESI helps identify both the areas where countries are doing well and the ones where improvements are needed. It also plays an important role in shaping policies and directing investments that support digital transformation across Europe. DESI tracks five key areas of digitalization: connectivity, human capital, internet usage, integration of digital technology in business and digital public services. One of the main advantages of DESI is its strong connection to EU policies and goals.

The technological field is a key field, a field of the future and this DESI index proves to be important and necessary to measure the impact of European funds distributed towards the digitization component.

DESI helps to carry out an analysis on the progress of the states, as a result of which evaluations will also be carried out that lead to the efficiency of the level of investments and the improvement of real infrastructures and public services. Apart from this index, we also find other global indices that deal with the potential for digital development and innovation. The most well-known are the Network Readiness Index (NRI) and the Global Innovation Index (GII). While each uses different methods and has a broader scope, DESI stands out for its specific focus and practical relevance within the EU context.

European Structural and Investment Funds (ESI Funds)

The ESI funds account for more than half of the financial support provided by the European Union. These funds are jointly managed by the European Commission and the member states. The main goal of the five structural and investment funds is to improve the environment, create new job opportunities, and strengthen Europe's economy.

Each EU country manages these funds through partnership agreements with the European Commission. These agreements define how the funds will be used during each funding period, focusing on targeted investment programs for specific regions and policy areas.

1. European Regional Development Fund (ERDF)- This fund aims to strengthen economic and social cohesion across the EU by investing in key sectors such as innovations, research, digitalization, support for small and medium-sized enterprises and facilitating the transition to a low carbon economy.
2. European Social Fund (ESF) - This fund focuses on investments in people, aiming to improve education systems, enhance access to the labor market, and reduce poverty, particularly among vulnerable groups.
3. Cohesion Fund- This fund targets EU countries with a Gross National Income per capita below 90% of the EU average. It promotes sustainable development and seeks to reduce regional economic and social disparities.
4. European Agricultural Fund for Rural Development- This fund supports the sustainable growth of rural regions and enhances the competitiveness of the agricultural sector through innovation and environmentally sustainable practices.

5. European Maritime and Fisheries Fund- This fund contributes to the development of the EU's fisheries and maritime sectors, helping them to grow in a sustainable and environmentally responsible manner.

Overall, these funds play a vital role in regional development, tackling long-term unemployment-especially among young people-and promoting sustainable growth in rural areas. They are essential tools for enhancing economic and social cohesion across less-developed regions in the EUInvalid source specified..

