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The articles published in SRDSJ Journal are in accordance with the approving dates by the anonymous reviewers.

Sustainable Regional Development Scientific Journal, Vol. II, (2), 2025
Editorial Note

In the second semester of 2025, the Sustainable Regional Development Scientific Journal (SRDSJ), published under the aegis of the Albanian Association of Regional Scientists (A.A.R.S), launched the second issue (2) of its second volume (Vol. II) since its first day of publication. The SRDSJ is an international, open-access, and peer-reviewed journal that publishes research on various topics related to Regional Science and Sustainability. The journal it acts as a platform for scholars, researchers, policymakers, and practitioners to exchange insights on sustainable regional development and its various aspects.

Since July 2024, the SRDSJ has published more than 20 articles, on a wide range of topics (such as Regional Economics and Development; Spatial Analysis and Econometrics; Economic Geography and Transportation Economics; Urban Planning and Development; Tourism Economics and Development; Urban and Regional Sustainability; Regional Analysis and Policy; etc.). Serving its broad multidisciplinary scope, SRDSJ provides publication opportunities to researchers from various disciplines and an open-access platform for communicating regional science research and making it accessible to a wider audience. Also, SRDSJ supports a reasonably timely review process, promoting the academic dialogue by making scientific research accessible to the researchers' community in time.

The journal is indexed in various scientific databases (RePEc, EconPapers, IDEAS, RSAI) and its contribution to scientific research is accredited by scientific associations (such as Regional Science Association International, Albanian Association of Regional Scientists). Further, the SRDSJ has the merit to include in its editorial board reputable academics from worldwide, who ensure that the published papers meet rigorous academic standards. The SRDSJ community thanks the Editor-in-Chief, the Editorial Board, its Reviewers, Authors, and Readership for this achievement. Dedicated to its high standards and values, SRDSJ will pursue improvement. Moreover, the SRDSJ systemically provides a forum for ideas exchange, news, and information, by covering topics of broader academic interest, such as events (conferences, workshops, and seminars), academic profiles (providing insights into the work and accomplishments of leading scholars in the field), and book reviews (offering a valuable service by summarizing and evaluating important publications). This broad academic framework enhances the value of SRDSJ as a resource for scholars and practitioners for readers interested in keeping up with the latest developments in Regional Science.

All these attributes and merits of SRDSJ have been so far fertile and promising for the journal's future path. Following this reputed heritage, the SRDSJ continues working hard toward providing a reputable and respected publication, along with a valuable platform for high-quality research for anyone interested in regional science, regional development, and related fields. This current issue (SRDSI, Vol. II, (2), 2025) presents 6 papers that were carefully selected to meet the journal's high standards. These papers cover traditional and contemporary topics in Regional Science, such as spatial disparities, regional demographics, inequalities, education, healthcare, marginalized areas, and comparative advantages in production, input-output models, direct investments and economic growth, financial economics, sustainability, climate change awareness and tourism, gas emissions, and waste management, and are described in brief as follows:

In brief, the first paper, titled "FOREIGN DIRECT INVESTMENT IN REAL ESTATE AND ITS IMPACT ON TOURISM DEVELOPMENT IN ALBANIA", authored by Antoneta POLO, Fejzulla BEHA, Enkela CACA and Ilirjana ZYBERI, explores the impact of foreign direct investment (FDI) in the real estate sector on the development of tourism in Albania over the past decade. The analysis draws on data reflecting investment trends and key tourism dynamics, revealing a clear relationship between the expansion of FDI and the growth of both tourism revenues and international arrivals. The findings demonstrate that foreign capital has played a pivotal role in enhancing tourism infrastructure, expanding accommodation capacity, and modernizing services, thereby positioning Albania as an increasingly attractive destination in regional and international markets.

Beyond its direct economic impact, FDI has generated important secondary effects for the tourism sector, including improvements in service quality, diversification of tourism products, and strengthened competitiveness in comparison with neighboring destinations. These investments have also delivered broader socio-economic benefits, such as job creation, stimulation of local businesses, and increased fiscal revenues, further reinforcing the role of tourism as a key driver of sustainable national development.

The study argues that sustaining these positive outcomes requires consistent public policies, supportive regulatory reforms, and favorable market conditions. Only through an inclusive and regionally balanced approach can foreign investment in real estate continue to support long-term, sustainable tourism growth in Albania. In this regard, FDI is not merely a financial flow but a strategic tool for transforming the tourism sector, ensuring that development is aligned with the country's broader economic and social objectives.

The second paper, titled "STRUCTURAL CHARACTERISTICS OF THE OECD INTERNATIONAL TRADE NETWORK AND THEIR ASSOCIATION WITH ECONOMIC DEVELOPMENT", authored by Stamatia ALMALIOTI and Dimitrios TSIOTAS, examines the economic interdependence created by international trade in the modern global economy, exploring the emerging economic and spatial structures of global trade flows using complex network analysis. This paper focuses on trade interactions and spatial connections among 42 OECD countries, analyzing the structural mechanisms through which each country participates in international trade across different levels of transaction intensity, each representing different scales of economies. Assuming a positive correlation between the intensity of trade exchanges and national economic development, and that the degree of integration into global trade networks contributes to the strengthening of economies of scale, this study calculates network topology and centrality measures, conducting analysis at three levels of network structure: microscopic (local, node-level), mesoscopic (community-level), and macroscopic (global, network-wide). Each level provides distinct perspectives and insights into how interactions among countries shape the global economic landscape. The findings highlight important aspects of strategic cooperation and potential risks in international trade, emphasizing that international trade and economic interdependence, while supporting global development and prosperity, can also act as a source of economic vulnerability during global financial crises.

The third paper, titled "SAFETY CULTURE AND CONTINUING CARE" authored by Susana PESCADA, Marta SERRARIO, Bernardete SEQUEIRA, Fernando TEIXEIRA, Christos Ap. LADIAS, Filipos RUXHO, analyse the importance of safety culture management within an Integrated Continuing Care Unit, identifying good practices, factors associated with organisational learning, and the occurrence of adverse events. It is a single case study of an exploratory and descriptive nature, based on document analysis of institutional standards and reports, interviews conducted at various management levels, and questionnaires administered to unit professionals. The results revealed consistency between the analysed documentation, the professionals' perceptions, and the statements of those responsible for management. Overall, the institution demonstrates a proactive/sustainable level of maturity regarding safety culture. However, priority areas for improvement emerged, particularly in communication and training in occupational health and safety areas significantly affected by the pandemic and its impact on organisational structure and institutional priorities.

The fourth paper, titled "INTEGRATING FINANCIAL AND ORGANIZATIONAL DRIVERS IN SME DEBT DYNAMICS: INSIGHTS FROM RADIAL BASIS FUNCTION ANALYSIS", authored by Ardita TODRI and Petraq PAPAJORGJI, applies Radial Basis Function (RBF) models to analyze the determinants of SME debt structures among 132 firms, integrating quantitative and qualitative variables. The RBF approach reveals that both financial performance and organizational behavior significantly influence leverage and debt accessibility. Non-performing borrowers exhibit higher leverage and lower operational efficiency, while performing firms demonstrate stronger liquidity and asset utilization. Equity origin and gender-based management differences shape debt behavior, with national firms favoring long-term domestic debt and female or mixed ownership maintaining higher security margins. RBF models identify key predictors of short-term debt—such as ROA, ROE, and asset turnover—and long-term debt, including profitability ratios, tangibility, equity structure, and firm size. Layer-specific correlations highlight the multidimensional interaction between firm characteristics and financing patterns. Overall, RBF analysis enhances understanding of SME debt dynamics, providing actionable insights for financial governance, risk management, and policy formulation.

The fifth paper, titled "BUDGET DEFICIT - ITS IMPACT ON THE ALBANIAN REGIONAL ECONOMY AND SOME FACTORS THAT HAS INFLUENCE", authored by Ismet VOKA, Rezart DIBRA, concludes that the budget deficit is essential to understand the fiscal health of an economy and to assess its effects on various macroeconomic variables, such as economic growth, inflation, and unemployment. In particular, persistent deficits can lead to a sustainable public debt that can limit a country's ability to finance public services and invest in long-term development. The purpose of this topic is to analyze in depth the budget deficit, the causes that lead to its creation, and the impact it has on a country's economy. This includes an examination of the factors that influence the budget deficit and the strategies that can be used to manage and reduce it. Through case studies, concrete examples from different countries will be examined to illustrate the impacts and possible solutions. In conclusion, this paper aims to provide practical recommendations for policy makers and researchers to improve fiscal management and reduce the negative impacts of the budget deficit. in economics.

Last but not least, the sixth paper, titled "SOCIAL AND TERRITORIAL IMPACTS OF THE INTEGRATED PARTICIPATION PROGRAMME IN BELA VISTA", authored by Susana PESCADA, Liliana CORREIA, Fernando TEIXEIRA and Filipos RUXHO, examines the impact and effectiveness of the Integrated Participation and Development Programme "Our Neighbourhood, Our City", implemented by the Municipality of Setúbal in the city's public housing neighbourhoods. The research specifically focuses on residents' perceptions of the programme's outcomes, emphasising improvements in the neighbourhoods' public image, quality of life, and social cohesion. A mixed-methods approach was adopted to ensure a comprehensive understanding of the programme's effects. The methodology combined strategic tools such as SWOT analysis and problem tree construction with empirical instruments, including a questionnaire administered to 129 residents and a focus group involving representatives from the different neighbourhoods. This triangulation allowed both quantitative and qualitative insights into the social, symbolic, and relational transformations generated by the programme. The findings indicate that 93% of respondents recognised the programme's contribution to enhancing the neighbourhoods' image, with significant improvements noted in neighbourly relations, communication between residents, perceived safety, and the maintenance of shared spaces. Cultural, educational, and health-related initiatives were also perceived as positively impacting community life. The programme demonstrates a capacity to strengthen social cohesion, foster community engagement, and promote a sense of collective responsibility among residents. Overall, the research concludes that the programme represents a best practice in social intervention, highlighting the decisive role of community participation in transforming territories historically marked by stigmatisation and social exclusion.

All these interesting works are available on the next pages of the SRDSJ intending to promote the academic dialogue in Regional Science. Overall, the Editor in Chief, Professor Assistant Filipos A. Ruxho, the Editorial Board, and the signatory of this Editorial Note welcome the reader to the multidisciplinary journey of Sustainable Regional Development Scientific Journal that the current issue promises on its following pages.

On behalf of the Editorial Board
Professor **Kreshnik Bello**
Sustainable Regional Development Scientific Journal

References:

Polo A., Beha F., Caca E., Zyberi I., 2025. "Foreign direct investment in real estate and its impact on tourism development in Albania", Sustainable Regional Development Scientific Journal, Vol II. (2), pp.12-20

Almalioti S., Tsiotas D., 2025. "Structural characteristics of the OECD international trade network and their association with economic development", Sustainable Regional Development Scientific Journal, Vol II. (2), pp.21-32

Pescada S., Serrario M., Sequeira B., Teixeira F., Ladias Ap. C. Ruxho F., 2025. "Safety culture and continuing care", Sustainable Regional Development Scientific Journal, Vol II. (2), pp.33-44

Todri A. Papagiorgji P. 2025. "Integrating financial and organizational drivers in SME's debt dynamics: insights from radial basis function analysis", Sustainable Regional Development Scientific Journal, Vol II. (2), pp. 45-58

Voka I., Dibra R., 2025. "Budget deficit - its impact on the Albanian regional economy and some factors that has influence", Sustainable Regional Development Scientific Journal, Vol II. (2), pp.59-66

Pescada S., Correia I., Teixeira F., Ruxho F., 2025. "Social and territorial impacts of the integrated participation programme in Bela Vista", Sustainable Regional Development Scientific Journal, Vol II. (2), pp.67-74

Articles

FOREIGN DIRECT INVESTMENT IN REAL ESTATE AND ITS IMPACT ON TOURISM DEVELOPMENT IN ALBANIA

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Abstract
This study explores the impact of foreign direct investment (FDI) in the real estate sector on the development of tourism in Albania over the past decade. The analysis draws on data reflecting investment trends and key tourism dynamics, revealing a clear relationship between the expansion of FDI and the growth of both tourism revenues and international arrivals. The findings demonstrate that foreign capital has played a pivotal role in enhancing tourism infrastructure, expanding accommodation capacity, and modernizing services, thereby positioning Albania as an increasingly attractive destination in regional and international markets.

Beyond its direct economic impact, FDI has generated important secondary effects for the tourism sector, including improvements in service quality, diversification of tourism products, and strengthened competitiveness in comparison with neighboring destinations. These investments have also delivered broader socio-economic benefits, such as job creation, stimulation of local businesses, and increased fiscal revenues, further reinforcing the role of tourism as a key driver of sustainable national development.

The study argues that sustaining these positive outcomes requires consistent public policies, supportive regulatory reforms, and favorable market conditions. Only through an inclusive and regionally balanced approach can foreign investment in real estate continue to support long-term, sustainable tourism growth in Albania. In this regard, FDI is not merely a financial flow but a strategic tool for transforming the tourism sector, ensuring that development is aligned with the country’s broader economic and social objectives.

Keywords: Foreign Direct Investment (FDI), Real Estate, Tourism, Tourism Revenues, Albania.

JEL classification: F21, R 33, L83

Citation: Polo A., Beha F., Caca E., Zyberi I., 2025. “Foreign direct investment in real estate and its impact on tourism development in Albania”, Sustainable Regional Development Scientific Journal, Vol II. (2), pp.12-20

1. Introduction

Over the last decade, Albania has emerged as a promising destination for both investors and tourists, benefiting from its strategic location in the Mediterranean, unspoiled coastline, and competitive cost advantages. Tourism has become a cornerstone of the national economy, contributing substantially to GDP and employment. Alongside this trend, foreign direct investment in real estate has played a pivotal role in shaping the tourism landscape. Luxury resorts, boutique hotels, and vacation properties financed by foreign capital have transformed coastal towns and stimulated related industries.

However, while FDI inflows have visibly altered the physical and economic landscape, there is limited empirical research on their long-term effects on tourism sustainability and socio-economic development. This paper aims to bridge this gap by analyzing a decade's worth of real estate FDI data and discussing its implications for Albania's tourism development, examining both the positive contributions and the potential challenges associated with this phenomenon.

2. Literature Review

2.1 Theoretical Frameworks

Foreign direct investment (FDI) in real estate has long been considered both a driver and a consequence of tourism development. According to Dunning's (1980) *eclectic paradigm*, FDI flows are shaped by ownership, location, and internalization (OLI) advantages. In tourism-driven economies, the "location" component is particularly decisive, as natural beauty, cultural heritage, accessibility, and institutional stability create a favorable environment for investment. Scholars note that in destinations where tourism demand is strong, FDI in real estate tends to follow a cyclical pattern: international investors respond to growing tourist arrivals by acquiring or developing properties, while expanded accommodation capacity further stimulates demand (Enderwick, 2011).
Theories of tourism development also emphasize the "multiplier effect," whereby real estate investments generate spillovers across construction, transport, retail, and local services (Hall, 2011). At the same time, critical perspectives highlight the risk of *enclave tourism*, in which foreign-owned properties capture most revenues without integrating into the local economy (Mowforth & Munt, 2016). Thus, the academic debate balances between FDI's potential as a growth catalyst and its possible negative externalities.

2.2 International Evidence

Empirical research from mature tourism economies provides insights into how FDI in real estate interacts with tourism growth. In Spain, large-scale resort developments financed by foreign investors contributed to the internationalization of its Mediterranean coast, enhancing marketing visibility and tourist flows (Claveria & Datzira, 2010). Similar patterns have been observed in Croatia and Montenegro, where foreign real estate acquisitions not only increased accommodation supply but also boosted infrastructure investment and international branding (Pulido-Fernández, Cárdenas-García, & Sánchez-Rivero, 2015).
At the global level, UNCTAD (2024) reports that FDI in real estate and construction is increasingly concentrated in tourism-intensive regions, including Southern Europe, Southeast Asia, and the Caribbean. The OECD (2023) emphasizes that while such investments often stabilize local economies, they may also expose destinations to cyclical risks associated with global financial volatility and property market fluctuations. Research from small island economies further illustrates that FDI inflows can enhance competitiveness but may also lead to dependency on foreign capital, reducing policy autonomy (Milne & Ateljevic, 2001).

2.3 Challenges and Critiques

While the benefits of FDI in real estate are widely acknowledged, scholars consistently underline accompanying challenges. First, real estate price inflation often emerges when international demand outpaces local purchasing power, creating affordability pressures for residents (Hall, 2011). Second, intensive coastal development has been associated with environmental degradation, particularly in ecologically fragile zones such as wetlands, dunes, and marine ecosystems (Gursoy, Chi, & Dyer, 2010).

Third, cultural commodification is a recurring theme in critical tourism studies, where heritage and local traditions risk being repackaged to satisfy external investors and visitors rather than serving community interests (Milne & Ateljevic, 2001).

Another concern is the uneven distribution of benefits. FDI tends to cluster in attractive coastal and urban areas, exacerbating regional disparities. Furthermore, projects financed by international investors may rely on imported materials and expertise, reducing local value-added (Mowforth & Munt, 2016). These critiques highlight the importance of regulatory frameworks and sustainable planning to balance investment inflows with long-term socio-economic and environmental objectives.

2.4 The Mediterranean Experience

The Mediterranean region offers a particularly relevant comparative lens for Albania. Croatia and Montenegro, both tourism-dependent economies, have experienced significant inflows of foreign capital into coastal real estate. Hall (2011) documents how these investments stimulated infrastructure upgrading but also caused sharp increases in land and housing prices. Pulido-Fernández et al. (2015) show that in Greece, foreign real estate purchases contributed to tourism growth but faced criticism for environmental strain and limited local linkages.

The “second-home tourism” phenomenon is especially pronounced in Southern Europe, where foreign investors acquire properties for seasonal use. While this expands the tourism base, it can distort local housing markets and contribute to seasonal economic cycles (Papageorgiou, 2016). Mediterranean case studies thus provide valuable lessons on both the potential and the pitfalls of real estate–driven tourism development.

2.5 The Albanian Case

Albania represents a latecomer to international tourism markets, with significant growth only in the past two decades. Since the 2010s, FDI inflows into real estate have accelerated, coinciding with a sharp increase in tourist arrivals. Foreign direct investment experienced a significant increase in Albania following the Covid-19 pandemic, which had adversely affected the development of the country’s tourism sector. According to Polo, A. (2020), the effects of the crisis in Albania have to be assessed in a very careful way, because Albania depends significantly on tourism, which is one of the sectors that are mostly affected by this crisis. According to Polo, Caca, Zyberi, Ladias, and Ruxho (2025), foreign real estate investments have contributed measurably to GDP growth, with transactions by foreign buyers reaching €380 million in 2024 (Monitor.al, 2025). Reports also indicate that total FDI inflows to Albania hit a record €1.58 billion in 2024, with real estate and tourism among the leading sectors (Albanian Times, 2025).

High-profile projects illustrate this trend. Reuters (2024, 2025) reports on luxury resort developments along the Ionian coast linked to international investors, which are expected to enhance Albania’s visibility as a Mediterranean destination. At the same time, Scan TV (2025) highlights how rising tourism flows are driving foreign property purchases, raising concerns about affordability and land speculation.

These developments place Albania at a crossroads. On the one hand, FDI in real estate provides much-needed capital, infrastructure, and international marketing, aligning with the country’s EU integration agenda (Cakerri, Muharremi, & Madani, 2020). On the other hand, risks of uneven development, environmental strain, and limited local linkages mirror challenges seen in neighboring countries. Sustainable planning, transparent governance, and community participation will therefore be decisive in ensuring that Albania leverages FDI in real estate as a tool for long-term tourism development rather than short-term speculative gains.

3. Methodology

This paper applies a mixed-method approach combining descriptive statistical analysis and a comparative framework.

- Data sources: INSTAT (tourism arrivals), Bank of Albania (FDI by sector), UNCTAD (investment trends), and World Bank reports.

- Variables of interest: foreign direct investment in real estate (independent variable) and tourism performance indicators such as international arrivals and revenues from tourism (dependent variables).

- Timeframe: 2014–2024, to capture the post-global financial crisis recovery, EU integration processes, and post-COVID-19 developments.

4. Data Analysis

This section presents the descriptive findings on the relationship between foreign direct investment (FDI) in real estate and tourism development in Albania, measured through two key indicators: the number of international tourists and tourism revenues. The analysis covers the period 2014–2024.

4.1 FDI and International Tourist Arrivals

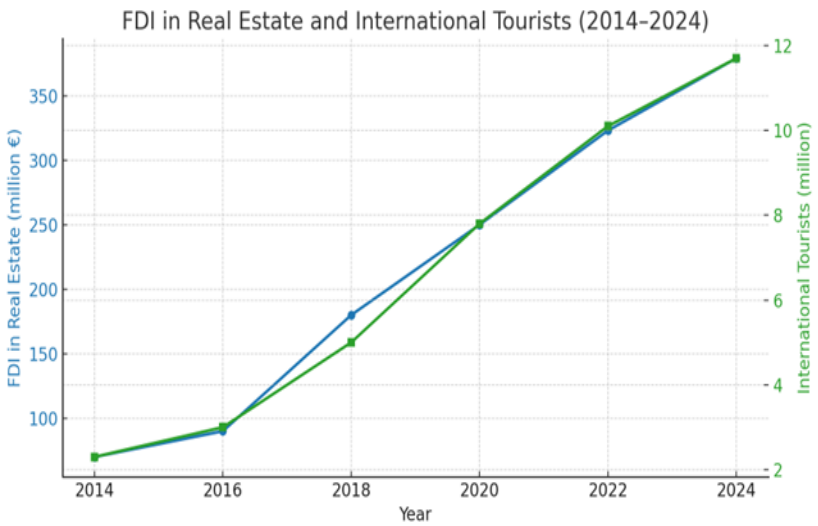
The data reveal a substantial increase in both variables. FDI in real estate rose from €70 million in 2014 to €379 million in 2024. The average annual investment during this period was approximately €215 million**,** with a standard deviation indicating a significant year-to-year increase. While international tourist arrivals increased from 2.3 million to 11.7 million over the same period, marking an extraordinary growth of over 400%. The average number of tourists over the period was 6.65 million, again with considerable dispersion due to the strong expansion in the latter years.

Tab. 4.1. Trends in FDI and international tourist arrivals (2014–2024)

Year	**FDI in Real Estate (million €)**	**International Tourists (million)**
2014	70	2.3
2016	90	3.0
2018	180	5.0
2020	250	7.8
2022	323	10.1
2024	379	11.7

Source: INSTAT, Bank of Albania

Graph. 4.1 FDI in Real Estate and International Tourists



Source: INSTAT, Bank of Albania (processed by author)

The graphical analysis clearly shows a common upward trajectory.

4.1.1 Results of Correlation and Regression Analysis

1. Correlation coefficient (r = 0.997):

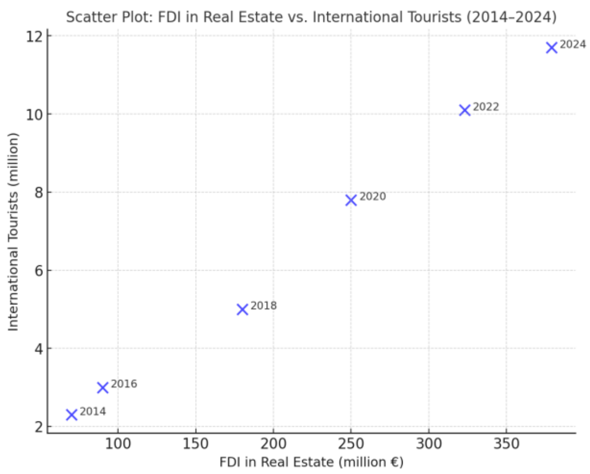
The Pearson correlation coefficient of 0.997 indicates an almost perfect positive relationship between the two variables. This suggests that the growth in real estate investment has coincided with the rise in international tourist arrivals.

2. Linear regression result:

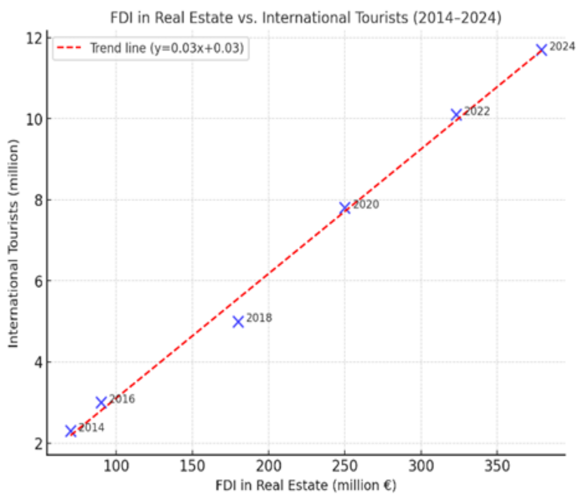
International Tourists (million) = 0.04 + 0.0307 x FDI in Real Estate (million €)

- Intercept: 0.04 → If FDI = 0, predicted tourists ≈ 0.04 million.
- Slope: 0.0307 → For every 1 million € increase in FDI, the number of international tourists increases by 0.0307 million (≈30,700 tourists)

Graph.4.1.1 Scatter Plot FDI in RE vs IT



Graph.4.1.2 Regression Line FDI in RE vs IT



Source: Processed by author

4.2 FDI and Tourism Revenues

Another important dimension of tourism development is the financial revenue generated by the sector. Tourism revenues increased from €320 million in 2014 to €950 million in 2024, while FDI in real estate rose from €70 million to €379 million during the same period. The average annual tourism revenue during the decade was approximately €607 million, compared to an average annual FDI inflow of €215 million.

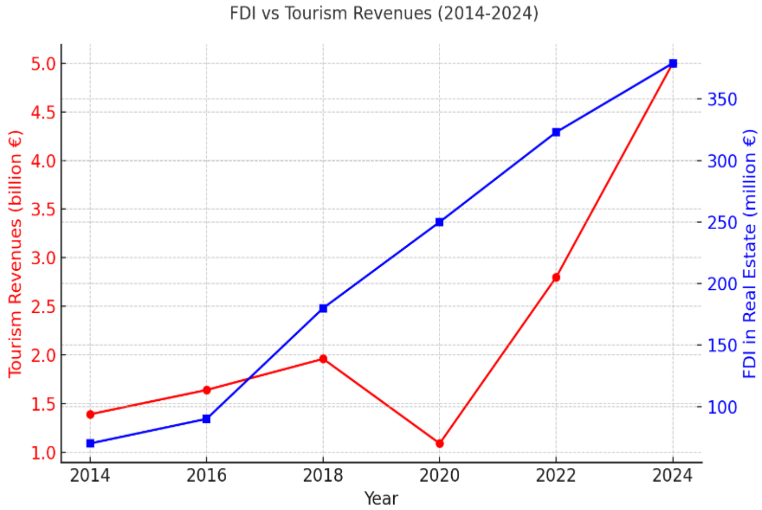
Table 4.2. FDI and tourism revenues in Albania (2014–2024)

Viti	FDI në real estate (mln €)	Tourism Revenue (mld €)
2014	70	1.39
2016	90	1.64
2018	180	1.96
2020	250	1.09

Viti	FDI në real estate (mln €)	Tourism Revenue (mld €)
2022	323	2.80
2024	379	5.00

Source:INSTAT, Bank of Albania

Graph. 4.2. Trends in FDI and tourism revenues (2014–2024)



Source: INSTAT, Bank of Albania (processed by author)

The graphical analysis again reveals parallel growth trends and shows that both variables follow a parallel upward trend.

4.2.1 Results of Correlation and Regression Analysis

1. Correlation coefficient (r = 0.76):

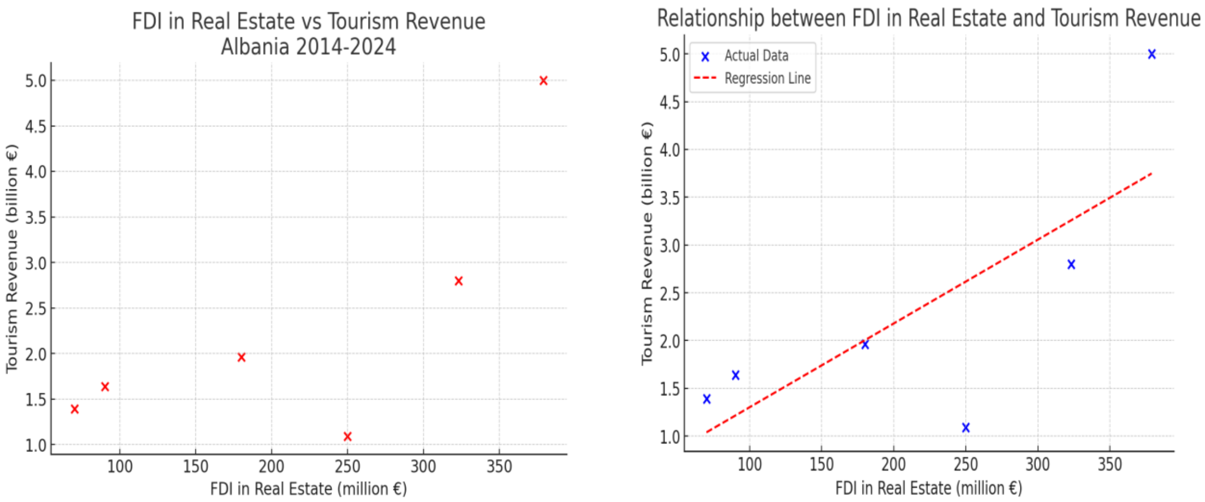
The Pearson correlation coefficient of 0,76 indicates a strong positive relationship between FDI in real estate and tourism revenues. When FDI in real estate increases, tourism revenues generally increase as well. Some exceptions can be observed, for example in 2020, when revenues fell due to the pandemic.

2. Linear regression result:

Tourism Revenues (billion €) = 0.426 + 0.0088 × FDI in Real Estate (million €)

- Intercept (0.426): If FDI in real estate were zero, tourism revenues are expected to be around 0.426 billion €.
- Slope coefficient (0.0088): For every increase of 100 million € in FDI in real estate, tourism revenues are expected to increase by approximately 0.88 billion €.

Graph.4.2.1 Scatter Plot FDI in RE vs TR **Graph.4.2.2 Regression Line FDI in RE vs TR**



Source: Processed by author

The descriptive results consistently show that higher levels of foreign investment in real estate coincide with the growth of international tourist arrivals as well as the increase in tourism revenues.

Although descriptive statistics cannot establish causality, the evidence strongly suggests that FDI in real estate and tourism development in Albania have grown hand-in-hand over the past decade.

4.3 Limitations

Data Availability and Reliability
Accurate and comprehensive data on FDI at the sub-sector level (specific real estate categories) and precise regional tourist arrivals may be limited. This could affect the granularity and robustness of the analysis.

Causality vs. Correlation
While a correlation between FDI in real estate and tourism development is expected, establishing causality is challenging. Other factors, such as government policies, marketing campaigns, or global economic trends, may also influence tourism growth.

Short-term vs. Long-term Effects
Some benefits of FDI, particularly those related to infrastructure improvements and destination branding, may take several years to materialize. A study covering a limited period might underestimate these long-term impacts.

External Factors and Economic Shocks
Global economic crises, pandemics (e.g., COVID-19), and geopolitical events could distort the relationship between FDI and tourism, introducing variability not attributable to investment alone.

Uneven Development and Social Impacts
Concentration of FDI in high-end real estate and popular areas may exacerbate regional inequalities. Social impacts, such as rising property prices and potential displacement of local residents, may also limit the broader positive effects of investment.

5. Conclusions and Recommendations

Foreign direct investment in Albanian real estate has accelerated dramatically, particularly since 2022, serving as a significant driver of tourism development. The scale and pace of this growth offer both opportunities and challenges. Foreign direct investment in real estate plays a crucial role in the growth of the tourism sector in Albania. Investments in hotels, resorts, and vacation properties expand accommodation capacity, improve infrastructure quality, and enhance service standards, which collectively attract more international tourists.
FDI tends to be concentrated in high-demand tourist areas such as the Albanian Riviera, Tirana, Gjirokastra, and Berat. While this generates substantial economic benefits for these regions, it may also lead to uneven

tourism development and increased pressure on local infrastructure in overinvested areas. Beyond direct impacts on tourism, FDI stimulates local economies by creating jobs, supporting small and medium-sized enterprises, and increasing tax revenues. Investments also introduce international management and construction standards, raising the overall competitiveness of Albania as a tourist destination. Although, FDI provides immediate boosts to tourism infrastructure and services, careful planning is required to ensure long-term sustainability. Overdevelopment in certain areas could exacerbate social and environmental challenges, including rising property prices, displacement of local residents, and environmental degradation.
Policymakers should encourage balanced and strategic FDI that supports regional tourism diversification and sustainable development. Incentives could target underdeveloped areas, promoting equitable growth and reducing the negative effects of concentration in popular destinations. The evidence suggests that FDI in real estate is both a consequence and a driver of tourism development in Albania. By fostering quality infrastructure, enhancing services, and stimulating the local economy, it significantly contributes to the sector's growth. However, sustainable planning and monitoring are essential to maximize benefits while mitigating potential social and environmental risks.

5.1 Recommendations

- Develop a comprehensive national strategy for sustainable coastal tourism development.
- Strengthen urban planning policies to prevent overconstruction and environmental degradation.
- Encourage foreign investors to partner with local businesses, ensuring greater spillover effects in the domestic economy.
- Promote quality over quantity in tourism, focusing on cultural, eco-friendly, and year-round tourism rather than mass seasonal tourism.

By adopting these measures, Albania can maximize the benefits of foreign real estate investments while ensuring that tourism growth remains sustainable and inclusive.

References

Claveria, O., & Datzira, J. (2010). Tourism demand and real estate development in coastal regions. *Tourism* complexity. *Tourism Geographies, 3*(4), 369–393. Conference proceeding, ISBN 978-2- 5494-0322-3, pp. 55-60.

Dionisio A., Rolim C., Rego C., 2025. "Determinants of demand for cities with higher education institutions: An approach based on fractional regression", Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 81-93

Dwyer, L., & Forsyth, P. (2011). *International tourism and economic development: A theoretical perspective*. economic growth relationship. *International Journal of Economics and Financial Issues, 10*(2), 193– *Economics, 16*(4), 879–895.

Enderwick, P. (2011). The role of foreign direct investment in tourism development: Evidence from Asia and the European Union Countries", "Sustainable Regional Development Scientific Journal", Vol.1, Nr.1, fq. 93-104

FJ Teixeira, SSPV Pescada, F Ruxho, C Palma, F Beha, 2024. "GLAMPING IN LOW-DENSITY TERRITORIES: THE CASE OF SANTO ALEIXO DA REASTAURA?? O, Regional Science Inquiry 16 (1), 71-80

Hamiti A., 2025. "The relationship between forms of bullying and academic success of high school students in the region of Prishtina, Kosovo", Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 54-66

Kallioras D., Niavis S., 2025. "Regional inequalities: Knowledge frontiers and debates", Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 67-80

Khan A., Tripathi S., Chandiramani J., 2024. "Smart city initiatives and economic growth in india: an empirical analysis", Sustainable Regional Development Scientific Journal, Vol. I, (2): Special Issue, pp. 41-56

Krupavicius, A., Šarkute, L., Krasniqi, A., Ladias, Christos Ap. 2024. "Perceived and desired images of society: how (un)equal is society?" Regional Science Inquiry, 16(1), pp. 55-70

Ladias C.A., Ruxho F., Teixeira F., Pescada S., 2023, "The regional economic indicators and economic development of Kosovo", Regional Science Inquiry, Vol. XV, (1), pp. 73-83

Ladias, Ch. Ap., and Ruxho. F., 2024. "Utilizing Regional Economic Indicators to Identify and Mitigate Economic Disparities in Kosovo." Regional Science Inquiry 13 (1): 45–57

Lampreia M., Teixeira F., Pescada S. P. V., 2024. "The predictive power of technical analysis: evidence from the gbp/usd exchange rate", Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 67-75

Lincaru C., Tudose G., Cosnita D., Pirciog S., Grigorescu A., Ciuca V., 2024. "Clusters as engines of sustainable employment growth in Romania1", Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 10-27

Milne, S., & Ateljevic, I. (2001). Tourism, economic development and the global–local nexus: Theory embracing order to third-order change? *Journal of Sustainable Tourism, 19*(4–5), 649–671.

Papajorgji P., Tordi A., 2024. "Using quantitative tools to understand political issues", Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 28-35

Pescada S., Teixeira F., Pereira W., 2025. "Organisational culture at public hospital of Algarve: Internal medicine staff perception", Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 11-21

Polo A., Caca E., Zyberi I., Ladias C.A, Ruxho F., 2025. "Foreign direct investment in real estate in Albania and its impact on GDP", Regional Science Inquiry, Vol. XVII, (1), 2025, pp. 135-142

Polo, A. (2020)," *Economic crisis and tourism crisis in the conditions of COVID-19. The case of Albania",*

Polyzos S., Tsiotas D., 2025. "The viable business practice of optimizing the occupational accidents cost: A microeconomic approach", Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 32-43

Pulido-Fernández, J. I., Cárdenas-García, P. J., & Sánchez-Rivero, M. (2015). Tourism development and economic growth: International evidence and lessons for Mediterranean countries. *Tourism Economics, 21*(1),61–83.

Ruxho F., 2024. "Kosovo employee's perception of economic growth and decent work according to sustainability", Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 53-66

Ruxho F., Ladias C.A, 2022 "Increasing funding for the regional industry of Kosovo and impact on economic growth" Regional Science Inquiry Journal, Vol. XIV. (1), pp. 117-126

Ruxho F., Ladias C.A, Tafarshiku A., Abazi E., 2023. "Regional employee's perceptions on decent work and economic growth: labour market of Albania and Kosovo", Regional Science Inquiry, Vol. XV, (2), pp.13-23.

Ruxho F., Ladias C.A., 2022. "The logistic drivers as a powerful performance indicator in the development of regional companies of Kosovo" Regional Science Inquiry Journal,Vol. XIV. (2), pp. 95-106

Ruxho F., Petropoulos D., Negoro D.A. 2024. "Public debt as a determinant of the economic growth in Kosovo", Sustainable Regional Development Scientific Journal, Vol. I, (1), pp. 55-67

Sarkute L., Sina D., Bello, K., Vercuni A., 2024. "Strategic management decisions in the context of foreign direct investment. The role of institutions and economic determinants", Sustainable Regional Development Scientific Journal, Vol. I, (1), pp. 40-54

Sepetis A., Krupavičius A., Ladias Ap. C. 2024 "Social protection in Greece and sustainable development leaving no one behind", Sustainable Regional Development Scientific Journal, Vol. I, (1), pp. 83-92

Sequeira T., Rego C., Dionisio A., 2024. "Investment and productivity in the agro-industrial sector: a case study", Sustainable Regional Development Scientific Journal, Vol. I, (2): Special Issue, pp. 13-26

Stavara M., Tsiotas D., 2024. "A combined graph theoretic and transport planning framework for the economic 10 Sustainable Regional Development Scientific Journal, Vol. I, (2): Special Issue, Oct. 2024 and functional analysis of large-scale road networks", Sustainable Regional Development Scientific Journal, Vol. I, (2): Special Issue, pp. 27-40

Teixeira F., Pescada, S.S.P.V., Ladias C.A., Hulaj M., Ruxho F., Machado V., 2025. "Stablecoin dp2p: innovation and sustainability in fiat currencies", Regional Science Inquiry, Vol. XVII, (1), pp. 95-106

Todri A., Sejdini I., Sejdini I. Balukja I., 2025. Stakeholders` perceptions on corporate engagement in social responsibility and sustainable development: Insights from domestic and foreign-owned corporations in Albania", Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 22-31

Tsiotas D., Giannakis E., Papadas C., 2025. "A modularity decomposition model of evolving input-output sectorial structure, Regional Science Inquiry, Vol. XVII, (1), pp. 107-133

Tsiotas D., Polyzos S., 2024. "Analyzing the spatial interactions in the nationwide regional capitals network of Greece", Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 36-52

Tsiotas, D., Krabokoukis, T., & Polyzos, S. 2020. "Detecting interregional patterns in tourism seasonality of Greece: A principal components analysis approach", Regional Science Inquiry, 12(2), 91-112.

Tsiotas, D., Polyzos, S., 2024. "Transportation networks and regional development: the conceptual and empirical framework in Greece", Sustainable Regional Development Scientific Journal, Vol. I, (1), pp. 15-39

Tsiotas, D., Tselios,V. ,(2023) "Understanding peripherality in a multidimensional socioeconomic, accessibility, and institutional context: evidence from Greece", Regional Science Policy and Practice,15(2),pp.1-34

STRUCTURAL CHARACTERISTICS OF THE OECD INTERNATIONAL TRADE NETWORK AND THEIR ASSOCIATION WITH ECONOMIC DEVELOPMENT

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Abstract
Trade interactions between states, through the exchange of resources and goods and their concomitant social interactions, contribute to enhancing the productive process, spreading technology, and promoting social, institutional, and diplomatic engagements, serving as a long-standing pillar of economic, regional, and cultural development. In this context, this paper examines the economic interdependence created by international trade in the modern global economy, exploring the emerging economic and spatial structures of global trade flows using complex network analysis. This paper focuses on trade interactions and spatial connections among 42 OECD countries, analyzing the structural mechanisms through which each country participates in international trade across different levels of transaction intensity, each representing different scales of economies. Assuming a positive correlation between the intensity of trade exchanges and national economic development, and that the degree of integration into global trade networks contributes to the strengthening of economies of scale, this study calculates network topology and centrality measures, conducting analysis at three levels of network structure: microscopic (local, node-level), mesoscopic (community-level), and macroscopic (global, network-wide). Each level provides distinct perspectives and insights into how interactions among countries shape the global economic landscape. The findings highlight important aspects of strategic cooperation and potential risks in international trade, emphasizing that international trade and economic interdependence, while supporting global development and prosperity, can also act as a source of economic vulnerability during global financial crises.

Keywords: Economic Interdependence; International Trade; Economies of Scale; Interaction Networks; Global Economy; Complex Network Analysis.
JEL Classification: F14, O19, R12, R15

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1. Introduction

International trade has long been one of the key mechanisms shaping the global economic and geopolitical landscape (Tiebout, 1956, Krugman, 1994, Capello, 2015; Polyzos, 2019), as the modern globalized economy (Tsiotas and Ducruet, 2021; Tsiotas and Tselios, 2022) is characterized by increasingly dense connections between states and markets through complex flows (Tsiotas and Polyzos, 2018; Tsiotas, 2022; Tsiotas and Tselios, 2024) of resources, goods, services, and technological knowledge. While these connections enhance productivity and development potential (Polyzos, 2019, 2023), they also make national economies more vulnerable (Tsiotas and Katsaiti, 2025) to external shocks, as developments in one country can directly or indirectly affect the stability of the international economic system (Rodrigue et al., 2013).