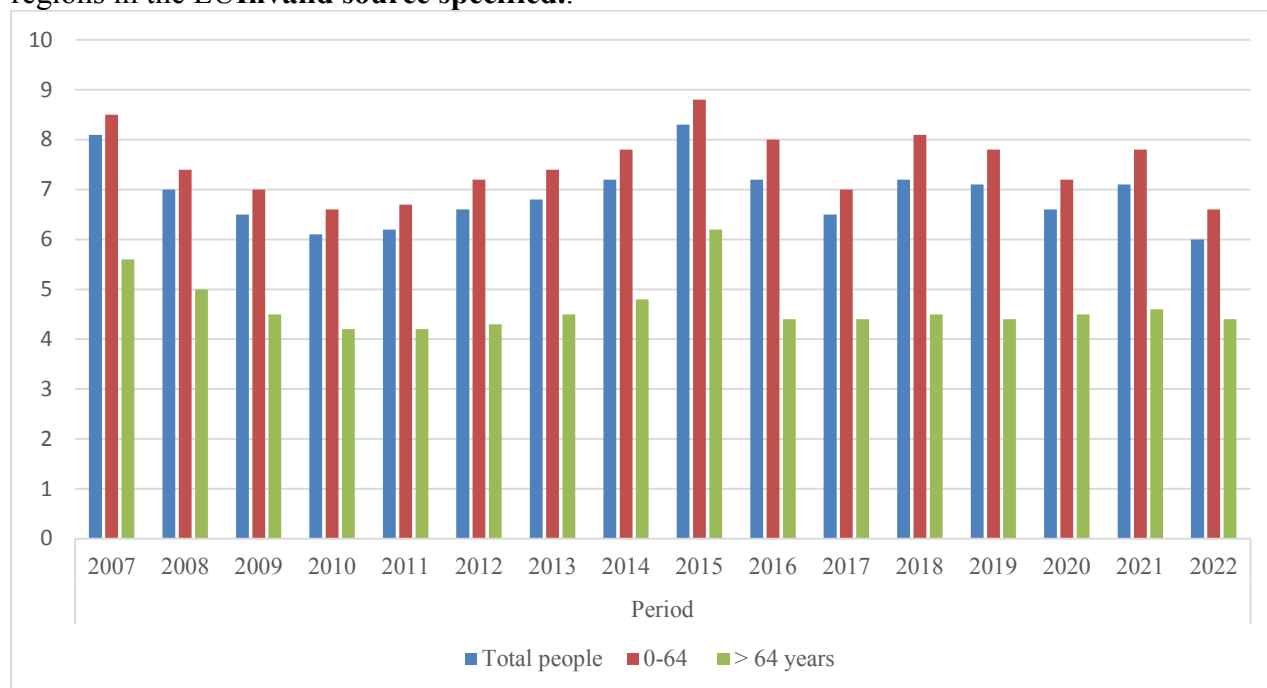


Figure 2. Income inequality index, by age group

Source: Made by authors', according to data from INSSE.

Figure 2. presents the current findings of the Income Inequality Index by age group. The data shows fluctuations over time, with periods of rising inequality followed by slight declines. Individuals aged 65 and over typically rely on more stable income sources, such as pensions. In contrast, the earnings of those aged 0-64 are more vulnerable to economic conditions. Consequently, income inequality is generally higher within the 0-64 age group. These variations are influenced by factors such as social protection systems, employment rates, and the effects of economic crises on wage income.

In order for a company to be considered digitized following the implementation of a project financed by European funds, it is necessary to made as many of the criteria sed out below as possible, with a minimum threshold of six criteria being imposed in most projects.

This requirement is found both in the digitalization projects related to the PNRR and in those of the new 2021-2027 financial allocation.

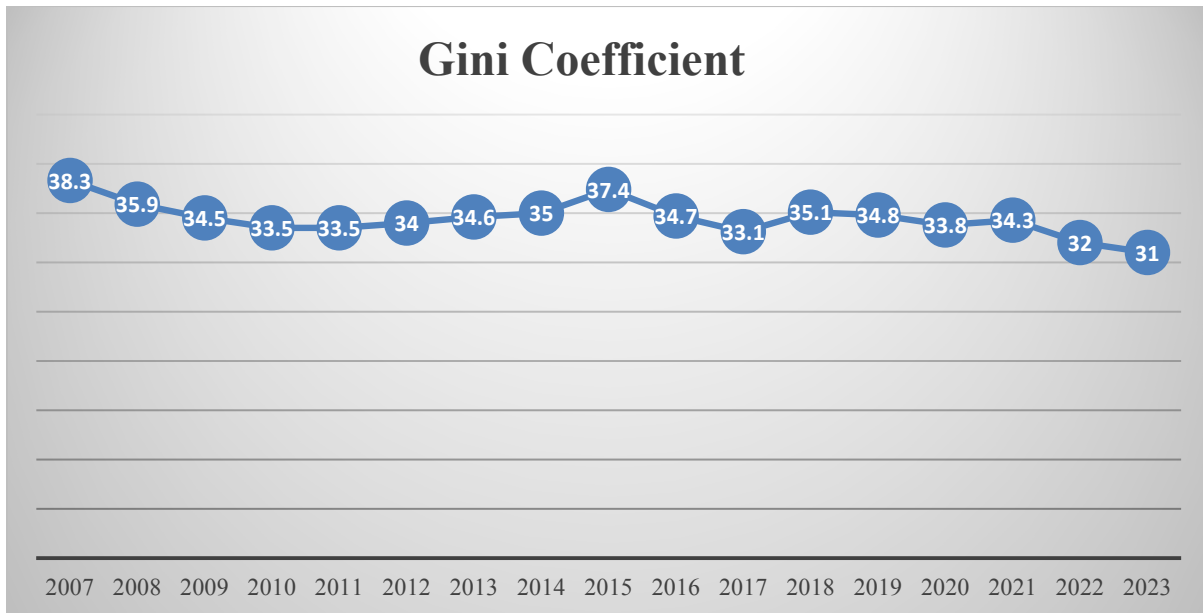


Figure 3. Gini Coefficient

Source: Made by authors', according to data from INSSE.

Figure 3, illustrates the Gini coefficient is an indicator of the degree of severity of poverty, it describes the inequality of income or resource distribution among members of society. The size of the indicator represents the proportion of the total ideal income that should be redistributed to the members of the society. During the period analyzed, income inequality in Romania varied a lot. The highest level of inequality was recorded in 2007, prior to the economic crises. In more recent years, inequality has declined, as indicated by lower coefficient values. This improvement is likely the result of government policies and measures aimed at narrowing the gap between social groups, particularly for vulnerable populations. In this context, European funds play a key role in promoting regional development by financing investments in infrastructure, education, and healthcare system.