Understanding and mapping global trade connections requires appropriate modeling tools (Tsiotas and Tselios, 2024) capable of capturing the structural characteristics and functional dynamics of modern markets. Complex network analysis (Barthelemy, 2011; Tsiotas and Polyzos, 2018; Tsiotas, 2019) provides a robust theoretical and analytical framework for studying international trade relations, allowing transactions to be represented as a network of nodes (countries) and edges (bilateral flows), incorporating concepts such as centrality, connectivity, and the distribution of economic strength (Newman, 2010). This approach is grounded in the fundamental economic principle that international trade is a driver of economic growth (Capello, 2015; Krugman and Wells, 2024), as well as in the theory of comparative advantage formulated by Ricardo (Ruffin, 2002; Polyzos, 2019) and North's export-base theory (1955), both highlighting the importance of outward orientation for exploiting productive capacities and expanding markets. Furthermore, Adam Smith's contributions to understanding specialization (Lee, 2011; Polyzos, 2019; Uzsayilir and Baycan, 2024) and the division of labor remain crucial (McNulty, 1973; Polyzos, 2019; Ruxho et al., 2023, Ruxho, 2024; Tsiotas and Kallioras, 2025), especially in the context of modern technological innovation and the economies of scale arising from participation in the global production system (Polyzos, 2019, 202).

Central to the theoretical foundation of this paper is the concept of economies of scale (Capello, 2015; Polyzos, 2016; Krugman and Wells, 2024), which refers to the advantages that arise in production from managing large volumes of resources and inputs, as increasing output reduces average costs and enhances competitiveness. In terms of international trade (Krugman, 1994), access to larger markets (Davis and Weinstein, 2003; Capello, 2015; Polyzos, 2019, 2023), the use of diversified resources (Wan et al., 2011; Polyzos, 2022), and the integration of technologically advanced processes (Romer, 1990, 1994) strengthen production optimization capabilities (Polyzos, 2019), creating conditions for spatial concentration of production and related economies of scale, in line with New Economic Geography (Krugman, 1991).

Assuming first, that there is a positive relationship between trade intensity and national (Ruxho, 2022; Chen et al., 2022; Ladias et al., 2023) economic development (Kaldor, 1964; Mo, 2010; Polyzos, 2019), second, that strong participation in trade networks (Saslavsky and Shepherd, 2014) contributes to achieving economies of scale, enhancing operational efficiency and national competitiveness (Polyzos, 2023), and third, that a country's centrality in the trade network (Smith and White, 1992; Fagiolo et al., 2010; Tsiotas and Tselios, 2024) provides a strategic advantage in the global allocation of resources (Mahutga, 2006; Polyzos, 2022), this paper empirically investigates trade and spatial connections among 42 OECD member countries, with 2021 as the reference year. The analysis is based on modeling a directed and weighted graph (Tsiotas and Polyzos, 2018), where countries are represented as nodes and trade flows as edges (Tsiotas and Ducruet, 2021; Tsiotas and Tselios, 2024), weighted according to transaction volume.

The global trade network (GTN) is analyzed at three spatial levels: microscopic (node-level), mesoscopic (community-level), and macroscopic (network-wide), to capture the multi-level structure of complex trade interactions. The ultimate goal of this paper is to provide a deeper understanding of the relationship between a country's position in the global trade network and its macroeconomic performance. Using network science tools (Newman, 2010; Barthelemy, 2011), this paper offers a detailed and realistic quantitative representation of globalization, combining the static perspective of macroeconomic equilibrium theories (Krugman and Wells, 2024) with the evolutionary perspective on trade volume variability (Tsiotas and Tselios, 2024) due to spatial and temporal heterogeneity.

This study contributes to the interdisciplinary connection between economic theory and spatial analysis through network science (Barabasi, 2013; Tsiotas and Polyzos, 2018; Tsiotas, 2019), providing empirical insights that can inform the design of more effective and adaptable development policies based on modeling. Examining the structure and functioning of global trade networks highlights critical aspects of economic interdependence, grounded in export-base theories (North, 1955; Tiebout, 1956) and subsequent theoretical developments (Polyzos, 2019, 2023), positioning networks as a valuable tool for understanding transformations in the global economy and for shaping strategies to enhance economic resilience.

2. Methods and Data

The computational approach followed in this paper is based on complex network analysis (Fortunato, 2010; Newman, 2010; Barthelemy, 2011; Tsiotas and Polyzos, 2018). The data used are multilayered and refer to international trade flows among 42 OECD member countries, primarily from the year 2021, except for Russia, for which 2020 data were used due to availability constraints. The full set of available trade flows was modeled as a weighted graph (GTN), geo-referenced for visualization purposes using the geographic coordinates of the capitals of the countries, obtained from Google Maps. In the weighted connectivity matrix of the GTN, with dimensions 42×42, each cell represents a directed trade flow from country i to country j, with the numerical value of the weight corresponding to the value of the trade transaction between the connected nodes.

The analysis of the GTN is carried out at three distinct levels: microscopic (Krugman and Wells, 2024), namely at the node-level; mesoscopic, referring to community-level (Fortunato, 2010); and macroscopic (Ladias and Stamatiou, 2006; Ladias et al., 2011; Krugman and Wells, 2024), corresponding to network-wide scale. At the microscopic level, the focus is on basic topological characteristics of the network using standard measures of network topology (Barthelemy, 2011; Newman, 2010; Tsiotas and Polyzos, 2018), such as node degree, closeness, clustering coefficient, and centrality indicators (Koschutzki et al., 2005) that assess the relative importance of each country within the overall trade network. At the mesoscopic level, the Louvain community detection algorithm (Blondel et al., 2008) is applied to reveal clusters of countries with strong trade cohesion. From an economic perspective (Krugman and Wells, 2024), this method enables the identification of regional trade "hubs" within the GTN that act as intermediaries in global commerce.

At the macroscopic level, topological properties of the entire network are calculated (Fortunato, 2010; Barthelemy, 2011; Newman, 2010; Tsiotas and Polyzos, 2018), including average degree, average path length, network density, mean clustering coefficient, and modularity. Methodologically, to highlight the most significant trade relations within the network, a successive selection procedure (filtering) of edges based on trade volume was followed. In addition to the full network, four subnetworks were constructed, including the top 50%, 25%, 10%, and 5% of trade flows by transaction value. This successive selection approach allows for isolating critical trade corridors and central nodes with key intermediary roles, enabling subsequent analysis of the contribution of different levels of economies of scale within the network.

In the final stage of this paper, the relationship between each country's Gross Domestic Product (GDP) and its position in the trade network, based on topological characteristics, is examined. This relationship is studied quantitatively, through correlation analysis, and qualitatively, by observing patterns or deviations in network structure. This part of the analysis aims to uncover how the level of economic growth (as captured by GDP) relates to the degree of integration of each country within the international trade network.

3. Results and Discussion

3.1. Measures of Network Topology

The results of the analysis of the Global Trade Network (GTN) are presented in Table 1. Initially, it is observed that as the proportion of trade connections is reduced (from 100% to 5%), the network becomes less compact, sparser, and less cohesive. This is reflected in an increase in the average path length (from 1.065 at 100% of connections to 2.160 at 5% of connections) and in the network diameter (from 2 at 100% of connections to 4 at 5% of connections), while both the density and the clustering coefficient decreas.

Table 1: Measures of GTN's network topology across different levels of link filtering

	Price				
Measure	Layer 100%	Layer 50%	Layer 25%	Layer 10%	Layer 5%
Nodes	**42**	**42**	40	34	26
Edges	**1610**	805	402	161	80
Connected Components	1	1	1	1	1
Max Degree	**82**	78	65	42	27

Min Degree	**60**	1	2	1	1
Average Degree	**38.333**	19.167	10.05	4.735	3.077
Average Weighted Degree	**291,014 bil.$**	284,433 bil.$	273,529 bil.$	260,991 bil.$	**272,336 bil.$**
Network Diameter	2	3	3	**4**	**4**
Graph Density	**0.935**	0.467	0.233	0.143	0.123
Modularity	0.273	0.259	0.267	**0.293**	0.254
Clustering Coefficient	0.117	0.131	**0.151**	0.145	0.082
Average Path Length	1.065	1.523	1.786	2.117	**2.160**

(Own elaboration)

From an interpretative perspective, the changes shown in Table 1 suggest the existence of a core of critical, strategically significant trade connections that confer relative resilience to the GTN (even in the 5% connections network), as the major economies maintain stable and strong trade ties among themselves. However, this also makes the network more vulnerable if any of these strategically important connections are disrupted. In terms of modularity, the highest value (0.293) in the GTN occurs at the 10% connections level, indicating that the network exhibits the greatest tendency to divide into distinct communities at this level. Nevertheless, modularity values remain moderate (in absolute terms), reflecting the overall cohesion of global trade connections, which do not easily allow the formation of regional markets. A holistic reading of the results in Table 1, which presents the fundamental topological characteristics of the GTN at different trade scales, leads to the conclusion that, through the successive removal of GTN connections, a highly interdependent core of the strongest economies emerges, representing the regulators of the global economy.

Next, in Figure 1a, the analysis of the weighted degree (the total sum of incoming and outgoing trade flows) highlights the central position of the United States (with total trade value exceeding \$3.8 trillion) and China (closely following) as key nodes in the global trade network, with Germany next as the main European hub, registering trade activity exceeding \$2.7 trillion both within the European Union and with external markets. The geographical distribution of the weighted degree also illustrates the strong interconnection of the EU, both among its member states (indicating a dimension of economic cohesion) and with Asia (Japan, South Korea) and Latin America (Brazil, Argentina), underlining the importance of geographical position as a pillar of trade and economic development.

Regarding the direction of trade flows, Figure 1b presents the results for the weighted in-degree of the GTN, focusing on countries that absorb the largest volumes of goods from other economies. As shown, the United States emerges as the largest global importer, followed by China and Germany, reflecting the participation profile described in the unweighted case of Figure 1a. The geographical distribution in Figure 1b indicates that import activity is concentrated primarily in developed economies, with Europe showing a particularly strong import profile both within and beyond the continent.

Concerning export flows, Figure 1c demonstrates that China records the highest export activity (with exports exceeding \$1.67 trillion), confirming its role as a global production and export hub. The geographical dispersion of China's export connections spans all continents, with notable emphasis on Europe, North America, and Asia. Conversely, the United States also occupies a leading position, as does Germany, which exhibits strong export activity both within Europe and internationally. The spatial distribution in Figure 3 illustrates the uneven allocation of trade activity globally, highlighting the concentration of the largest transaction volumes among a small group of countries (as indicated by the US–China–EU trade triangle) and, secondarily, the presence of regional clusters such as intra-European interconnections.

Overall, the results of the analyses in Figures 1, 2, and 3 confirm the existence of a core of highly active trading countries (the US, China, Germany) and a periphery of less interconnected economies, emphasizing the center-periphery model (Ottaviano and Thisse, 2004) and geographic proximity (Polyzos, 2019, 2023) as key determinants of development dynamics based on trade advantage.

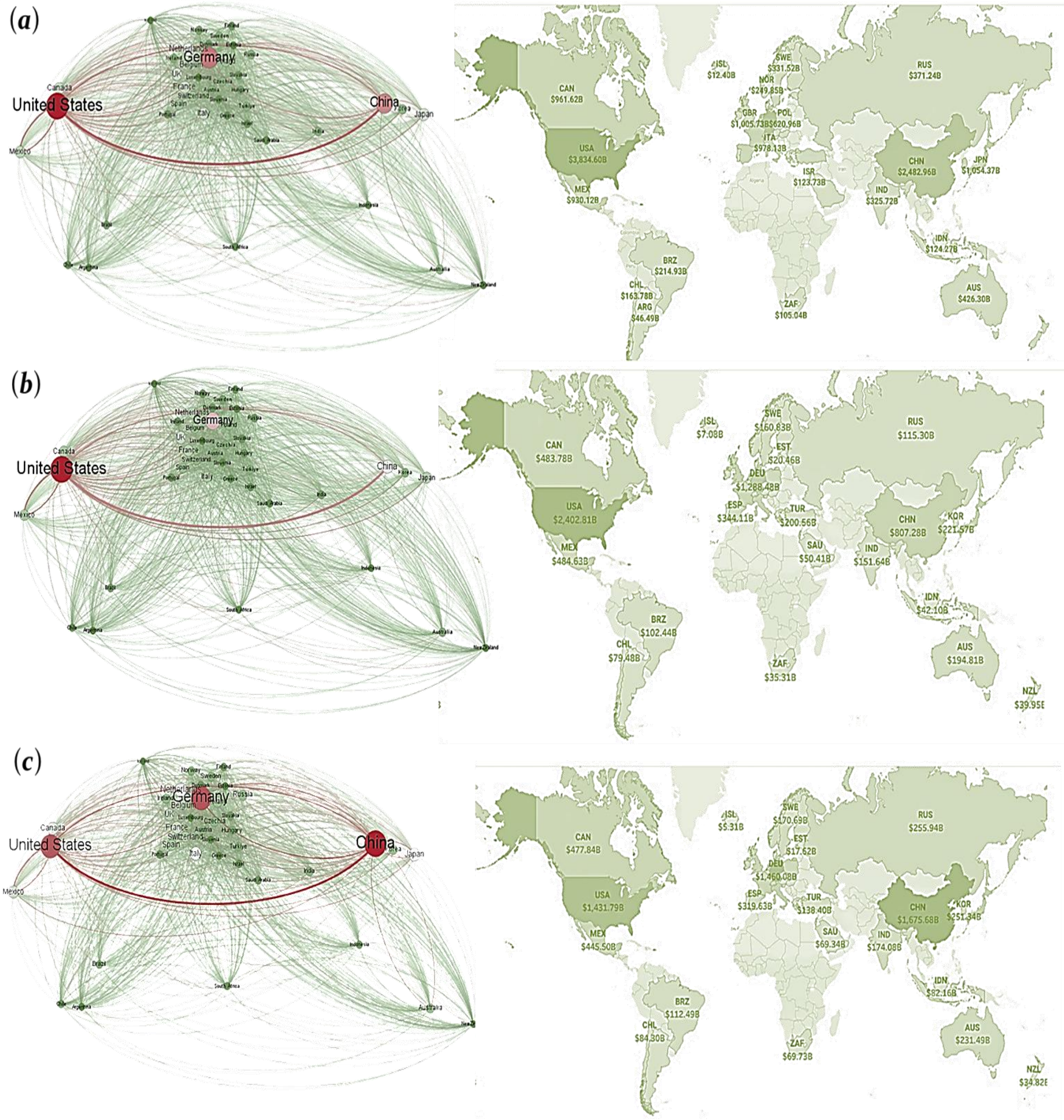

Figure 1. Spatial distribution of (a) the Weighted Degree, (b) the Weighted In-Degree, and (c) the Weighted Out-Degree in the 100% trade network (Source: own elaboration, based on OECD data, 2021).

Subsequently, the results of betweenness centrality calculations are presented in Figure 2. Betweenness centrality measures the extent to which a node (country) lies on the shortest paths between other countries, indicating the strategic importance of countries in facilitating international flows. The topology of the full network (Figure 2a) exhibits high connection density and cohesion, with the United States, China, Germany, and the United Kingdom occupying central positions.

In the 50% network (Figure 2b), geographical communities emerge, with Germany and the Netherlands functioning as central hubs within Europe, while the US, China, and Japan maintain less dense but significant connections. In the 25% network (Figure 2c), bridging functions are apparent, with Germany, the United States, and China distinguished as key intermediaries in global trade flows. In the 10% network (Figure 2d), the intermediary role of central nodes (Germany, the US, and China) becomes even more pronounced, with European flows increasingly internalized, in contrast to the more globalized connections of the US and China. Finally, in the 5% network, trade flows are concentrated among the main GTN hubs, highlighting the pivotal role of Germany and the United States.

Overall, the betweenness centrality analysis demonstrates the unequal distribution of influence among countries in global trade and underscores the central role and strategic positioning of core countries as intermediary nodes bridging regional trade networks.

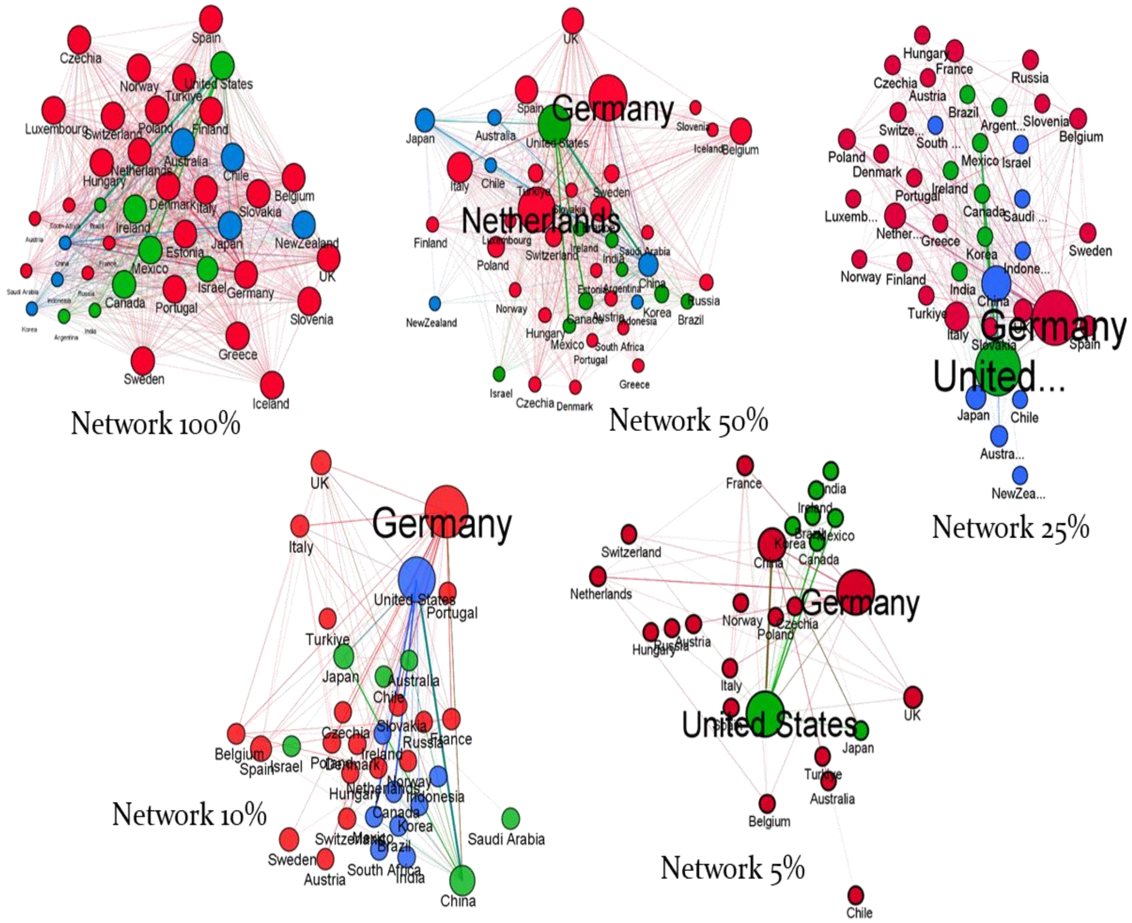

Figure 2. Distribution of betweenness centrality in the GTN across five distinct levels of analysis (from left to right): (a) 100%, (b) 50%, (c) 25%, (d) 10%, and (e) 5%, respectively. Color differentiation corresponds to grouping according to connection affinity (Source: own elaboration, Gephi).

3.2. Community detection analysis

Community detection in the GTN was performed at all levels of trade intensity (100%, 50%, 25%, 10%, 5%) using the Louvain algorithm (Blondel et al., 2008), which is based on the optimization of modularity, producing dense intra-community connections and sparse inter-community links. This approach groups countries that exhibit stronger trade relationships among themselves compared to the rest of the network. The results of the analysis are presented in Figure 3. In the case of the full network (100% of connections), three main communities are observed. The first spans a broad continental arc, including primarily European countries, Russia, and several Middle Eastern states; the second consists of countries from the Americas; and the third is formed in the Asia-Pacific region.