These contributions help create more balanced opportunities across regions and can support a gradual decrease in income disparities, as reflected by improvements in the Gini coefficient.

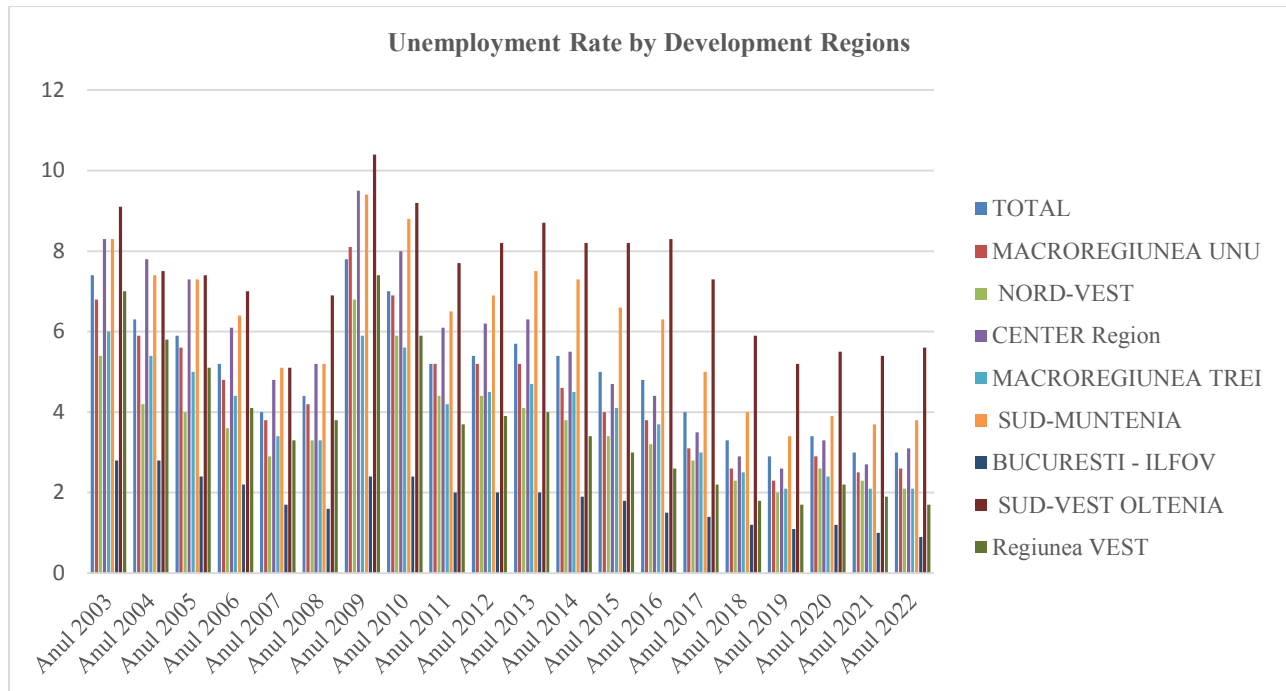


Figure 4. Unemployment Rate by Development Regions

Source: Made by authors', according to data from INSSE.

Figure 4, presents the unemployment rate distributed on the territory of Romania at regional level between 2003 and 2022. During periods of crisis, such as 2009-2010, unemployment reached high values at national level. The South-West Oltenia region recorded the highest unemployment rate, primarily due to its economic reliance on vulnerable and less diversified industries, which are more sensitive to market fluctuations. In contrast, the Bucharest – Ilfov region consistently reported the lowest unemployment rates – falling below 2% in recent years – thanks to a high concentration of investments and well – developed infrastructure, particularly in dynamic sectors like information technology and financial services. Although the 2022 pandemic had a generally moderate effect on national unemployment levels, its impact varied significantly across regions, amplifying existing inequalities.

The main impediments that blocked European funds in Romania

The barriers that standing the way of attracting European funds are relatively numerous and among them can be included the inadequate project management and also inadequate elaboration of eligible projects.

The absorption capacity of a country depends on several factors that act at the European and national level. There in an interdependence between the level of development and the capacity of a region to absorb EU grants. Unfortunately, it is observed that only poorly developed regions face the difficulties related to attracting European financial instruments.