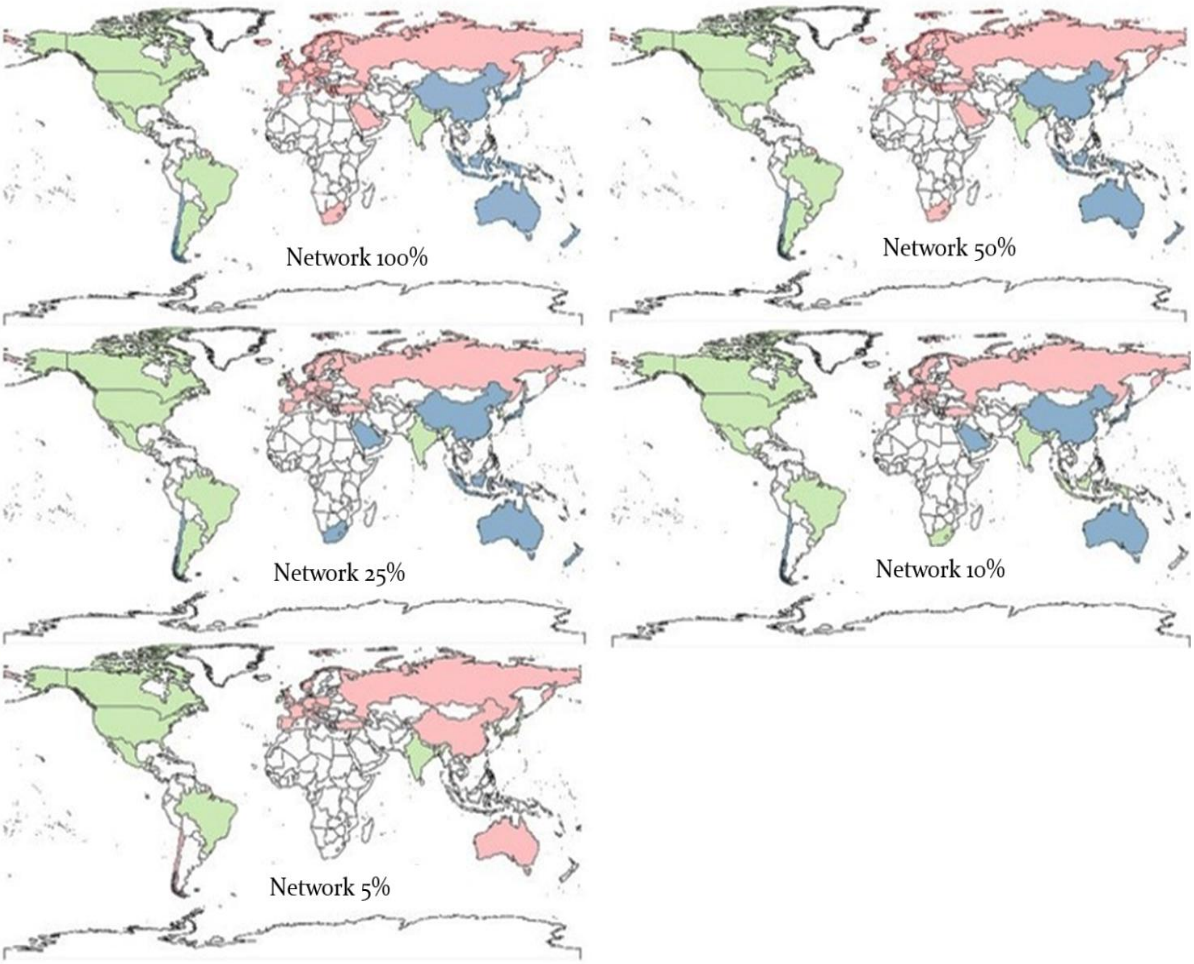

Figure 3. Spatial representation of communities in the global trade network (Source: own elaboration, based on OECD data, 2021).

Table 2: Communities in the GTN

Network	Community	Countries
100%	**Red**	Iceland, Norway, Sweden, Finland, Netherlands, Denmark, Germany, Estonia, UK, Belgium, Czechia, Poland, Russia, France, Luxembourg, Austria, Slovakia, Hungary, Portugal, Spain, Switzerland, Italy, Slovenia, Greece, Turkey, Saudi Arabia, South Africa
	Green	USA, Canada, Mexico, Brazil, Argentina, Ireland, Israel, India
	Blue	China, Korea, Japan, Australia, New Zealand, Indonesia, Chile
50%	**Red**	Iceland, Norway, Sweden, Finland, Netherlands, Denmark, Germany, Estonia, UK, Belgium, Czechia, Poland, Russia, France, Luxembourg, Austria, Slovakia, Hungary, Portugal, Spain, Switzerland, Italy, Slovenia, Greece, Turkey, Saudi Arabia, South Africa
	Green	USA, Canada, Mexico, Brazil, Argentina, Ireland, Israel, India, Korea
	Blue	China, Japan, Australia, New Zealand, Indonesia, Chile
25%	**Red**	Norway, Sweden, Finland, Netherlands, Denmark, Germany, UK, Belgium, Czechia, Poland, Russia, France, Luxembourg, Austria, Slovakia, Hungary, Portugal, Spain, Switzerland, Italy, Slovenia, Greece, Turkey
	Green	USA, Canada, Mexico, Brazil, Argentina, Ireland, India, Korea
	Blue	China, Japan, Australia, New Zealand, Indonesia, Chile, Israel, Saudi Arabia, South Africa
10%	**Red**	Norway, Sweden, Netherlands, Denmark, Germany, UK, Belgium, Czechia, Poland, Russia, France, Austria, Slovakia, Hungary, Portugal,

Network	Community	Countries
		Spain, Switzerland, Italy, Turkey
	Green	USA, Canada, Mexico, Brazil, Ireland, India, Korea, South Africa, Indonesia
	Blue	China, Japan, Australia, Chile, Israel, Saudi Arabia
5%	**Red**	Norway, Netherlands, Germany, UK, Belgium, Czechia, Poland, Russia, France, Austria, Hungary, Spain, Switzerland, Italy, Turkey, China, Australia, Chile
	Green	USA, Canada, Mexico, Brazil, Ireland, India, Korea, Japan

(Own elaboration)

Considering the overall community structure across the other available networks (with 50%, 25%, 10%, and 5% of connections), it is noted that the composition of communities remains generally stable (Table 2). However, individual groups gain greater internal cohesion, as some countries detach from their original clusters, forming more distinct aggregations. This highlights a shift from a globalized and dense trade web toward a polycentric system organized around geographic and economic regions. The maintenance of high internal connectivity within these regional markets, even when the total volume of trade relations is reduced, underscores the strategic importance of these connections in the context of global commerce.

3.3. Empirical analysis

In the empirical analysis of this section, the bivariate Pearson correlation coefficient was calculated (Norusis, 2011; Walpole et al., 2012) to detect the existence of a linear relationship between the level of economic growth (as represented by countries' GDP) and the network topology measures computed in the previous sections. The results of the correlation coefficient calculations are presented in the scatter plots of Figures 4 and 5 and in Table 2. From Figures 4 and 5, it emerges that the United States, China, and Germany stand out as economies with both high GDP and high connectivity within the GTN. The clear linearity observed in all cases of the weighted degree (total, in-degree, and out-degree) in Figures 4 and 5 confirms the research hypothesis of this study, suggesting that the intensity of a country's trade flows is positively associated with its level of economic growth.

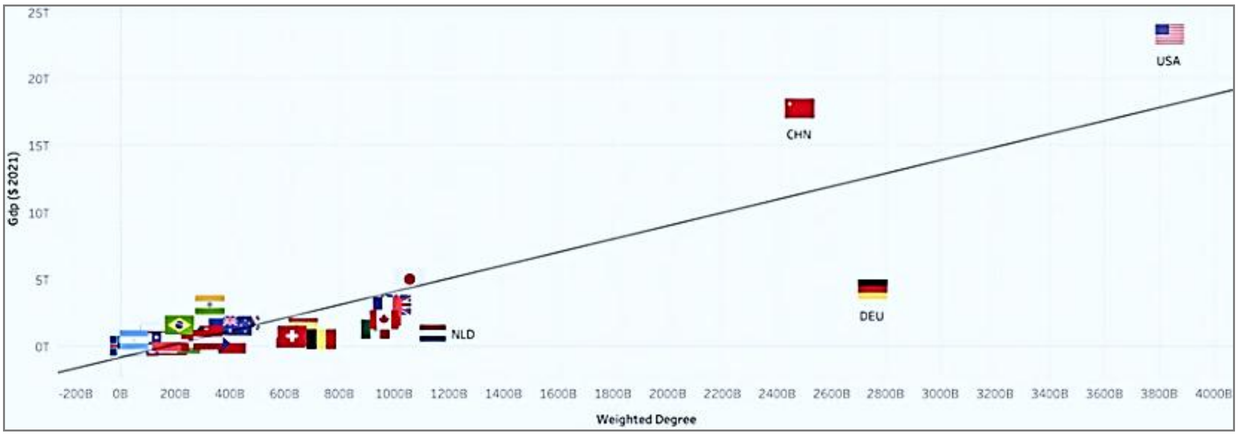

Figure 4. Scatter plot between total weighted degree and GDP for 100% of the network connections (Source: own elaboration, based on OECD data, 2021).

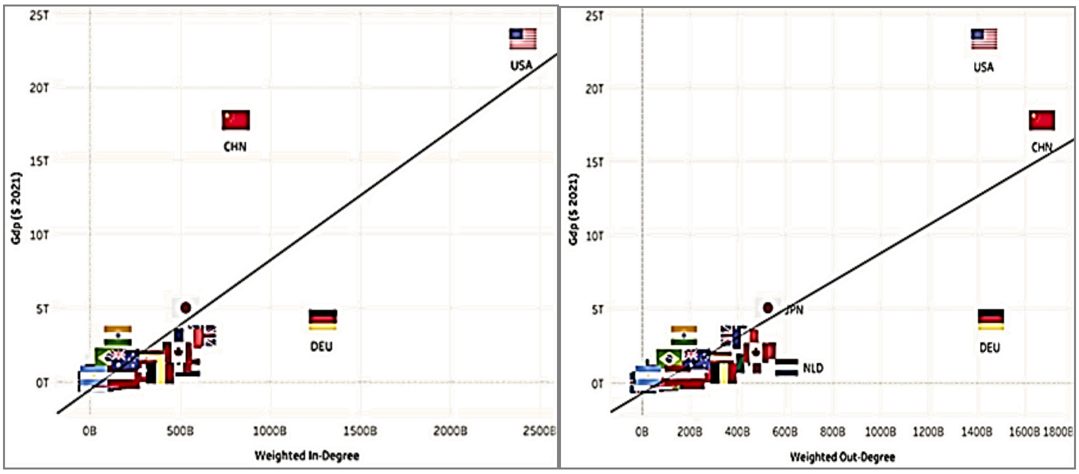

Figure 5. Scatter plot between weighted in-degree (left) and out-degree (right) and GDP (Source: own elaboration, based on OECD data, 2021).

Finally, the results in Table 2 indicate that the weighted degree (or strength) exhibits the highest positive linear correlation with GDP, even when the network connections are restricted to the top 5% of the strongest trade flows. Furthermore, closeness centrality and the clustering coefficient also show strong positive correlations, reinforcing the theoretical hypothesis that countries with high connectivity and centrality enjoy greater accessibility to markets, technologies, and economic resources, which in turn contribute to promoting their economic growth and development.

Table 3. Results of the correlation coefficient calculation between GDP and the GTN's topological measures.

y	**x**	**Link percentage**	**Correlation coefficient (r_{XY})**	**x**	**Link percentage**	r_{XY}
GDP	Weighted Degree	100%	0.866166266	Weighted Clustering Coefficient	100%	0.10243
		50%	0.865883941		50%	0.27331
		25%	0.868659312		25%	0.28495
		10%	0.876204885		10%	0.67225
		5%	0.885510023		5%	0.16296
	Weighted In-Degree	100%	0.842766872	Betweenness Centrality	100%	0.1248
		50%	0.842720001		50%	0.49367
		25%	0.84332556		25%	0.76276
		10%	0.844810038		10%	0.66339
		5%	0.846392935		5%	0.77706
	Weighted Out-Degree	100%	0.82943957	Closeness Centrality	100%	0.12394
		50%	0.829214086		50%	0.44318
		25%	0.830065058		25%	0.21357
		10%	0.840848381		10%	0.53236
		5%	0.84088168		5%	0.25439

(Own elaboration)

Overall, the empirical analysis supports the research hypothesis that strong participation in the global trade network constitutes a fundamental component of economic prosperity, highlighting the intensity of external trade connections as a driver of economic growth.

4. Conclusions

This study highlighted the complex nature and multifaceted structural, functional, and spatial characteristics of the international trade system interconnecting 42 OECD member countries (GTN), using complex network analysis. The results suggest that the GTN exhibits a hierarchical structure, with a few highly connected central nodes configuring a core substrate of global flows. The analysis verified the correlation between a country's (node's) functional position within the network and its trade volume, as well as its GDP, supporting the export-base hypothesis and confirming that international trade integration constitutes a critical driver of economic growth.

Furthermore, examining the GTN at different trade volume levels revealed structural trends describing the transition from functional cohesion to concentrated and polar forms, confirming the findings of a recent study by Tsiotas and Kallioras (2025) that increasing the (geographical, functional, administrative) scale of networks leads to more distinct structures, reflecting polar dynamics. Within the GTN, the United States, China, and Germany emerged as central structural pillars of the network and key shapers of trade flow criticality and system stability.

From a geographical perspective, the cartographic depiction of GTN communities revealed the formation of cohesive trade markets, generally characterized by strong internal connectivity and geographical clustering, consistent with empirical observations that community detection in spatial networks is heavily constrained by spatial proximity (Barthelemy, 2011; Tsiotas and Polyzos, 2018). However, the networks also feature strong intercontinental connections, indicating the overcoming of geographical constraints and the emergence of economies of scale with increasing geographic distance and the rise of global trade hubs, in line with theoretical approaches in economic geography (Krugman, 1991).

From a policy perspective, the results highlight the need to strengthen trade connections and multilateral cooperation within the regional markets identified by the analysis, adopting economic and regional development policies (Polyzos, 2019, 2023) that promote the diversification of trade partners (e.g., fostering interregional alliances, targeted support for low-connectivity countries), investments in connectivity infrastructure, and the advancement of interoperability.

Overall, the study demonstrated the usefulness of complex network analysis as a methodological tool for modeling and interpreting the economic-geographical space, suggesting directions for further research through dynamic and comparative approaches, integrating time series, transportation networks, technological flows, and disruption scenarios.

References

Barabasi, A. L. (2013). Network science. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, *371*(1987), 20120375.

Blondel, V. D., Guillaume, J. L., Lambiotte, R., & Lefebvre, E. (2008). Fast unfolding of communities in large networks. *Journal of statistical mechanics: theory and experiment*, *2008*(10), P10008.

Chen, S., Zhang, H., and Wang, S. (2022). Trade openness, economic growth, and energy intensity in China. *Technological Forecasting and Social Change*, *179*, 121608.

Davis, D. R., and Weinstein, D. E. (2003). Market access, economic geography and comparative advantage: an empirical test. *Journal of International Economics*, *59*(1), 1-23.

Dionisio A., Rolim C., Rego C., 2025. “Determinants of demand for cities with higher education institutions: An approach based on fractional regression”, Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 81-93

Fagiolo, G., Reyes, J., & Schiavo, S. (2010). The evolution of the world trade web: a weighted-network analysis. *Journal of Evolutionary Economics*, *20*(4), 479-514.

FJ Teixeira, SSPV Pescada, F Ruxho, C Palma, F Beha, 2024. “GLAMPING IN LOW-DENSITY TERRITORIES: THE CASE OF SANTO ALEIXO DA REASTAURA?? O, Regional Science Inquiry 16 (1), 71-80

Hamiti A., 2025. “The relationship between forms of bullying and academic success of high school students in the region of Prishtina, Kosovo”, Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 54-66

Kaldor, N. (1964). International trade and economic development. *The Journal of Modern African Studies*, *2*(4), 491-511.

Kallioras D., Niavis S., 2025. “Regional inequalities: Knowledge frontiers and debates”, Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 67-80

Khan A., Tripathi S., Chandiramani J., 2024. “Smart city initiatives and economic growth in india: an empirical analysis”, Sustainable Regional Development Scientific Journal, Vol. I, (2): Special Issue, pp. 41-56

Koschutzki, D., Lehmann, K. A., Peeters, L., Richter, S., Tenfelde-Podehl, D., & Zlotowski, O. (2005). Centrality indices. *Network analysis: methodological foundations*, 16-61.

Krupavicius, A., Šarkute, L., Krasniqi, A., Ladias, Christos Ap. 2024. “Perceived and desired images of society: how (un)equal is society?” Regional Science Inquiry, 16(1), pp. 55-70

Ladias C.A., Ruxho F., Teixeira F., Pescada S., 2023, “The regional economic indicators and economic development of Kosovo”, Regional Science Inquiry, Vol. XV, (1), pp. 73-83

Ladias, Christos Ap., and Stamatiou, E. (2006). The Macro Region As An Economic Entity And Of Regional Planning. *Montenegrin Journal of Economics*, *2*(3), 127-138.

Ladias, Christos Ap., Hasanagas, N., and Papadopoulou, E. (2011). Conceptualising ‘macro-regions’: Viewpoints and tools beyond NUTS classification. *Studies in Agricultural Economics*, *113*(1316-2016-102776), 138-144.

Ladias, Christos, Ap., Ruxho, F., Teixeira, F. J. C. S. N., Pescada, S. S. P. V. (2023). The Regional Economic Indicators and Economic Development of Kosovo. *Regional Science Inquiry*, 14(1), pp.73-84.

Lampreia M., Teixeira F., Pescada S. P. V., 2024. "The predictive power of technical analysis: evidence from the gbp/usd exchange rate", Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 67-75

Lee, J. (2011). Export specialization and economic growth around the world. *Economic systems*, *35*(1), 45-63.

Lincaru C., Tudose G., Cosnita D., Pirciog S., Grigorescu A., Ciuca V., 2024. "Clusters as engines of sustainable employment growth in Romania1", Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 10-27

Mahutga, M. C. (2006). The persistence of structural inequality? A network analysis of international trade, 1965–2000. *Social Forces*, *84*(4), 1863-1889.

McNulty, P. J. (1973). Adam Smith's concept of labor. *Journal of the History of Ideas*, *34*(3), 345-366.

Mo, P. H. (2010). Trade intensity, net export, and economic growth. *Review of Development Economics*, *14*(3), 563-576.

North, D. C. (1955). Location theory and regional economic growth. *Journal of political economy*, 63(3), pp.243-258.

Ottaviano, G., & Thisse, J. F. (2004). Agglomeration and economic geography. In *Handbook of regional and urban economics* (Vol. 4, pp. 2563-2608). Elsevier.

Papajorgji P., Tordi A., 2024. "Using quantitative tools to understand political issues", Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 28-35

Pescada S., Teixeira F., Pereira W., 2025. "Organisational culture at public hospital of Algarve: Internal medicine staff perception", Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 11-21

Petrakos, G., and Psycharis, G. (2016). *Regional Development in Greece* (2nd ed.). Athens: Kritiki Publications [in Greek].

Polo A., Caca E., Zyberi I., Ladias C.A, Ruxho F., 2025. "Foreign direct investment in real estate in Albania and its impact on GDP", Regional Science Inquiry, Vol. XVII, (1), 2025, pp. 135-142

Polyzos S., Tsiotas D., 2025. "The viable business practice of optimizing the occupational accidents cost: A microeconomic approach", Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 32-43

Polyzos, S. (2019). *Regional Development* (2nd ed.). Athens: Kritiki Publications [in Greek].

Polyzos, S. (2022). *Natural resources management and sustainable development*. Thessaloniki: Tziolas Publications [in Greek].

Polyzos, S. (2023). *Urban Development* (2nd ed.). Athens: Kritiki Editions [in Greek].

Romer, P. M. (1990). Endogenous technological change. *Journal of political Economy*, *98*(5, Part 2), S71-S102.

Romer, P. M. (1994). The origins of endogenous growth. *Journal of Economic perspectives*, *8*(1), 3-22.

Ruffin, R. (2002). David Ricardo's discovery of comparative advantage. *History of political economy*, *34*(4), 727-748.

Ruxho F., 2024. "Kosovo employee's perception of economic growth and decent work according to sustainability", Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 53-66

Ruxho F., Ladias C.A, 2022. "Increasing funding for the regional industry of Kosovo and impact on economic growth" Regional Science Inquiry Journal, Vol. XIV. (1), pp. 117-126

Ruxho F., Ladias C.A, Tafarshiku A., Abazi E., 2023. "Regional employee's perceptions on decent work and economic growth: labour market of Albania and Kosovo", Regional Science Inquiry, Vol. XV, (2), pp.13-23.

Ruxho F., Petropoulos D., Negoro D.A. 2024. "Public debt as a determinant of the economic growth in Kosovo", Sustainable Regional Development Scientific Journal, Vol. I, (1), pp. 55-67

Ruxho, F. (2024). Kosovo employee's perception of economic growth and decent work according to sustainability. *Sustainable Regional Development Scientific Journal*, *1*(3), 53-66.

Ruxho, F., and Ladias, C. A. (2022). Increasing Funding for the Regional Industry of Kosovo and the Impact on Economic Growth. *Regional Science Inquiry*, 14(1), 117-126.

Ruxho, F., Ladias, Christos Ap., Tafarshiku, Ali, Abazi, Edib, (2023) Regional employees perceptions on decent work and economic growth: labor market of Albania and Kosovo. *Regional Science Inquiry*, 15(2), pp.13-24.

Sarkute L., Sina D., Bello, K., Vercuni A., 2024. "Strategic management decisions in the context of foreign direct investment. The role of institutions and economic determinants", Sustainable Regional Development Scientific Journal, Vol. I, (1), pp. 40-54

Saslavsky, D., and Shepherd, B. (2014). Facilitating international production networks: The role of trade logistics. *The Journal of International Trade & Economic Development*, *23*(7), 979-999.

Sepetis A., Krupavičius A., Ladias Ap. C. 2024 "Social protection in Greece and sustainable development leaving no one behind", Sustainable Regional Development Scientific Journal, Vol. I, (1), pp. 83-92

Sequeira T., Rego C., Dionisio A., 2024. "Investment and productivity in the agro-industrial sector: a case study", Sustainable Regional Development Scientific Journal, Vol. I, (2): Special Issue, pp. 13-26

Smith, D. A., & White, D. R. (1992). Structure and dynamics of the global economy: network analysis of international trade 1965–1980. *Social forces*, *70*(4), 857-893.

Stavara M., Tsiotas D., 2024. "A combined graph theoretic and transport planning framework for the economic 10 Sustainable Regional Development Scientific Journal, Vol. I, (2): Special Issue, Oct. 2024 and functional analysis of large-scale road networks", Sustainable Regional Development Scientific Journal, Vol. I, (2): Special Issue, pp. 27-40

Teixeira F., Pescada, S.S.P.V., Ladias C.A., Hulaj M., Ruxho F., Machado V., 2025. "Stablecoin dp2p: innovation and sustainability in fiat currencies", Regional Science Inquiry, Vol. XVII, (1), pp. 95-106

Tiebout, C. M. (1956). Exports and regional economic growth. *Journal of political economy*, 64(2), pp.160-164.

Todri A., Sejdini I., Sejdini I. Balukja I., 2025. Stakeholders` perceptions on corporate engagement in social responsibility and sustainable development: Insights from domestic and foreign-owned corporations in Albania", Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 22-31
Tsiotas D., Giannakis E., Papadas C., 2025. "A modularity decomposition model of evolving input-output sectorial structure, Regional Science Inquiry, Vol. XVII, (1), pp. 107-133
Tsiotas D., Polyzos S., 2024. "Analyzing the spatial interactions in the nationwide regional capitals network of Greece", Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 36-52
Tsiotas, D. (2019). Detecting different topologies immanent in scale-free networks with the same degree distribution. *Proceedings of the National Academy of Sciences*, *116*(14), 6701-6706.
Tsiotas, D. (2022). A network-based algorithm for computing Keynesian income multipliers in multiregional systems. *Regional Science Inquiry*, *14*(2), 25-46.
Tsiotas, D., & Ducruet, C. (2021). Measuring the effect of distance on the network topology of the Global Container Shipping Network. *Scientific Reports*, *11*(1), 21250.
Tsiotas, D., & Kallioras, D. (2025). Unveiling geographical patterns of hierarchy in the Greek labor market network: toward a multilayer "status-polus" model. *Journal of Economic Geography*, lbae052.
Tsiotas, D., & Katsaiti, M. S. (2025). A 3D index for measuring economic resilience with application to modern financial crises. *Journal of International Development*, *37*(2), 371-404.
Tsiotas, D., & Polyzos, S. (2018). The complexity in the study of spatial networks: an epistemological approach. *Networks and Spatial Economics*, *18*, 1-32.
Tsiotas, D., & Tselios, V. (2024). Detecting geographical patterns in the EU's interregional flows: a multilayer hierarchical approach. *Progress in Economic Geography*, *2*(2), 100017.
Tsiotas, D., Krabokoukis, T., & Polyzos, S. 2020. "Detecting interregional patterns in tourism seasonality of Greece: A principal components analysis approach", Regional Science Inquiry, 12(2), 91-112.
Tsiotas, D., Polyzos, S., 2024. "Transportation networks and regional development: the conceptual and empirical framework in Greece", Sustainable Regional Development Scientific Journal, Vol. I, (1), pp. 15-39
Tsiotas, D., Tselios, V. (2022). Understanding the uneven spread of COVID-19 in the context of the global interconnected economy. *Scientific Reports*, 12: 666 (10.1038/s41598-021-04717-3).
Uzsayilir, A., and Baycan, T. (2024). Regional specialization in the context of deindustrialization: the case of Türkiye. *Regional Science Inquiry*, *16*(2), pp.33-42.
Walpole, R. E., Myers, R. H., Myers, S. L., & Ye, K. (1993). *Probability and statistics for engineers and scientists* (Vol. 5, pp. 326-332). New York: Mac.
Wan, W. P., Hoskisson, R. E., Short, J. C., and Yiu, D. W. (2011). Resource-based theory and corporate diversification: Accomplishments and opportunities. *Journal of management*, *37*(5), 1335-1368.

SAFETY CULTURE AND CONTINUING CARE

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Abstract
The COVID-19 pandemic, which began in 2020, placed immense pressure on healthcare systems worldwide, including the National Health Service and the National Network for Integrated Continuing Care. In this context, the management of safety culture in healthcare has gained particular relevance, although it remains relatively underexplored in Portugal. This study aimed to analyse the importance of safety culture management within an Integrated Continuing Care Unit, identifying good practices, factors associated with organisational learning, and the occurrence of adverse events. It is a single case study of an exploratory and descriptive nature, based on document analysis of institutional standards and reports, interviews conducted at various management levels, and questionnaires administered to unit professionals. The results revealed consistency between the analysed documentation, the professionals' perceptions, and the statements of those responsible for management. Overall, the institution demonstrates a proactive/sustainable level of maturity regarding safety culture. However, priority areas for improvement emerged, particularly in communication and training in occupational health and safety areas significantly affected by the pandemic and its impact on organisational structure and institutional priorities.

Keywords: Safety culture; Integrated Continuing Care Unit; National Network for Integrated Continuing Care; safety management.
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1. Introduction

The COVID-19 pandemic (2020–2022) exposed, with particular intensity, the vulnerabilities of healthcare systems across the globe, including Portugal's National Health Service. While the structural and organisational limitations of several institutions were widely reported, the National Network for Integrated Continuing Care remains relatively underexplored in scientific research. This is especially true with respect to the management of safety culture, a gap that is particularly relevant given the central role of these units in providing long-term care and responding to the needs of an ageing and increasingly dependent population. International research demonstrates that safety culture is a key determinant of care quality and of the protection of both professionals and service users (Hafezi et al., 2022; Finn et al., 2024). Nevertheless, in Portugal, most studies concentrate on hospital contexts and patient safety, often neglecting the organisational dimension and the specific characteristics of Integrated Continuing Care Units (Lousada et al., 2020; Resende et al., 2021). The limited attention given to this field highlights the need for further investigation. In response to this gap, the present study systematically examines the management of safety culture in a Portuguese Integrated Continuing Care Unit, employing both qualitative and quantitative approaches. The article also seeks to test the applicability of international assessment models in this setting, thereby expanding theoretical and practical understanding of safety culture in healthcare institutions beyond hospitals. The originality of this research lies in the adaptation of international safety culture assessment frameworks to the reality of Integrated Continuing Care Units, a field that remains scarcely addressed in Portuguese literature. Theoretically, the study demonstrates the usefulness of the model proposed by Gonçalves Filho et al. (2011) for healthcare institutions outside the hospital environment and confirms the relevance of Cooper's reciprocal model (2000) in capturing the psychological, behavioural, and situational dimensions of safety culture. On a practical level, it identifies strengths such as regular audits, sustained investment in safety, and an effective management system, while also highlighting areas requiring improvement, namely internal communication, safety training, and organisational learning, where traces of a blame culture persist. By addressing these issues, this article not only contributes to filling an important scientific gap in the field of safety culture management in Portugal but also offers concrete guidance for the formulation of policies and practices. These recommendations are directed towards strengthening communication, training, and professional engagement, which are essential steps in consolidating an integrated safety culture and in enhancing the quality and safety of care provided by the National Network for Integrated Continuing Care. This article follows a classical scientific structure: abstract, introduction, literature review, methodology and sample, results, discussion, and conclusion, ending with references.

2. Literature Review

The pandemic context that began in 2019 and significantly impacted Portugal from 2020 onwards exposed numerous vulnerabilities within the National Health Service (Varanda et al., 2020). These limitations, widely reported in the media and emphasised by the National Health Council (2022), reinforced the urgency of efficient resource management. Health economics, understood as the discipline that studies the allocation of scarce resources in response to unlimited needs, thus becomes a central axis for the sustainability of the system (Barros, 2023; Berezowski et al., 2023). Closely linked to this field is the concept of health management (Linnander et al., 2017), which, according to Giovanelli et al. (2024), represents the mechanism through which organisations define and achieve their objectives, serving as an essential element of contemporary social and economic organisation.

2.1 Key Concepts

Organisations can be interpreted as social communities grounded in the sharing of core values (Whyle & Olivier, 2020). Guldenmund (2010) proposes a three-level organisational structure, organisational, group and individual, highlighting that the organisational level, associated with top management, is particularly relevant for establishing safety practices. Culture, although abstract, has tangible consequences on attitudes and behaviours (Rider et al., 2021). According to Schein & Schein (2017), culture reflects invisible and often unconscious phenomena, shaping norms and practices that guide members of an organisation. Cameron & Quinn (2011) define organisational climate as a temporary set of perceptions, feelings and individual attitudes, subject to rapid change and linked to observable organisational characteristics, while noting that organisational culture, although socially constructed, acts as a unifying element among members.

2.2 Safety Climate and Culture

Safety culture encompasses aspects of organisational culture that influence behaviours and attitudes towards safety (Yorio et al., 2019). The concept gained prominence following the Chernobyl nuclear disaster in 1986, when it was referenced in the International Nuclear Safety Advisory Group report (Gonçalves Filho et al., 2011). The notion of safety climate, introduced earlier in 1951, is often associated with safety culture, though they are distinct (Ellis et al., 2023). While the former reflects temporary and observable manifestations, the latter represents a deeper and more stable set of values and practices (Tadia et al., 2025). Safety culture emerges from the interaction between individual and collective values, requiring the active involvement of all professionals to achieve high performance standards (da Silva Stigger et al., 2020; Simsekler et al., 2025).

2.3 Safety Culture Assessment Models

Cooper (2000; 2018) describes the reciprocal model of safety culture as comprising three interrelated dimensions: psychological, behavioural and situational. The psychological dimension, typically assessed through questionnaires, corresponds to safety climate; the behavioural dimension refers to concrete actions linked to safe practices; and the situational dimension includes policies, standards, regulations, structures and management systems. Reason (1997) adds that an effective safety culture should be informed, reporting-oriented, just, flexible and focused on learning. Based on these principles, Hudson (2001) proposed five cultural maturity stages: pathological, reactive, calculative, proactive and generative. Gonçalves Filho et al. (2011) later adapted this model, developing an assessment grid based on five factors, information, organisational learning, involvement, communication and commitment, widely used in empirical studies. Gonçalves Filho & Waterson (2018) further adapted Hudson's model (2001) to the healthcare sector, replacing generic examples with hospital-specific practices, incorporating dimensions such as organisational learning and incident reporting, and refining evaluation criteria to allow for deeper analysis of internal and cultural processes in complex healthcare environments. Fosdick et al. (2024) developed a cultural maturity model for road safety, adapting Hudson's framework (2001) into five stages, Vulnerable, Emerging, Developing, Maturing and Advanced, based on observed attitudes, actions and processes, using interviews and document analysis, and integrating other organisational theories to deepen understanding of cultural evolution in complex settings.

2.4 Safety Culture in Healthcare and Its Management

Hudson (2003) argues that healthcare institutions generally exhibit lower cultural maturity compared to more advanced industrial sectors. Nonetheless, in recent decades, research in healthcare has increasingly focused on safety culture, albeit with greater emphasis on patient safety than on organisational safety (Halligan & Zecevic, 2011). Managing safety culture in healthcare requires active leadership engagement, promoting principles of open communication, teamwork, continuous learning and commitment to improvement (Reis, 2019). Liana et al. (2022) developed a self-assessment model for safety culture maturity in hospitals, adapting Hudson's framework (2001) and validating it through interviews and focus groups, based on six essential dimensions: management commitment, safety communication, rules and procedures, enabling environment, personal involvement and safety training. They recommend its use as a tool for continuously monitoring and improving safety culture in healthcare institutions. Kusma et al. (2024) incorporate safety culture as a key factor in assessing organisational maturity, highlighting evolutionary stages and elements such as leadership, communication, trust and staff engagement.

3. Sample and Methodology

3.1. Research Question and Objectives

Given the scarcity of studies on safety culture within institutions of the National Network for Integrated Continuing Care, the following research question was formulated: "What is the importance of safety culture management in the provision of care within an Integrated Continuing Care Unit?" The general objectives were to understand the relevance of managing safety culture in care delivery within a Integrated Continuing Care Unit and to identify good practices related to learning from errors and adverse events. Specific objectives included characterising the Occupational Health and Safety Management System; describing safety culture through the categories of information, organisational learning, involvement, communication and commitment; identifying the maturity stage of the safety culture; and determining the contributing factors to its development.

3.2. Analytical Model

The analytical model was based on two conceptual frameworks: Cooper's reciprocal model (2000) and Hudson's (2001, 2003) safety culture maturity model, as adapted by Gonçalves Filho et al. (2011, 2013). The assessment focused on two dimensions of Cooper's model (2000): psychological aspects, which addressed safety climate through professionals' perceptions across five categories defined by Hudson (2001) (information, organisational learning, involvement, communication and commitment); and situational aspects, which encompassed policies, procedures, organisational structures and management systems, evaluated through document analysis. This approach enabled the identification of the safety culture maturity stage according to Hudson's (2001) scale (pathological, reactive, bureaucratic, proactive and generative).
Table 1 summarises the evolution of the safety culture across the five identified dimensions, progressing from reactive and fragmented behaviours and practices, typical of the pathological and reactive levels, towards the implementation of integrated systems and the consolidation of a proactive and sustainable culture, highlighting critical areas and guiding continuous improvement strategies.

Table 1: Stages of Safety Culture Maturity by Dimension

Dimension / Stage	Pathological	Reactive	Bureaucratic	Proactive	Sustainable
Information	Reports are non-existent	Records only after accidents	Isolated, non-integrated data	Formal OHSMS; investment ensured; weaknesses in audits/fire scenarios	Integrated system with reliable indicators
Organisational Learning	Incidents are ignored	Ad-hoc post-incident analysis	Procedures rarely applied	Continuous learning; irregular training	Continuous improvement embedded
Engagement	Workers are disengaged	Limited participation	Occasional participation	Uneven involvement; difficult integration of external personnel	Full and shared involvement
Communication	Communication is non-existent	Communication only after incidents	Underused channels	Occurrences reported; no indicators; blame-focused approach	Open and bidirectional communication
Commitment	Resources are non-existent	Limited commitment	Incomplete Occupational Health and Safety Management System (OHSMS)	Committed management; investment ensured	Safety integrated into strategy

Source: own elaboration

3.3. Study Characterisation

A single, descriptive, explanatory and cross-sectional case study was conducted at a Third Sector Organisation in Portimão (TSO). The research design aimed to understand and describe organisational safety culture using multiple sources of evidence, identifying critical factors for planning interventions. The cross-sectional nature of the study involved data collection at a single point in time (May 2021 to January 2022). A mixed-methods approach was adopted, combining qualitative and quantitative techniques to ensure data triangulation and provide a more comprehensive and accurate understanding of the phenomenon under investigation.

3.4. Target Population

The target population included all professionals working in the Integrated Continuing Care Unit of a TSO, regardless of employment status or role, totalling 116 individuals (87 from the Integrated Continuing Care Unit and 29 from shared services). A purposive sampling strategy was used to capture variation rather than uniformity. Two groups were formed: the first consisted of three managers responsible for Integrated Continuing Care Unit operations (the TSO provider at the strategic level, the Integrated Continuing Care Unit technical director at the tactical level, and the risk management officer also at the tactical level); the second group included 30 professionals who agreed to participate and complete the questionnaire, resulting in a response rate of 25.9%.

3.5. Data Collection Instruments

Three complementary data collection instruments were used to ensure methodological triangulation. Document analysis covered 15 institutional documents from 2013 to 2021, including internal Integrated Continuing Care Unit regulations, quality management manuals, audit reports, ergonomic assessments, occupational risk evaluations and staff satisfaction surveys. Semi-structured interviews were conducted with the three managers in August 2021, lasting an average of 45 minutes and following a guide that addressed sociodemographic data, safety culture and organisational maturity across the five defined categories. The structured questionnaire, based on Hudson's model (2001) as adapted by Gonçalves Filho et al. (2011), comprised two sections: sociodemographic and professional characterisation (nine variables), and assessment of professionals' perceptions regarding safety culture maturity through 21 questions distributed across the five categories. Each question corresponded to different stages of organisational maturity. A pre-test was conducted with ten participants to validate the instrument.

3.6. Data Analysis and Processing Procedures

Qualitative data from interviews and documents were subjected to categorical content analysis following Bardin's (2016) three-phase approach: pre-analysis (organisation and systematisation), material exploration (definition of recording units and context, coding and categorisation), and results processing with inference and interpretation. Quantitative data from the questionnaires were analysed using descriptive statistics via the Statistical Package for Social Science (SPSS), including absolute and relative frequency measures for qualitative variables and central tendency measures (mean, mode and median) for quantitative variables. Methodological triangulation allowed for the integration of methods and perspectives to draw valid conclusions about the phenomenon under study.

4. Results

4.1 Institutional Characterisation

Founded in the 16th century, TSO provides social and healthcare services across four areas: childhood, family and community, health (with two units integrated into the National Network for Integrated Continuing Care - Medium-Term and Rehabilitation Units and Convalescence Units), and senior care. The Integrated Continuing Care Unit of TSO employ a total of 87 professionals, with an additional 29 staff members from shared services, totalling 116 professionals.

4.2 Socio-professional Profile of Participants

The sample consists of 30 participants, the vast majority being professionals working exclusively within the Integrated Continuing Care Unit. The most represented professional group is operational assistants (33.3%), followed by nurses (30%). The average age of participants is 36 years, with a predominance of female professionals (76.7%). Most participants work directly with service users (83.3%), and half have been working in the Integrated Continuing Care Unit for more than three years.

4.3 Situational Aspects

The institution provided a set of documents demonstrating the existence of internal regulations, occupational health and safety reports, staff satisfaction data, and quality-related records. These documents were analysed and categorised under the dimensions of policies, procedures, organisational structures, and management systems. The internal regulations of the Integrated Continuing Care Unit highlight core principles and values such as humanised care, ethical assistance, family involvement, and continuity and proximity of care. Additionally, aspects such as quality and efficiency, rigour and transparency, accountability and hierarchy, multidisciplinarity and interdisciplinarity are also emphasised.

4.4 Safety Culture – Psychological Aspects

4.4.1 Information Dimension

Regarding the communication of abnormal occurrences, 56.7% of participants stated that all such events are reported to Integrated Continuing Care Unit managers, while 36.7% indicated that most are reported, reflecting a predominance of the sustainable and proactive maturity stages. As for the means of reporting, 83.3% confirmed the existence of channels to report any type of abnormal occurrence.

4.4.2 Organisational Learning Dimension

In terms of analysing abnormal occurrences, 60% of participants reported that all such events are reviewed, indicating a sustainable stage. Regarding the handling of these events, 66.7% stated that the process involves the entire Integrated Continuing Care Unit. However, 23.3% noted that the analysis focuses solely on identifying those responsible, corresponding to the pathological stage.

4.4.3 Involvement Dimension

This dimension showed significant variation in responses. Concerning staff participation, 30% believed that only a minority of professionals are involved, 26.7% said the majority participate, and 23.3% stated that all professionals are involved. Similar results were found regarding interest in contributing to occupational safety matters.

4.4.4 Communication Dimension

When asked about the dissemination of safety-related news, responses indicated a predominance of the bureaucratic stage (36.7%) and the proactive/sustainable stage (40%). Regarding the existence of a communication channel, 33.3% believed there is an open channel, while 40% considered it merely formal.

4.4.5 Commitment Dimension

This dimension included eight questions with varied responses. Concerning safety audits, 43.3% of participants stated that audits are conducted across all sectors, although 20% believed they do not occur. Regarding safety planning, 63.3% affirmed that it exists and is integrated with planning in other areas of the Integrated Continuing Care Unit. Most participants (73.3%) considered that investment in occupational safety is ongoing and implemented across all sectors.

4.5 Maturity Stage

The results indicate that Integrated Continuing Care Unit managers at TSO are concerned with safety culture. Questionnaire analysis reveals that most participants perceive the institution's overall maturity stage as proactive/sustainable, reflecting a high level of cultural maturity according to the adopted model. Managers described the safety culture as "positive, with much work to be done," and stated that "our institution has a good occupational health and safety system, but there are always improvements to consider." They identified two key areas for improvement: training and communication.

5. Summary of Results

The analysis shows that, at the organisational level, the institution has a formal OHSMS with audits and a risk plan, although there are weaknesses in specific areas such as the fire safety plan and the suspension of audits in 2020. At the psychological level, the safety climate reveals that abnormal occurrences are reported, but there are no consolidated internal indicators, with a perceived focus on blame in error analysis and communication channels that are not always effective. Uneven participation is observed, with irregular and insufficient safety training, and difficulties in integrating external providers. As summarised in Table 2, the maturity stage of the safety culture is predominantly between the proactive and sustainable levels, although weaknesses in communication, engagement, and training persist.

Table 2: Maturity Stages and Safety Culture Results by Level of Analysis

Level of Analysis	Key Findings
Organisational	Formal OHSMS in place with audits and risk plan; weaknesses in fire safety plan; audits suspended in 2020; investment in safety ensured.
Psychological (Safety Climate)	Reporting of abnormal occurrences is carried out, but internal indicators are lacking; perception of blame-focused error analysis; communication channels exist but do not reach everyone.
Behavioural	Uneven participation, concentrated among management; irregular and insufficient safety training; absence of a dedicated team; safety practices extended to external providers, but with cultural integration challenges
Maturity Stage	Predominantly Proactive/Sustainable, with weaknesses in communication, engagement, and training.