At the vase of these difficulties externa land internal causes are identified. The documents programmed at the level of the European funds, weak cooperation between local partners and malfunctions of the Romanian electronic system for managing European funds. These causes prevent Romania from attracting European money/funds.

Regarding the capacity of absorb European funds there are three major influencing factors such as: macroeconomic capacity, financial capacity and administrative capacity.

The capacity to absorb European funds in influenced by three major factors: macroeconomic capacity, which is related to GDP, interest rates, exchange rates, and the economy's ability to manage additional cots such as labor market expenses. Financial capacity, referring to the ability of administrative institutions to co-finance programs and encourage private sector participation and administrative capacity, which involves the ability of institutions to support fund absorption design, and manage programs effectively.

Successfully implemented projects in the EU

Through the European Regional Development Fund – Drinking water for Dâmbovița country (Romania). The total investment of the project was 9.7 million Euros. The Cohesion Fund contributed with 6.3 million Euros. For 143,000 thousand inhabitants, money helped to implements the project of having quality drinking water. After the implementation of this project, it was observed that overall the quality of life increased and the level of pollution decreased. This project is also included in the „Large Infrastructure” Operational Program. This Operational Program also supports other similar projects and five million people benefited from those projects where drinking water and waste water treatment were improved **Invalid source specified..**

Through the European Agricultural Fund for Regional Development – A partnership of local producers from Brasov (Romania) was created.

This project with the amoung of 100,00 Euros, fully covered the cost of this project to be able to support smaller local producers in Brasov Country. George Catean, a local producer led this project. A cooperative of small producers of cheese, meat products and vegetables has been formed fairs, supermarkets and restaurants **Invalid source specified..**

Table. 3. Regression Analysis of Absorption Rate on GDP

Regression Statistics	
Multiple R	0,915826993
R Square	0,838739081
Adjusted R Square	0,818581466
Standard Error	120401,9152
Observations	10

ANOVA					
	Df	SS	MS	F	Significance F
Regression	1	6,03191E+11	6,03191E+11	41,60904381	0,000198204
Residual	8	1,15973E+11	14496621179		
Total	9	7,19164E+11			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Inter	772414,92	61515,59	12,56	1,51662E-06	630559,71	914270,13	630559,71	914270,13
X Vab	723797,94	112207,9	6,45	0,0001982	465046,03	982549,84	465046,03	982549,84

Source: Authors' own research using data from INSSE.

This coefficient illustrates the direct influence of variable X of GDP. The finding reveal a strong positive correlation between the effective absorption of European funds and Romania's economic growth. From a policymaking perspective, this insight holds significant implications for decisions-makers.

To maximize the economic impact of European funds, it is essential that policymakers enhance absorption efficiency. This can be achieved through the simplifications of administrative procedures, prioritization of high-impact projects, and the strengthening of institutional capacities within organizations responsible for managing these resources.

Moreover, improving coordination among local, regional, and national authorities is key to minimizing delays and eliminating bottlenecks that obstruct effective fund utilization Strategic investments in capacity-building-particularly in project management, financial oversight, and accountability- will further support successful fund deployment.

Romania's experience offers valuable lessons for other EU member states facing similar challenges in funds absorption. It demonstrates that facing similar challenges in fund absorption. It demonstrates that the availability of fund alone is not sufficient, efficient management and strategic allocation are critical for success.

Countries struggling with fund absorption should focus on strengthening institutional frameworks, increasing transparency, and fostering public-private partnership to ensure European fund are effectively leveraged for growth and development.