Source: own elaboration

6. Discussion

The data collected reveal key aspects of the institution's safety culture and how it is perceived by professionals (Vikan et al., 2023). The TSO's Integrated Continuing Care Unit are an integral part of the organisation, delivering healthcare with a consistent focus on patient safety (Sanchis et al., 2020). However, there appears to be less emphasis on the safety of the professionals themselves (Zabin et al., 2023). Safety is generally regarded as an institutional concern, as evidenced by the occupational health and safety evaluation system, which includes external audits, and the quality management manual, which, albeit indirectly, allows for an assessment of the institution's safety culture (Benson et al., 2024). As expected, the COVID-19 pandemic imposed limitations on quality assessment, leading to the temporary suspension of risk analysis, non-conformity reviews, and improvement potential evaluations (Lopes et al., 2024). Nevertheless, safety remains a continuous concern, with developments reflecting a high level of maturity in this domain (Huang et al., 2023). The "information" dimension reflects professionals' confidence in reporting errors, accidents, and incidents (Davis et al., 2025). The data show that both staff and managers acknowledge the existing practice of reporting abnormal occurrences, the availability of communication channels for this purpose, and their widespread use among professionals, indicating a high level of maturity in this area within TSO's Integrated Continuing Care Unit (Flott et al., 2018). In contrast, the "organisational learning" dimension presents greater potential for improvement (Glarchere Vaismoradi, 2025). Although learning is ensured through careful analysis of reported abnormal events, a blame culture still persists, consistent with findings by Van Baarle et al. (2022). The "engagement" dimension shows varied results across different maturity stages. There is consensus that staff participation does not extend to all professionals, although interviewees highlighted higher levels of involvement from managers across various departments (Tadia et al., 2025). "Communication" is clearly identified as an area for improvement (Howick et al., 2024). While there is agreement on the availability of communication channels, it is perceived that information does not reach all staff members (Kelly & Ostovar-Kermani, 2024). Failures in conveying the importance of safety were also noted, largely influenced by individual characteristics of each professional (Atinga et al., 2024). The "commitment" dimension shows positive signs from the institution, demonstrated through the implementation of occupational health and safety audits, the integration of safety into TSO's strategic plans, and ongoing investment in staff protection. However, gaps remain in specific safety training (Murray et al., 2023). In summary, safety culture is embedded in the institution's daily operations, although not experienced uniformly by all (Serran & Alberton, 2023). The safety culture management system is perceived as simple, effective, and comfortably mature by those responsible, despite the identified areas for improvement (Kolukısa Tarhan et al., 2020). Overall, the institution's safety culture is well-defined and evolving towards greater maturity (Kilcullen et al., 2022). This does not imply the absence of challenges, necessary measures, or improvements, but rather reflects an awareness of difficulties, a pursuit of improvement opportunities, and the initiation of consistent transformation processes (Tocco Tussardi et al., 2022).

7. Conclusion

This study enabled a deeper understanding of the importance of safety culture management in the provision of care within an Integrated Continuing Care Units, confirming the existence of established norms and practices related to safety, while also identifying areas for improvement that could enhance safety management and, consequently, the overall safety culture. Safety culture is clearly valued by both strategic and tactical-level managers, as evidenced by the implementation of improvements, the regular execution of audits, and a consistent concern with quality. TSO and its Integrated Continuing Care Unit have well-defined procedures and standards within their Occupational Health and Safety Management System and quality management framework, which contribute positively to the development of a robust safety culture. The research brought relevant contributions to the institution under analysis and its Integrated Continuing Care Unit, allowing for the identification of good practices such as the execution of audits and the presence of designated safety officers. The findings show that most professionals perceive the institution to be at a proactive/sustainable stage of safety culture maturity. It was possible to characterise the safety culture according to the dimensions defined by the implemented model. In the information dimension, there was alignment between staff and management regarding the reporting of abnormal occurrences. In the organisational learning dimension, opportunities for improvement were identified, particularly in promoting non-punitive analysis of incidents. The involvement dimension revealed a wide range of responses, suggesting the need for greater participation. Communication was highlighted as an area requiring reinforcement, while the commitment dimension showed positive aspects, although further investment in safety training remains necessary. From a theoretical perspective, this study contributes to the body of knowledge on safety culture in healthcare institutions in Portugal, a field that remains largely unexplored. The adaptation of the model proposed by Gonçalves Filho et al. (2011) to a healthcare setting proved useful, despite some limitations. The study confirms that safety culture in healthcare institutions can be effectively assessed through the five proposed dimensions: information, organisational learning, involvement, communication, and commitment. Furthermore, the research demonstrates that Cooper's model (2000), which addresses both situational and psychological aspects of safety culture, is applicable to the Integrated Continuing Care Units context, offering a holistic view of organisational safety culture. The findings suggest several practical recommendations for improving safety management: implementing specific safety training for all professionals; reinforcing safety education through workplace-based training sessions; ensuring that the designated safety officer fulfils their responsibilities; introducing strategies to facilitate communication channels; expanding the communication dimension within Integrated Continuing Care Units; and actively analysing abnormal occurrences with transparent dissemination of results. These recommendations aim to foster greater engagement with safety culture issues among all professionals, as a truly effective safety culture must be shared and embraced collectively. Although some limitations were encountered, such as the relatively low questionnaire response rate (25.9%) and the constraints imposed by the COVID-19 pandemic, which affected mobility and perceptions within healthcare institutions, these did not compromise the overall relevance of the study. The absence of prior research on safety culture within National Network for Integrated Continuing Care institutions limited comparative analysis, and the exclusion of observational components due to pandemic restrictions was a methodological constraint. Nonetheless, this pioneering study on safety culture in a Portuguese Integrated Continuing Care Units lays important groundwork for future research and improvements in safety management, ultimately contributing to the quality and safety of care provided to both service users and healthcare professionals.

References

Atinga, R. A., Gmaligan, M. N., Ayawine, A., & Yambah, J. K. (2024). "It's the patient that suffers from poor communication": Analyzing communication gaps and associated consequences in handover events from nurses' experiences. *SSM-Qualitative Research in Health*, *6*, 100482. https://doi.org/10.1016/j.ssmqr.2024.100482.

Benson, C., Obasi, I. C., Akinwande, D. V., & Ile, C. (2024). The impact of interventions on health, safety and environment in the process industry. *Heliyon*, *10*(1). https://doi.org/10.1016/j.heliyon.2023.e23604.

Berezowski, J., Czapla, M., Manulik, S., & Ross, C. (2023). Rationing in healthcare - a scoping review. *Frontiers in Public Health*, *11*, 1160691. https://doi.org/10.3389/fpubh.2023.1160691.

Cameron, K. S., e Quinn, R. E. (2011) Diagnosing and changing organizational culture: Based on the competing values framework, 3rd ed., San Francisco, John Wiley e Sons.

Cooper, M. D. (2000). Towards a model of safety culture. *Safety science*, *36*(2), 111-136. https://doi.org/10.1016/S0925-7535(00)00035-7.

Cooper, M. D. (2018). The safety culture construct: theory and practice. In *Safety cultures, safety models: Taking stock and moving forward* (pp. 47-61). Cham: Springer International Publishing.

Corvo T., Pescada S., Krasniqi A., Vidal J., Teixeira F., Ruxho F., 2024. "The importance of organizational culture in the performance of family health units – model b in the Algarve region", Regional Science Inquiry, Vol. XVI, (2), pp. 93-102

Davis, T. R., Straatmann, K., Snyder, N., Shiner, D., Evans, A., Caruso, C., & Alton, M. (2025). Promoting a Culture of Patient Safety: Using the Principles of Just Culture to Improve Transparency and Risk Reporting in the Hospital Setting. *Patient Safety*, *7*(2). https://doi.org/10.33940/001c.137737.

Dionisio A., Rolim C., Rego C., 2025. "Determinants of demand for cities with higher education institutions: An approach based on fractional regression", Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 81-93

Dionisio A., Rolim C., Rego C., 2025. "Determinants of demand for cities with higher education institutions: An approach based on fractional regression", Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 81-93

Ellis, L. A., Falkland, E., Hibbert, P., Wiig, S., Ree, E., Schultz, T. J., Pirone, C., & Braithwaite, J. (2023). Issues and complexities in safety culture assessment in healthcare. *Frontiers in Public Health*, *11*, 1217542. https://doi.org/10.3389/fpubh.2023.1217542.

Finn, M., Walsh, A., Rafter, N., Mellon, L., Chong, H. Y., Naji, A., .O'Brien, N., Williams, D. & McCarthy, S. E. (2024). Effect of interventions to improve safety culture on healthcare workers in hospital settings: a systematic review of the international literature. *BMJ open quality*, *13*(2) https://doi.org/10.1136/bmjoq-2023-002506.

FJ Teixeira, SSPV Pescada, F Ruxho, C Palma, F Beha, 2024. "GLAMPING IN LOW-DENSITY TERRITORIES: THE CASE OF SANTO ALEIXO DA REASTAURA?? O, Regional Science Inquiry 16 (1), 71-80

Flott, K., Nelson, D., Moorcroft, T., Mayer, E. K., Gage, W., Redhead, J., & Darzi, A. W. (2018). Enhancing safety culture through improved incident reporting: a case study in translational research. *Health Affairs*, *37*(11), 1797-1804. https://doi.org/10.1377/hlthaff.2018.0706.

Fosdick, T., Campsall, D., Kamran, M., & Scott, S. (2024). Creating a cultural maturity model to assess safe system readiness within road safety organisations. *Journal of road safety*, *35*(1), 52-64. https://doi.org/10.33492/JRS-D-24-1-2125507.

Giovanelli, L., Rotondo, F., & Fadda, N. (2024). Management training programs in healthcare: effectiveness factors, challenges and outcomes. *BMC Health Services Research*, *24*(1), 904. https://doi.org/10.1186/s12913-024-11229-z.

Glarcher, M., & Vaismoradi, M. (2025). Promoting just culture in nursing education: A systematic integrative review on enhancing patient safety. *Nurse education today*, 106776. https://doi.org/10.1016/j.nedt.2025.106776.

Goncalves Filho, A. P., & Waterson, P. (2018). Maturity models and safety culture: A critical review. *Safety science*, *105*, 192-211. https://doi.org/10.1016/j.ssci.2018.02.017.

Gonçalves Filho, A. P., Andrade, J. C. S., & Marinho, M. M. D. O. (2011). Cultura e gestão da segurança no trabalho: uma proposta de modelo. *Gestão & Produção*, *18*, 205-220. https://doi.org/10.1590/S0104-530X2011000100015.

Gonçalves Filho, A. P., Andrade, J. C. S., & Marinho, M. M. D. O. (2013). Modelo para a gestão da cultura de segurança do trabalho em organizações industriais. *Production*, *23*, 178-188. https://doi.org/10.1590/S0103-65132012005000044.

Hafezi, A., Babaii, A., Aghaie, B., & Abbasinia, M. (2022). The relationship between patient safety culture and patient safety competency with adverse events: a multicenter cross-sectional study. *BMC nursing*, *21*(1), 292. https://doi.org/10.1186/s12912-022-01076-w.

Halligan, M., & Zecevic, A. (2011). Safety culture in healthcare: a review of concepts, dimensions, measures and progress. *BMJ quality & safety*, *20*(4), 338-343. https://doi.org/10.1136/bmjqs.2010.040964.

Hamiti A., 2025. "The relationship between forms of bullying and academic success of high school students in the region of Prishtina, Kosovo", Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 54-66

Howick, J., Bennett-Weston, A, Solomon, J., Nockels, K., Bostock, J., & Keshtkar, L. (2024). How does communication affect patient safety? Protocol for a systematic review and logic model. *BMJ open*, *14*(5), e085312. https://doi.org/10.1136/bmjopen-2024-085312.

Huang, C. H., Wu, H. H., & Lee, Y. C. (2023). A comparative study on patient safety culture among high-risk hospital staff in the context of the COVID-19 and non-COVID-19 pandemic: a cross-sectional study in Taiwan. *Frontiers in Public Health*, *11*, 1200764. https://doi.org/10.3389/fpubh.2023.1200764.

Kallioras D., Niavis S., 2025. "Regional inequalities: Knowledge frontiers and debates", Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 67-80
Kallioras D., Niavis S., 2025. "Regional inequalities: Knowledge frontiers and debates", Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 67-80
Kelly, D., & Ostovar-Kermani, T. G. (2024). Systematic Literature Review of Disseminating Health Information to BIPOC Communities. *Health Open Research*, *6*, 19. https://doi.org/10.12688/healthopenres.13682.1.
Khan A., Tripathi S., Chandiramani J., 2024. "Smart city initiatives and economic growth in india: an empirical analysis", Sustainable Regional Development Scientific Journal, Vol. I, (2): Special Issue, pp. 41-56
Kilcullen, M. P., Bisbey, T. M., Ottosen, M. J., Tsao, K., Salas, E., & Thomas, E. J. (2022). The safer culture framework: an application to healthcare based on a multi-industry review of safety culture literature. *Human factors*, *64*(1), 207-227. https://doi.org/10.1177/00187208211060891.
Kolukısa Tarhan, A., Garousi, V., Turetken, O., Söylemez, M., & Garossi, S. (2020). Maturity assessment and maturity models in health care: A multivocal literature review. *Digital health*, *6*, 2055207620914772. https://doi.org/10.1177/2055207620914772.
Krupavicius, A., Sarkute, L., Krasniqi, A., Ladias, Christos Ap. 2024. "Perceived and desired images of society: how (un)equal is society?" Regional Science Inquiry, 16(1), pp. 55-70
Krupavicius, A., Šarkute, L., Krasniqi, A., Ladias, Christos Ap. 2024. "Perceived and desired images of society: how (un)equal is society?" Regional Science Inquiry, 16(1), pp. 55-70
Kusma, V. V., Gerônimo, B. M., Zola, F. C., Aragão, F. V., Chiroli, D. M. D. G., & Kovaleski, J. L. (2024). A maturity model of occupational safety and health in industry 4.0: An analysis in Brazilian organizations. *Journal of Safety and Sustainability*, *1*(4), 234-246. https://doi.org/10.1016/j.jsasus.2024.11.002.
Ladias C.A., Ruxho F., Teixeira F., Pescada S., 2023, "The regional economic indicators and economic development of Kosovo", Regional Science Inquiry, Vol. XV, (1), pp. 73-83
Lampreia M., Teixeira F., Pescada S. P. V., 2024. "The predictive power of technical analysis: evidence from the gbp/usd exchange rate", Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 67-75
Liana, D., Lestari, F., Sutoto, S., Modjo, R., & Bachtiar, A. (2022). A self-assessment model for hospital safety culture maturity. *Journal of Public Health Research*, *11*(2). https://doi.org/10.4081/jphr.2022.2530.
Lincaru C., Tudose G., Cosnita D., Pirciog S., Grigorescu A., Ciuca V., 2024. "Clusters as engines of sustainable employment growth in Romania1", Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 10-27
Linnander, E. L., Mantopoulos, J. M., Allen, N., Nembhard, I. M., & Bradley, E. H. (2017). Professionalizing healthcare management: a descriptive case study. *International journal of health policy and management*, *6*(10), 555. https://doi.org/10.15171/ijhpm.2017.40.
Lopes, A. L., Pereira, R. A., Pereira, L. M. V., Castilho, F. M. C. D., & Gimenes, F. R. E. (2024). Cultura de segurança do paciente em tempos de pandemia de COVID-19: estudo transversal em hospital. *Revista Brasileira de Enfermagem*, *77*, e20230187. https://doi.org/10.1590/0034-7167-2023-0187pt.
Lousada, L. M., da Silva Dutra, F. C., da Silva, B. V., de Oliveira, N. L. L., Bastos, I. B., de Vasconcelos, P. F., & de Carvalho, R. E. F. L. (2020). Patient safety culture in primary and home care services. *BMC Family Practice*, *21*(1), 188. https://doi.org/10.1186/s12875-020-01263-1.
Marta-Costa A., Martinho V., Santos M., 2017. "Productive efficiency of Portuguese vineyard regions", Regional Science Inquiry, vol. ix, (2), pp. 97-107
Murray, J. S., Clifford, J., Larson, S., Lee, J. K., & Sculli, G. L. (2023). Implementing just culture to improve patient safety. *Military Medicine*, *188*(7-8), 1596-1599. https://doi.org/10.1093/milmed/usac115.
Papajorgji P., Tordi A., 2024. "Using quantitative tools to understand political issues", Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 28-35
Pescada S., Teixeira F., Pereira W., 2025. "Organisational culture at public hospital of Algarve: Internal medicine staff perception", Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 11-21
Polo A., Caca E., Zyberi I., Ladias C.A, Ruxho F., 2025. "Foreign direct investment in real estate in Albania and its impact on GDP", Regional Science Inquiry, Vol. XVII, (1), 2025, pp. 135-142
Polyzos S., Tsiotas D., 2025. "The viable business practice of optimizing the occupational accidents cost: A microeconomic approach", Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 32-43
Reason, J. (2016). *Managing the risks of organizational accidents*. Routledge.
https://doi.org/10.4324/9781315543543.
Resende, J., Quaresma, G., & Lucas, P. (2021). A Cultura de Segurança em Estruturas Residenciais para Pessoas Idosas. *New Trends in Qualitative Research*, *8*, 663-675. https://doi.org/10.36367/ntqr.8.2021.663-675.
Rider, E. A., Frost, J. S., & Longmaid III, H. E. (2021). Embedding shared interprofessional values in healthcare organizational culture: The National Academies of Practice experience. *Journal of Interprofessional Education & Practice*, *23*, 100348. https://doi.org/10.1016/j.xjep.2020.100348.

Ruxho F., 2024. "Kosovo employee's perception of economic growth and decent work according to sustainability", Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 53-66

Ruxho F., Ladias C.A, 2022. "Increasing funding for the regional industry of Kosovo and impact on economic growth" Regional Science Inquiry Journal, Vol. XIV. (1), pp. 117-126

Ruxho F., Ladias C.A, Tafarshiku A., Abazi E., 2023. "Regional employee's perceptions on decent work and economic growth: labour market of Albania and Kosovo", Regional Science Inquiry, Vol. XV, (2), pp.13-23.

Ruxho F., Ladias C.A., 2022. "The logistic drivers as a powerful performance indicator in the development of regional companies of Kosovo" Regional Science Inquiry Journal, Vol. XIV. (2), pp. 95-106

Ruxho F., Petropoulos D., Negoro D.A. 2024. "Public debt as a determinant of the economic growth in Kosovo", Sustainable Regional Development Scientific Journal, Vol. I, (1), pp. 55-67

Sanchis, D. Z., Haddad, M. D. C. F. L., Girotto, E., & Silva, A. M. R. (2020). Patient safety culture: perception of nursing professionals in high complexity institutions. *Revista brasileira de enfermagem*, *73*, e20190174. https://doi.org/10.1590/0034-7167-2019-0174.

Sarkute L., Sina D., Bello, K., Vercuni A., 2024. "Strategic management decisions in the context of foreign direct investment. The role of institutions and economic determinants", Sustainable Regional Development Scientific Journal, Vol. I, (1), pp. 40-54

Sepetis A., Krupavičius A., Ladias Ap. C. 2024 "Social protection in Greece and sustainable development leaving no one behind", Sustainable Regional Development Scientific Journal, Vol. I, (1), pp. 83-92

Sequeira T., Rego C., Dionisio A., 2024. "Investment and productivity in the agro-industrial sector: a case study", Sustainable Regional Development Scientific Journal, Vol. I, (2): Special Issue, pp. 13-26

Serran, F. J., & Alberton, A. (2023). Maturidade da cultura de segurança: relação com as práticas de gestão de saúde e segurança ocupacional e qualidade de vida no trabalho. *REUNIR Revista de Administração Contabilidade e Sustentabilidade*, *13*(3), 182-199. https://doi.org/10.18696/reunir.v13i3.1350.

Simsekler, M. C. E., Qazi, A., & Ozonoff, A. (2025). Exploring the role of safety culture dimensions in patient safety using a Bayesian Belief Network model. *Safety Science*, *186*, 106817. https://doi.org/10.1016/j.ssci.2025.106817.

Stavara M., Tsiotas D., 2024. "A combined graph theoretic and transport planning framework for the economic 10 Sustainable Regional Development Scientific Journal, Vol. I, (2): Special Issue, Oct. 2024 and functional analysis of large-scale road networks", Sustainable Regional Development Scientific Journal, Vol. I, (2): Special Issue, pp. 27-40

Tadia, V. K., Kotwal, N., & Jalaunia, R. S. (2025). Patient safety culture: Insights from a cross-sectional study among healthcare professionals. *Journal of Family Medicine and Primary Care*, *14*(1), 90-96. https://doi.org/10.4103/jfmpc.jfmpc_904_24.

Teixeira F., Pescada, S.S.P.V., Ladias C.A., Hulaj M., Ruxho F., Machado V., 2025. "Stablecoin dp2p: innovation and sustainability in fiat currencies", Regional Science Inquiry, Vol. XVII, (1), pp. 95-106

Tocco Tussardi, I., Moretti, F., Capasso, M., Niero, V., Visentin, D., Dalla Barba, L., & Tardivo, S. (2022). Improving the culture of safety among healthcare workers: Integration of different instruments to gain major insights and drive effective changes. *The International journal of health planning and management*, *37*(1), 429-451. https://doi.org/10.1002/hpm.3348.

Todri A., Sejdini I., Sejdini I. Balukja I., 2025. Stakeholders` perceptions on corporate engagement in social responsibility and sustainable development: Insights from domestic and foreign-owned corporations in Albania", Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 22-31

Tsiotas D., Giannakis E., Papadas C., 2025. "A modularity decomposition model of evolving input-output sectorial structure, Regional Science Inquiry, Vol. XVII, (1), pp. 107-133

Tsiotas D., Polyzos S., 2024. "Analyzing the spatial interactions in the nationwide regional capitals network of Greece", Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 36-52

Tsiotas D., Polyzos S., 2024. "Analyzing the spatial interactions in the nationwide regional capitals network of Greece", Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 36-52

Tsiotas, D., Krabokoukis, T., & Polyzos, S. 2020. "Detecting interregional patterns in tourism seasonality of Greece: A principal components analysis approach", Regional Science Inquiry, 12(2), 91-112.

Tsiotas, D., Polyzos, S., 2024. "Transportation networks and regional development: the conceptual and empirical framework in Greece", Sustainable Regional Development Scientific Journal, Vol. I, (1), pp. 15-39

Van Baarle, E., Hartman, L., Rooijakkers, S., Wallenburg, I., Weenink, J. W., Bal, R., & Widdershoven, G. (2022). Fostering a just culture in healthcare organizations: experiences in practice. *BMC Health Services Research*, *22*(1), 1035. https://doi.org/10.1186/s12913-022-08418-z.

Varanda, J., Gonçalves, L., & Craveiro, I. (2020). The unlikely saviour: Portugal's national health system and the initial impact of the COVID-19 pandemic?. *Development*, *63*(2), 291-297. https://doi.org/10.1057/s41301-020-00268-8.

Vikan, M., Haugen, A. S., Bjørnnes, A. K., Valeberg, B. T., Deilkås, E. C. T., & Danielsen, S. O. (2023). The association between patient safety culture and adverse events–a scoping review. *BMC health services research*, *23*(1), 300. https://doi.org/10.1186/s12913-023-09332-8.

Whyle, E. B., & Olivier, J. (2020). Towards an explanation of the social value of health systems: an interpretive synthesis. *International Journal of Health Policy and Management*, *10*(7), 414. https://doi.org/10.34172/ijhpm.2020.159.

Yorio, P. L., Edwards, J., & Hoeneveld, D. (2019). Safety culture across cultures. *Safety science*, *120*, 402-410. https://doi.org/10.1016/j.ssci.2019.07.021.

Zabin, L. M., Zaitoun, R. S. A., Sweity, E. M., & de Tantillo, L. (2023). The relationship between job stress and patient safety culture among nurses: a systematic review. *BMC nursing*, *22*(1), 39. https://doi.org/10.1186/s12912-023-01198-9.

INTEGRATING FINANCIAL AND ORGANIZATIONAL DRIVERS IN SME DEBT DYNAMICS: INSIGHTS FROM RADIAL BASIS FUNCTION ANALYSIS

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Abstract

This study applies Radial Basis Function (RBF) models to analyze the determinants of SME debt structures among 132 firms, integrating quantitative and qualitative variables. The RBF approach reveals that both financial performance and organizational behavior significantly influence leverage and debt accessibility. Non-performing borrowers exhibit higher leverage and lower operational efficiency, while performing firms demonstrate stronger liquidity and asset utilization. Equity origin and gender-based management differences shape debt behavior, with national firms favoring long-term domestic debt and female or mixed ownership maintaining higher security margins. RBF models identify key predictors of short-term debt—such as ROA, ROE, and asset turnover—and long-term debt, including profitability ratios, tangibility, equity structure, and firm size. Layer-specific correlations highlight the multidimensional interaction between firm characteristics and financing patterns. Overall, RBF analysis enhances understanding of SME debt dynamics, providing actionable insights for financial governance, risk management, and policy formulation.

Keywords: Financial ratios, organizational patterns, SMEs debt structure
JEL Classification: M2, M29, M49

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1. Introduction

Over the years, a substantial body of empirical research has investigated the determinants of firms' capital structures, identifying a range of factors that influence financing decisions. The most consistently cited factors in the literature include asset structure, non-debt tax shields (NDTS), firm size, profitability, growth opportunities, liquidity, cash flow, and industry characteristics. Each of these variables contributes differently to the debt-equity mix a firm employ, reflecting both theoretical expectations and empirical findings, which often present nuanced or contradictory results.

One of the earliest and most extensively studied determinants is the structure of a firm's assets, specifically the proportion of tangible versus intangible assets. Tangible assets, such as property, plant, and equipment, can serve as collateral in case of default, making them particularly relevant for lenders (Harc, 2015). Firms with higher levels of tangible assets are therefore generally expected to issue more debt, including both bank loans and other debt instruments. This rationale is supported by multiple studies, which argue that tangible assets reduce lenders' risk exposure and facilitate debt issuance. Michaelas et al. (1999) and Hall et al. (2000), for instance, confirmed a positive correlation between tangible assets and long-term debt (LTD). However, the relationship between tangible assets and short-term debt (STD) is less clear; some studies report a positive association, while others find a negative or statistically insignificant relationship. Overall, the evidence indicates that asset tangibility remains an important, though sometimes context-dependent, determinant of capital structure.

Non-debt tax shields (NDTS) are another critical factor affecting leverage (Mitra & Samanta 2022). NDTS refer to tax-deductible expenses other than interest, such as depreciation, provisions, and allowances for doubtful accounts. While debt offers the advantage of interest tax deductibility, the existence of significant NDTS can reduce a firm's incentive to issue debt. Empirical studies generally find a negative relationship between NDTS and long-term debt (Öhman & Yazdanfar, 2017) although results for short-term debt are less conclusive. Contradictory findings also exist, with some research suggesting positive correlations between NDTS and LTD (Rudiningtyas et al., 2023), alongside negative correlations with STD. These variations may reflect differences in sample composition, firm size, or industry.

Firm size is widely recognized as a robust predictor of leverage (Forte et al., 2013). Larger firms typically have better access to capital markets, lower external financing costs, and more diversified operations, which reduce bankruptcy risk. Empirical evidence generally shows a positive relationship between size and debt levels, particularly LTD, while smaller firms often rely more heavily on internal financing due to higher transaction costs and greater risk aversion (Chittenden et al., 1996). SMEs, for example, tend to exhibit a negative correlation between size and STD while showing a positive correlation with LTD. The reduced cost of external financing and the capacity to stabilize earnings through diversified operations further reinforce the propensity of larger firms to carry more debt. Conversely, smaller firms are usually more conservative, relying on self-financing and demonstrating aversion to external debt.

Profitability is often analyzed in relation to the pecking order theory, which posits that firms prioritize financing internally generated funds first, then debt, and finally equity as a last resort (Martinez et al., 2019). Empirical evidence shows that, particularly for SMEs, profitability tends to be negatively correlated with debt ratios. Profitable firms often prefer to finance investments internally rather than incur the costs and risks associated with external borrowing (Rashid, 2014). Managers of smaller firms, often also the owners, are typically more risk-averse, avoiding debt financing even when tax shields are available. These findings suggest that while debt can be beneficial, highly profitable firms may not exploit leverage due to internal funding preference (Brav, 2009).

Growth opportunities are another widely studied determinant, though the literature presents mixed findings. High-growth firms may issue more debt because they signal potential to creditors and can secure favorable credit terms (Lee, 2014) while other studies argue that growth is negatively related to debt since firms may prefer to fund expansion through retained earnings to avoid overinvestment or increase agency costs associated with debt. Some research indicates that investment in growth increases agency costs of debt, reducing the likelihood of external borrowing (Vanacker & Manigart, 2010). Overall, growth's impact on leverage is context-dependent, influenced by factors such as firm size, risk tolerance, and the availability of internal funds.

Liquidity and cash flow are also significant factors shaping capital structure. Liquidity ratios, measuring a firm's ability to meet short-term obligations, generally exhibit a negative relationship with debt ratios (Gunawan, 2023). Firms with higher liquidity can fund investments internally and are less dependent on external debt. Similarly, firms with substantial cash flows may use these resources to finance projects rather than borrow externally, a trend particularly evident among SMEs. Nevertheless, some studies argue that firms with high free cash flows may issue debt to discipline managers and align investment decisions with shareholder interests. Agency theory models further explore the interplay between leverage and managerial behavior, suggesting that leverage may be negatively correlated with interest coverage and growth opportunities, while firm value may rise with optimal debt levels (Javaid & Javid, 2017). In SMEs, agency problems are often minimal due to owner-manager overlap, but evidence remains mixed.

Other firm-specific characteristics, such as asset substitution, reputation, and age, also influence debt decisions. Firms with older or more reputable management teams are inclined to undertake less risky projects, reducing default probability and, consequently, borrowing costs (Sakai et al., 2010). The literature also highlights the relevance of market-level factors. For example, stock market development, banking sector growth, and macroeconomic stability affect leverage. Some studies find negative relationships between stock market levels and leverage (Acheampong et al., 2014), while bank development positively influences debt levels (Du et al., 2017). The interaction of these external factors with firm-level characteristics demonstrates the multi-dimensional nature of capital structure decisions.

Industrial organization and strategic considerations further shape leverage. Theoretical models show that a firm's debt capacity is influenced by market structure, product demand elasticity, and strategic behavior in oligopolistic markets. Firms may adjust leverage to align with their operational strategy, ensuring that shareholder and creditor interests are balanced (Odhiambo et al., 2025). Similarly, firms employing highly skilled labor may require more debt to finance operations, reflecting the need to maintain human capital investments. Historical trends also indicate shifts in leverage patterns over time, with evidence of a general rise in corporate debt levels since World War II, punctuated by declines in certain periods.

Overall, empirical research consistently identifies several key determinants of capital structure: firm size, profitability, asset tangibility, growth opportunities, and volatility. Industry characteristics, macroeconomic conditions, and regulatory environments further influence these decisions, reflecting the interplay between internal and external factors. Studies also highlight that leverage patterns tend to persist over time, influenced by factors such as firm-specific risk profiles, NDTS, research and development expenditures, product uniqueness, and investment volatility (Mumassabba, 2024). Macroeconomic and environmental factors—ranging from fiscal policies, financial stability, foreign investment, and exchange rate volatility to political risks and terrorism threats—also shape financing decisions (Doacă, 2022). Moreover, firm-specific operational patterns, including collateral value, sales discounts, product quality, and customer loyalty premiums, indirectly affect capital structure choices and ultimately influence performance outcomes (Amoa-Gyarteng, 2022).

The vast literature on capital structure determinants underscores the complexity of debt and equity decisions. Firm-specific factors such as size, profitability, asset tangibility, growth, liquidity, and cash flow are central, while industry characteristics, strategic positioning, and macroeconomic conditions also play critical roles. While empirical findings often present conflicting results—especially regarding short-term versus long-term debt, NDTS, and growth opportunities—the overarching consensus is that capital structure reflects a dynamic balance between risk, cost, and strategic objectives. Firms adjust leverage not only to optimize tax shields and minimize bankruptcy costs but also to align managerial incentives, maintain operational flexibility, and respond to evolving market conditions. Thus in this study we use the Radial Basis Function (RBF) methodological approach which provides a robust framework for analyzing complex, nonlinear relationships among quantitative and qualitative variables when assessing SMEs debt structures. Understanding these determinants provides valuable insights for academics, practitioners, and policymakers seeking to analyze and guide SMEs financial strategies.

2. Data and Methods

2.1 The sampling

The investigation sample treats a heterogeneous experimental group of 132 SMEs mainly operating in cities such as: Tirana, Elbasan, Durrës, Fier, Vlorë, etc., where the highest tax burden is paid in correspondence of yearly GDP. By mainly considering that in these areas is observed that tax burden is maintained by the taxpayer base included in the micro (self-employed) and small businesses category, rather than the one where medium and large businesses are included. Consequently each ‘sectoral-data pool/trade-construction-production and service’ is composed with above 33 pertinence businesses and the panel information is retrieved from National Registration Centre online registry and Credit Registry of Bank of Albania. Precisely the quantitative and qualitative data are respectively provided from businesses profit and loss statements, balance sheets, cash-flows, equity prospects and integrative notes. In addition borrowers’ status and collateral values data are accessed through Credit Registry of Central Bank of Albania.

2.2 Data measurement

Several meetings organized with Certified Accountants, Accounting Experts, Tax Office, National Registration Centre and Banks colleagues, regarding the research study design, helped in the acceleration of data collection process, and also in the validation of quantitative and qualitative variables measurement methods which are presented in the following Tables (Tables 1 and 2):

Table 1. Quantitative variables (financial ratios) measurement method

Variable	Measurement	Abbreviations
Current Assets	Short term assets/Short term debts	CA
Working Capital	Short term assets-Short term debts	WC
Quick Ratio	(Cash+trade securities portfolio+receivable accounts)/Short term debts	QR
Cash Ratio	(Cash+trade securities portfolio)/Short term debts	CR
Receivables Accounts Turnover Ratio	Net annual sales/Average receivables accounts	RATR
Average Collection Period	365/Receivables accounts turnover ratio	ACP
Inventory Turnover Ratio	Cost of goods sold / Average inventory	ITR
Inventory Turnover in days	365 / Inventory turnover ratio	ITD
Payable Account Turnover Ratio	Cost of goods sold / Average payable accounts	PATR
Average Payment Period	365/Payable account turnover ratio	APP
Money Convertion Cycle	Average collection period+Inventory turnover in days-Average payment period	MCC
Inventory	End of year inventory	INV
Receivable Accounts	End of year receivable accounts	RA
Fixed Assets	End of year fixed assets	FA
Short Term Assets	Cash+trade securities portfolio+receivable accounts+inventory	STA
Short Term Debts	Payable accounts, short term loans, etc	STD
Total Assets Turnover Ratio	Net sales/Average total assets	TATR
Fixed Assets Turnover Ratio	Net sales/Average fixed assets	FATR
Gross Profit Margin	Gross profit/Net sales	GPM

Gross Operative Margin	Earnings before interest and taxes / Net sales	GOM
Net Profit Margin	Net profit/Net sales	NPM
Assets Turnover	(Net profit + interest expenses)/Average equity	AT
Return on Equity	Net profit/Average equity	ROE
Total Assets Tangibility	Fixed assets/Total assets	TAN
Inventory/Total assets	Inventory/Total assets	ITA
Fixed Assets / Total Assets	Fixed assets (without land) / Total assets	FATA
Net Profit	End of year profit	NP
Business Size	Ln(total assets)	BoS
Long Lerm Debt/Equity Ratio	Long term debt/equity ratio	LTDER
Total Liability Ratio	Total debt/Total liability	TLR
Interest Coverage Ratio	Earnings before interest and taxes / Interest expenses	ICR
Total Leverage Ratio	Total debts/Total assets	LEV
Long-Term Leverage	Long term liabilities/Total Assets	LT-LEV
Long Term Debts	End of year long term debts	LTD
Return on Assets	Net profit/Average assets	ROA
Operative Cash Flow	In-out operative monetary flows	OCF
Investment Cash Flow	In-out monetary instruments derived from and for fixed assets purposes	ICF
Financing Cash Flow	Equity structure movements results	FCF
Equity	End of year equity	EQ
Collateral Value	End of year market collateral value	CV
Owner No	Ownership number	ON
Firms Age	Analysis period-Business registration period (start-up/grown/matured)	FA

Source: NRC and CR, Author elaboration

Rationally the measurement of quantitative variables (financial variables) includes the effect of various economic, fiscal and financial policies implemented in the country and absorbed from SMEs business segment.

From the other hand, qualitative variables (organizational behaviour variables presented in Table 2) reflect the entire business climate/operational framework.

Table 2. Qualitative variables (organizational behaviour) measurement method

Qualitative variables	**Measurement**	**Abbreviation**

Administrator Gender	Administrators gender (female-0, male-1 and both genders/mixed-2)	AG
Business Ownership	Business owner (adminstrator-0 or no-1)	BO
Equity Origin	Business equity origin (national-0, foreign-1 and mixed-partnership-2)	EO
Ownership Gender	Ownership gender (female-0, male-1 and mixed-ownership-2)	OG
Borrower Status	Borrower Status (non-performing + 30 due days-0 /performing 0-29 due days-1)	BS

Source: NRC, BoA and CR, Author elaboration

2.3 Methodological approach

The Radial Basis Function (RBF) methodological approach provides a robust framework for analyzing complex, nonlinear relationships among quantitative and qualitative variables when assessing SMEs debt structures. The process begins with *data preprocessing*, where quantitative variables (e.g., leverage, liquidity) are normalized, and qualitative variables (e.g., firm size category, ownership type, industry sector) are encoded numerically to ensure compatibility within the RBF framework.
Next, *centers of the radial basis functions* are selected from the dataset—either randomly or through clustering algorithms such as k-means—to represent key patterns in the input space.
The distance computation stage follows, where the Euclidean distance between each data point and each center is calculated, forming the basis for transforming the original variables into a new, multidimensional feature space. Using a chosen radial function, commonly the Gaussian function, the transformation captures both linear and nonlinear interactions among variables influencing SMEs' debt profiles. Subsequently, *the weight estimation* step determines the coefficients that best combine the radial basis outputs to predict the target variable, such as the debt ratio or probability of default, using least squares or regularized optimization techniques.
Model validation and calibration are then conducted using a test dataset to assess accuracy, stability, and generalization capacity. This process allows for the identification of key financial and structural characteristics influencing SME indebtedness. Overall, the RBF methodology efficiently integrates diverse variable types to model debt behavior, uncover nonlinear dependencies, and support evidence-based financial decision-making.

3. Results

The leverage structure prediction (ICR, STD, LT-LEV, LTDER and LTD) achieved through radial basis function in trade sector highlights the correlation of: ACP, PATR, APP, NPM, ROA, ROE, TAN, EQ, Total LEV, CV, Ownership gender, Equity origin, Borrowers' status, Business size, GPM, NP, FA, RA, Business administration, Administrators gender, Firm age and OCF with two hidden layers (Table 3). Respectively they have a negative and positive impact on the dependent variables in question.

Table 3. Independent variable importance /RBF-in trade sector

	Importance	Normalized Importance
ILR-6 ACP	.006	5.2%
ILR-9 PATR	.004	3.3%
ILR-10 APP	.004	3.3%
OE-5 NPM	.010	8.5%
OE-7 ROE	.006	4.8%
GA-1 ROA	.006	4.8%

OE-8 TAN	.008	7.1%
EQ	.006	4.8%
RA-4 TOTAL LEV	.006	4.8%
BoS	.006	4.8%
Ownership Gender	.008	6.9%
Equity Origin	.015	13.2%
Borrowers' Status	.015	13.2%
CV	.008	7.1%
OE-3 GPM	.006	4.8%
NP	.006	4.8%
FA	.008	7.1%
RA	.004	3.7%
OE-10 FATA	.066	55.9%
Business Administration	.006	5.4%
Administrator Gender	.044	37.5%
Owners No	.106	90.8%
Firm Age	.018	15.5%
INV	.075	63.8%
ILR-2 WC	.086	73.6%
ILR-4 CR	.109	93.0%
OE-2 FATR	.103	87.5%
GA-2 OCF	.032	27.3%
OE-6 AT	.107	91.0%
ILR-7 ITR	.117	100.0%

Source: Primary data collection, Author elaboration with SPSS

The forecasting of leverage structure (ICR, STD, LT-LEV, LTDER, LTD) through radial basis function in production sector generated two hidden layers which impact: ACP, PATR, APP, NPM, ROA, ROE, TAN, EQ, Total LEV, CV, Ownership gender, Borrowers' status, Business size, GPM, NP, FA, RA, Administrator gender and Owner no (Table 4). With special regard to first layer worth evidencing that in comparison with second one it has a higher impact (and positive) on all dependent variables in question

Table 4. Independent variable importance /RBF-in production sector

	Importance	Normalized Importance
ILR-6 ACP	.012	10.3%
ILR-9 PATR	.030	26.8%

ILR-10 APP	.027	24.0%
OE-5 NPM	.015	13.1%
OE-7 ROE	.015	13.1%
GA-1 ROA	.018	15.7%
OE-8 TAN	.009	7.8%
EQ	.009	7.8%
RA-4 Total LEV	.009	7.8%
BoS	.009	7.8%
Ownership Gender	.029	25.7%
Borrowers’ Status	.003	2.3%
CV	.009	7.8%
OE-3 GPM	.021	18.4%
NP	.015	13.1%
FA	.009	7.8%
RA	.009	7.8%
Administrator Gender	.023	20.2%
Business administration	.090	80.0%
Owners No	.021	19.0%
Firm Age	.092	81.1%
INV	.113	100.0%
ILR-2 WC	.063	55.8%
ILR-4 CR	.106	93.6%
OE-2 FATR	.090	79.6%
OE-6 AT	.055	48.8%
ILR-7 ITR	.101	89.3%

Source: Primary data collection, Author elaboration with SPSS

The prediction of ICR, STD, LT-LEV, LTDER and LTD in construction sector (see Table 5) through radial basis function on behalf of two hidden layers reveals that the statistical significant variables are: ACP, PATR, APP, NPM, ROA, ROE, TAN, EQ, Total LEV, Business size, Equity origin, Borrowers' status, CV, GPM, NP, FA, RA,FATA, Business administration, Firm age, WC, CR and ITR. Concretely, the first layer has a positive impact on all dependent variables in question except of LT-LEV and the vice versa occurs for second layer.

Table 5. Independent variable importance /RBF-in construction sector

	Importance	**Normalized Importance**
ILR-6 ACP	.012	7.0%
ILR-9 PATR	.038	23.0%
ILR-10 APP	.037	22.0%
OE-5 NPM	.022	12.9%

OE-7 ROE	.016	9.9%
GA-1 ROA	.022	12.9%
OE-8 TAN	.012	7.0%
EQ	.012	7.0%
RA-4 LEV	.012	7.0%
BoS	.012	7.0%
Ownership Gender	.057	34.0%
Equity Origin	.001	.8%
Borrowers’ Status	.032	19.0%
CV	.012	7.0%
OE-3 GPM	.016	9.8%
NP	.016	9.9%
FA	.012	7.0%
RA	.012	7.0%
OE-10 FATA	.044	26.7%
Business Administration	.006	3.5%
Owners No	.167	100.0%
Firm Age	.010	6.1%
INV	.069	41.2%
ILR-2 WC	.023	13.9%
ILR-4 CR	.018	10.7%
OE-2 FATR	.157	94.3%
OE-6 AT	.142	85.4%
ILR-7 ITR	.014	8.6%

Source: Primary data collection, Author elaboration with SPSS

The radial basis function deployed in service sector for the forecasting of leverage structure (ICR, STD, LT-LEV, LTDER, LTD), operated again with two hidden layers (Table 6) which result to be correlated with : ACP, PATR, APP, NPM, ROA, ROE, TAN, EQ, Total LEV, Business size, Equity origin, Ownership gender, Borrowers’ status, CV, GPM, NP, FA, RA and Business administration . The first layer has a stronger impact on dependent variables analyzed except of LTD, meanwhile the contrary is evidenced for the second one.