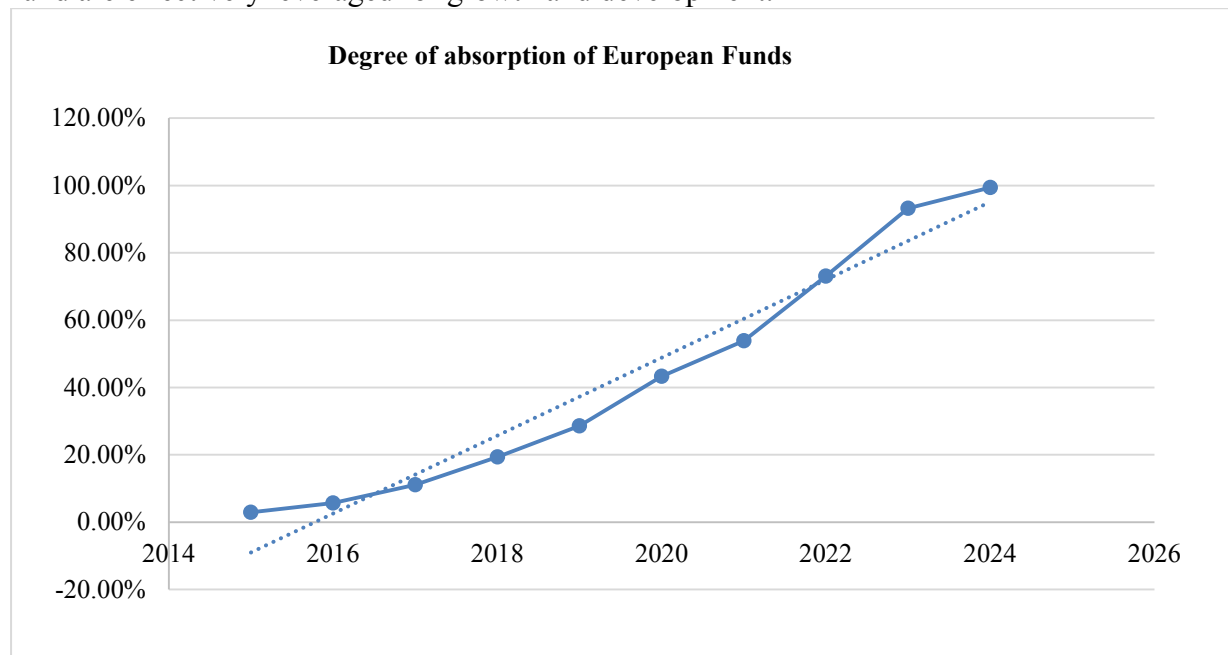


Figure 6. Degree of absorption of European Funds

Source: Authors' own research using data from Ministry of Investments and Funds for the period 2015-2024.

The absorption rate has a statistically significant positive effect on GDP. Specifically, each one-unit increase in the absorption rate corresponds to an increase in GDP of 723,798. This strong correlation, confirmed by a very low p-value (0.000198), emphasizes the crucial role of efficient fund absorption in driving economic growth.

Conclusions

The analysis carried out at the level of European funds highlights the positive impact on the reduction of income inequalities and unemployment, especially among young people and vulnerable groups. The growth of the national economy should be accompanied by appropriate and fair policies but also by financial instruments to be able to promote a faster development of poorer regions thus reducing inequalities.

The analysis confirms a clear and significant positive impact of European fund absorption rate on GDP growth. Improving the efficiency and speed with these fund are absorbed is closely linked to notable increases in overall economic performance. This underscores the importance not only of securing access to European funds, but also of using them effectively and in a timely manner to fully realize their developmental potential.

The findings also show that European funds contribute to reducing income inequality and unemployment, particularly among youth and vulnerable populations. National economic growth should be supported not only by sound policy but also by targeted financial instruments that foster the accelerated development of poorer regions and help reduce disparities.

European fund have been pivotal in fighting poverty and stimulating growth by directing investments into vital sectors such as education, digital infrastructure, and vocational training. These interventions have improved living conditions and opened up opportunities- especially by lowering unemployment and income inequality, with marked benefits for young people and disadvantaged groups.

To support sustainable and inclusive growth, appropriate public policies and financial strategies must accompany economic expansion. These tools are necessary to promote the development of lagging regions and to close existing gaps. The European Structural and Investment Funds have played a key role in helping rural areas, cities, and communities adapt to economic and technological shifts, ultimately improving the quality of life across the EU.

To further increase the impact of these funds, a comprehensive policy approach is needed – one that goes beyond simply increasing the absorptions rate. It is critical to ensure efficient, transparent, and sustainable use of resources. Policymakers must focus on strengthening different levels of government, and improving monitoring and evaluations of projects to ensure funds achieve their intended outcomes.

Limitations and Future Research

Despite offering valuable insights, the study faces certain limitations. One key challenge is data availability, as incomplete datasets and short timeframes restrict the depth of sector-specific analyses. Additionally, significant economic differences between regions complicate broad generalizations. Establishing a direct causal link between fund absorption and GDP growth is difficult due to the interplay of multiple economic, political, and social factors.

Future research cloud explore more detailed sectoral analyses, particularly the impact of European funds on digitalization and human capital in areas such as IT, public administration, healthcare, and environmental sustainability. Longitudinal studies cloud help clarify the long-term effects of digital investment, especially in regions between EU countries may also reveal best practices and successful models for fund absorptions and use, offering guidance to sates facing similar challenges.

Acknowledgement

This paper was co – financed by The Bucharest University of Economic Studies during the PhD program.

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