Table 6. Independent variable importance /RBF-in service sector

	Importance	Normalized Importance
ILR-6 ACP	.006	7.2%
ILR-9 PATR	.004	4.3%
ILR-10 APP	.004	4.3%
OE-5 NPM	.006	7.2%

OE-7 ROE	.013	14.3%
GA-1 ROA	.013	14.4%
OE-8 TAN	.004	4.3%
EQ	.006	7.2%
RA-4 LEV	.004	4.3%
BoS	.004	4.3%
Ownership Gender	.031	34.9%
Equity Origin	.024	27.0%
Borrowers' Status	.024	27.3%
CV	.004	4.3%
OE-3 GPM	.004	4.3%
NP	.006	7.2%
FA	.004	4.3%
RA	.006	7.2%
OE-10 FATA	.062	70.0%
Administrator Gender	.067	76.6%
Business Administration	.043	48.9%
Owners No	.087	99.0%
Firm Age	.068	77.2%
INV	.086	97.9%
ILR-2 WC	.086	98.1%
ILR-4 CR	.087	98.8%
OE-2 FATR	.084	95.2%
OE-6 AT	.076	86.2%
ILR-7 ITR	.088	100.0%

Source: Primary data collection, Author elaboration with SPSS

The prediction of SMEs leverage structure reconciliation at 95% confidence level handled through the implementation of radial basis function (tested through BIC, and model processing time) in each sectoral analysis generated two hidden layers which result to be mainly correlated with: ACP, PATR, APP, NPM, ROA, ROE, TAN, EQ, Total LEV, CV, Ownership gender, Equity origin, Borrowers' status, Business size, GPM, NP, FA, RA, Business administration, and Firm age. Foremost the model fits well in each case. In addition, is also noted that first layer is mainly positively correlated with all dependent variables in question in production, construction and service sectors and the vice versa occurs for the second layer in trade sector.

4. Conclusions

Statistical analyses conducted using radial basis function (RBF) models have provided important insights into the determinants and management of SMEs' debt structures, integrating both financial and non-financial predictors. These examinations reveal patterns in leverage, debt accessibility, and risk management, highlighting how firm-specific and managerial characteristics interact with broader sectoral dynamics to shape short- and long-term debt decisions.

A central finding concerns the relationship between borrowers' performance and leverage. Non-performing borrowers tend to have higher overall leverage (LEV), indicating that debt levels rising faster than the capacity to convert them into assets constrain cash flows, complicating debt repayment and impeding efficient asset utilization. Conversely, performing borrowers are better able to cover interest obligations and maintain operational stability, reinforcing the link between credit performance and financial health. This underscores the importance of monitoring borrowers' status in debt management practices.

Equity origin appears largely non-determinant in shaping long-term debt structures such as LTDER, although national firms exhibit higher long-term debt levels, particularly when debts are collateralized domestically. In contrast, foreign and mixed-equity businesses face barriers in accessing similar financing structures due to asymmetrical operational conditions. This emphasizes the contextual role of local financial environments in facilitating SME debt access.

Business administration frameworks and managerial characteristics further influence debt behavior. Firms managed directly by owners often pursue higher debt levels than those administered by professional managers. Owner-managed firms prioritize higher leverage to exploit market opportunities and achieve faster returns, reflecting risk tolerance aligned with personal and business stakes. In contrast, professional administrators tend to adopt more conservative strategies, favoring lower debt to manage default risks and associated responsibilities. Ownership gender also impacts leverage patterns indirectly: female and mixed-gender ownership structures tend to maintain higher security margins, with greater emphasis on fixed assets. Sectoral analyses reinforce these patterns; male administration is more inclined toward long-term leverage as a growth strategy, whereas female and mixed ownership prefer lower long-term debt exposure, particularly under risk-sensitive conditions.

The simultaneous effects of equity origin and gross profit margin (GPM) on long-term debt remain statistically insignificant, yet national firms consistently show preferences for domestic long-term debt, highlighting the practical accessibility and institutional advantages within local markets. Similarly, female administrators' emphasis on fixed assets persists regardless of business age, reflecting a strategic focus on business continuity and growth through tangible investments. Assets in these contexts serve dual purposes: operational continuity and collateral for short- and long-term financing.

Other analyses indicate that borrower status and firm size do not exhibit significant interactive effects on interest coverage ratio (ICR) or total asset turnover ratio (TATR). Nonetheless, performing borrowers tend to maintain higher ICR and TATR, demonstrating the link between creditworthiness and operational efficiency, which in turn supports sustained leverage capacity and reinvestment opportunities.

The predictive capabilities of radial basis function models provide further clarity on SMEs' debt structures. For short-term debt metrics such as ICR and STD, RBF analyses with two hidden layers identify critical predictors. Return on assets (ROA) and total asset turnover ratio (PATR) consistently correlate with the first hidden layer, while return on equity (ROE) associates more with the first layer but also partially with the second. Other variables, including firm age, collateral value, gross profit margin, non-performing status, equity structure, fixed assets, and retained earnings, demonstrate complex mixed-layer correlations, illustrating nuanced interactions between financial performance, firm characteristics, and debt outcomes. Business administration shows stronger correlation with the second layer, whereas working capital and current ratio primarily influence the first layer. The first layer generally predicts ICR more strongly, while the second layer is less correlated with STD, reflecting the layered determinants of short-term debt.

For long-term debt prediction, RBF models reveal determinant factors including average collection period (ACP), PATR, average payable period (APP), net profit margin (NPM), ROA, ROE, total assets, tangibility (TAN), equity structure, total leverage, collateral value (CV), ownership gender, equity origin, borrower status, and firm size. Predictive relationships vary by layer: ACP, TAN, and equity origin are more frequently associated with the first layer but demonstrate stronger correlations with the second; ROE, CV, and firm size correlate more frequently with the second layer but show stronger first-layer associations; ROA, APP, LEV, and borrower status maintain balanced correlations across both layers. Ownership gender, NPM, PATR, and equity display layer-specific correlations, while sectoral differences indicate that the first layer predicts long-term debt more effectively in production and construction, whereas the second layer is more relevant in trade and service sectors.

Further analysis illustrates nuanced correlations based on quantitative thresholds. For instance, ACP below 50 days primarily aligns with the first layer but is more strongly associated with the second; the reverse occurs above 50 days, and similar patterns are observed for APP, NPM, ROA, equity, CV, GPM, non-performing status, fixed assets, retained earnings, and firm size. Qualitative predictors also demonstrate differentiated correlations: female ownership aligns more with the first layer, male with the second, and mixed ownership distributes across both. National firms show strong second-layer associations, foreign firms correlate with the first layer, and mixed-equity firms with the second. Performing borrower status is partially correlated across layers, while non-performing status associates more with the second. Business administration and firm age generally influence the second layer.

Overall, RBF models demonstrate strong predictive capabilities for both short- and long-term SME debt structures across sectors. These results enhance understanding of interactive liquidity and leverage risk management, offering valuable insights into how SMEs can align performance metrics, managerial characteristics, ownership structures, and financial policies with optimal debt strategies. Such insights support the practical application of contingency and stewardship theories in SME financial governance, providing a foundation for informed, evidence-based debt management.

References

Acheampong, P., Agalega, E., & Shibu, A. K. (2014). The effect of financial leverage and market size on stock returns on the Ghana Stock Exchange: evidence from selected stocks in the manufacturing sector. International journal of financial research, 5(1), 125.

Amoa-Gyarteng, K. (2022). The influence of capital structure and profitability on the solvency of nascent SMEs. University of Johannesburg (South Africa).

Brav, O. (2009). Access to capital, capital structure, and the funding of the firm. The journal of finance, 64(1), 263-308.

Chittenden, F., Hall, G., & Hutchinson, P. (1996). Small firm growth, access to capital markets and financial structure: Review of issues and an empirical investigation. Small business economics, 8(1), 59-67.

Dionisio A., Rolim C., Rego C., 2025. "Determinants of demand for cities with higher education institutions: An approach based on fractional regression", Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 81-93

Doacă, E. M. (2022). The influence of the macroeconomic environment on the financing decision in SMEs. Proceedings of CBU in Economics and Business..., 3, 25.

Du, J., Bian, C., & Gan, C. (2017). Bank competition, government intervention and SME debt financing. China Finance Review International, 7(4), 478-492.

FJ Teixeira, SSPV Pescada, F Ruxho, C Palma, F Beha, 2024. "GLAMPING IN LOW-DENSITY TERRITORIES: THE CASE OF SANTO ALEIXO DA REASTAURA?? O, Regional Science Inquiry 16 (1), 71-80

Forte, D., Barros, L. A., & Nakamura, W. T. (2013). Determinants of the capital structure of small and medium sized Brazilian enterprises. BAR-Brazilian Administration Review, 10, 347-369.

Gunawan, E. (2023). Liquidity Ratio Analysis in Financing Short Term Liabilities. International Journal of Health, Economics, and Social Sciences (IJHESS), 5(2), 157-162.

Hall, G., Hutchinson, P., & Michaelas, N. (2000). Industry effects on the determinants of unquoted SMEs' capital structure. International journal of the economics of business, 7(3), 297-312.

Hamiti A., 2025. "The relationship between forms of bullying and academic success of high school students in the region of Prishtina, Kosovo", Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 54-66

Harc, M. (2015). The relationship between tangible assets and capital structure of small and medium-sized companies in Croatia. Ekonomski Vjesnik/Econviews: Review of Contemporary Business, Entrepreneurship and Economic Issues, 28(1), 213-224.

Javaid, H. M., & Javid, S. (2017). Determining agency theory framework through financial leverage & insider ownership. International Journal of Economics and Finance, 9(3), 21.

Kallioras D., Niavis S., 2025. "Regional inequalities: Knowledge frontiers and debates", Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 67-80

Khan A., Tripathi S., Chandiramani J., 2024. "Smart city initiatives and economic growth in india: an empirical analysis", Sustainable Regional Development Scientific Journal, Vol. I, (2): Special Issue, pp. 41-56

Krupavicius, A., Šarkute, L., Krasniqi, A., Ladias, Christos Ap. 2024. "Perceived and desired images of society: how (un)equal is society?" Regional Science Inquiry, 16(1), pp. 55-70

Ladias C.A., Ruxho F., Teixeira F., Pescada S., 2023, "The regional economic indicators and economic development of Kosovo", Regional Science Inquiry, Vol. XV, (1), pp. 73-83

Lampreia M., Teixeira F., Pescada S. P. V., 2024. "The predictive power of technical analysis: evidence from the gbp/usd exchange rate", Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 67-75

Lee, N. (2014). What holds back high-growth firms? Evidence from UK SMEs. Small Business Economics, 43(1), 183-195.

Lincaru C., Tudose G., Cosnita D., Pirciog S., Grigorescu A., Ciuca V., 2024. "Clusters as engines of sustainable employment growth in Romania1", Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 10-27

Martinez, L. B., Scherger, V., & Guercio, M. B. (2019). SMEs capital structure: trade-off or pecking order theory: a systematic review. Journal of Small Business and Enterprise Development, 26(1), 105-132.

Michaelas, N., Chittenden, F., & Poutziouris, P. (1999). Financial policy and capital structure choice in UK SMEs: Empirical evidence from company panel data. Small business economics, 12(2), 113-130.

Mitra, S., & Samanta, P. K. (2022). Leverage tax benefit, non-debt tax shield, default risk and external financing policy of listed small and medium-sized transportation companies: a panel data approach. SKBU Business Review, 2(1).

Mumassabba, J. (2024). Risk Management Strategies and Competitiveness of Small and Medium Enterprises in Kenya (Doctoral dissertation, JKUAT-COHRED).

Odhiambo, J. D., Murori, C. K., & Aringo, C. E. (2025). Financial leverage and firm performance: An empirical review and analysis. East African Finance Journal, 4(1), 25-35.

Öhman, P., & Yazdanfar, D. (2017). Short-and long-term debt determinants in Swedish SMEs. Review of Accounting and Finance, 16(1), 106-124.

Papajorgji P., Tordi A., 2024. "Using quantitative tools to understand political issues", Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 28-35

Pescada S., Teixeira F., Pereira W., 2025. "Organisational culture at public hospital of Algarve: Internal medicine staff perception", Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 11-21

Polyzos S., Tsiotas D., 2025. "The viable business practice of optimizing the occupational accidents cost: A microeconomic approach", Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 32-43

Rashid, A. (2014). Firm external financing decisions: explaining the role of risks. Managerial Finance, 40(1), 97-116.

Rudiningtyas, D. A., Soesetio, Y., & Arifin, N. Z. P. (2023, November). The Determinants of Capital Structure: The Used of Total Debt, Short Debt, Long Debt, and Bank Debt. In Proceedings of the BISTIC Business Innovation Sustainability and Technology International Conference (BISTIC 2023) (Vol. 267, p. 32). Springer Nature.

Ruxho F., 2024. "Kosovo employee's perception of economic growth and decent work according to sustainability", Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 53-66

Ruxho F., Ladias C.A, 2022. "Increasing funding for the regional industry of Kosovo and impact on economic growth" Regional Science Inquiry Journal, Vol. XIV. (1), pp. 117-126

Ruxho F., Ladias C.A, Tafarshiku A., Abazi E., 2023. "Regional employee's perceptions on decent work and economic growth: labour market of Albania and Kosovo", Regional Science Inquiry, Vol. XV, (2), pp.13-23.

Ruxho F., Ladias C.A., 2022. "The logistic drivers as a powerful performance indicator in the development of regional companies of Kosovo" Regional Science Inquiry Journal, Vol. XIV. (2), pp. 95-106

Ruxho F., Petropoulos D., Negoro D.A. 2024. "Public debt as a determinant of the economic growth in Kosovo", Sustainable Regional Development Scientific Journal, Vol. I, (1), pp. 55-67

Sakai, K., Uesugi, I., & Watanabe, T. (2010). Firm age and the evolution of borrowing costs: Evidence from Japanese small firms. Journal of Banking & Finance, 34(8), 1970-1981.

Sarkute L., Sina D., Bello, K., Vercuni A., 2024. "Strategic management decisions in the context of foreign direct investment. The role of institutions and economic determinants", Sustainable Regional Development Scientific Journal, Vol. I, (1), pp. 40-54

Sepetis A., Krupavičius A., Ladias Ap. C. 2024 "Social protection in Greece and sustainable development leaving no one behind", Sustainable Regional Development Scientific Journal, Vol. I, (1), pp. 83-92

Sequeira T., Rego C., Dionisio A., 2024. "Investment and productivity in the agro-industrial sector: a case study", Sustainable Regional Development Scientific Journal, Vol. I, (2): Special Issue, pp. 13-26

Stavara M., Tsiotas D., 2024. "A combined graph theoretic and transport planning framework for the economic 10 Sustainable Regional Development Scientific Journal, Vol. I, (2): Special Issue, Oct. 2024 and functional analysis of large-scale road networks", Sustainable Regional Development Scientific Journal, Vol. I, (2): Special Issue, pp. 27-40

Teixeira F., Pescada, S.S.P.V., Ladias C.A., Hulaj M., Ruxho F., Machado V., 2025. "Stablecoin dp2p: innovation and sustainability in fiat currencies", Regional Science Inquiry, Vol. XVII, (1), pp. 95-106

Todri A., Sejdini I., Sejdini I. Balukja I., 2025. Stakeholders` perceptions on corporate engagement in social responsibility and sustainable development: Insights from domestic and foreign-owned corporations in Albania", Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 22-31

Tsiotas D., Giannakis E., Papadas C., 2025. "A modularity decomposition model of evolving input-output sectorial structure, Regional Science Inquiry, Vol. XVII, (1), pp. 107-133

Tsiotas D., Polyzos S., 2024. "Analyzing the spatial interactions in the nationwide regional capitals network of Greece", Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 36-52

Tsiotas, D., Krabokoukis, T., & Polyzos, S. 2020. "Detecting interregional patterns in tourism seasonality of Greece: A principal components analysis approach", Regional Science Inquiry, 12(2), 91-112.

Tsiotas, D., Polyzos, S., 2024. "Transportation networks and regional development: the conceptual and empirical framework in Greece", Sustainable Regional Development Scientific Journal, Vol. I, (1), pp. 15-39

Vanacker, T. R., & Manigart, S. (2010). Pecking order and debt capacity considerations for high-growth companies seeking financing. Small Business Economics, 35(1), 53-69.

BUDGET DEFICIT - ITS IMPACT ON THE ALBANIAN REGIONAL ECONOMY AND SOME FACTORS THAT HAS INFLUENCE

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Abstract

A budget deficit is a financial situation where the government's expenditures exceed its revenues for a specified period, usually a fiscal year. Albania recorded a Government Budget deficit equal to 1.40 percent of the country's Gross Domestic Product in 2023. Government Budget in Albania averaged -5.58 percent of GDP from 1993 until 2023, reaching an all time high of -1.40 percent of GDP in 2023 and a record low of -12.60 percent of GDP in 1997. This deficit must be financed from other sources, often through borrowing. The budget deficit is a common phenomenon in modern economies, but when it is persistent and high, it can create major challenges for a country 's economy. The study of the budget deficit is essential to understand the fiscal health of an economy and to assess its effects on various macroeconomic variables, such as economic growth, inflation, and unemployment. In particular, persistent deficits can lead to a sustainable public debt that can limit a country's ability to finance public services and invest in long-term development. The purpose of this topic is to analyze in depth the budget deficit, the causes that lead to its creation, and the impact it has on a country's economy. This includes an examination of the factors that influence the budget deficit and the strategies that can be used to manage and reduce it. Through case studies, concrete examples from different countries will be examined to illustrate the impacts and possible solutions. In conclusion, this paper aims to provide practical recommendations for policy makers and researchers to improve fiscal management and reduce the negative impacts of the budget deficit. in economics.

Keywords: Budget deficit, financial situation, government's expenditures etc.
JEL Classification: E60, F10, G10, R10

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1. **Intorduction**

Economists and policy analysts disagree about the impact of fiscal deficits on the economy. Nobel laureate Paul Krugman has suggested that the sluggish recovery from the Great Recession of 2007 to 2009 was attributable to the reluctance of Congress to run deficits to boost the economy.Others argue that budget deficits crowd out private borrowing, manipulate capital structures and interest rates, decrease net exports, and lead to either higher taxes, higher inflation, or both.

A budget deficit is a situation where the government's expenditures exceed its revenues for a given period, usually a fiscal year. This happens when the government spends more than it collects in the form of taxes, fees and other revenues. The budget deficit can be a political instrument to stimulate the economy during periods of economic slowdown, but when it is sustained and high, it can lead to an increase in public debt and create major challenges for economic stability. Fiscal deficits arise whenever a government spends more money than it brings in during the fiscal year. This imbalance is common among global economies. While the budget deficit refers to the negative difference between expenditures and revenues for a specific period, public debt is the accumulation of past deficits. Public debt represents the total amount of money the government owes its creditors, including individuals, financial institutions and other countries. Unlike the budget deficit, which is an annual flow, public debt is a stock that increases every year when the government has a budget deficit and decreases when it has a budget surplus.

1.1 Types of Budget Deficit

- Cyclical Deficit: Caused by fluctuations in the economic cycle. In periods of economic decline, tax revenues tend to fall while spending on social assistance rises. This type of deficit is temporary and is related to the phases of the economic cycle.
- Structural Deficit: Caused by permanent imbalances between income and expenses, which are not related to the economic cycle. The structural deficit is the result of fiscal policies that create a persistent gap between revenues and expenditures, such as tax cuts without a comparable reduction in public spending.

1.2 Causes of the Budget Deficit

- Fiscal Policies and Public Expenditures: Increased government spending on education, health, defense and other public services may contribute to the deficit. Spending on public investment, such as infrastructure and technology, can also increase the deficit if not accompanied by revenue growth.
- Revenue from Taxes and Fees: Lowering taxes and fees to stimulate the economy may result in lower revenue for the government. When the government lowers taxes to stimulate private consumption and investment, this can lead to a fall in fiscal revenues and an increase in the budget deficit.
- Economic Crises and Financial Emergencies: Economic crises, such as recession, can reduce incomes and increase spending on social assistance. During economic crises, unemployment and demand for social services increase, increasing government spending and reducing tax revenues.
- Corruption and Poor Management**: Misuse of public funds and poor financial management can lead to an increase in the deficit. When public funds are used ineffectively or wasted due to corruption, this can result in increased spending and reduced resources available for productive investment.

Chart 1. Albanian budget deficit

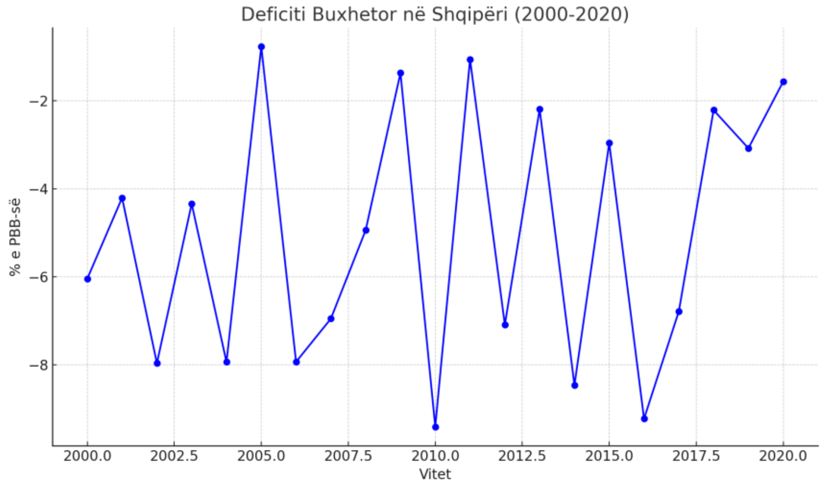
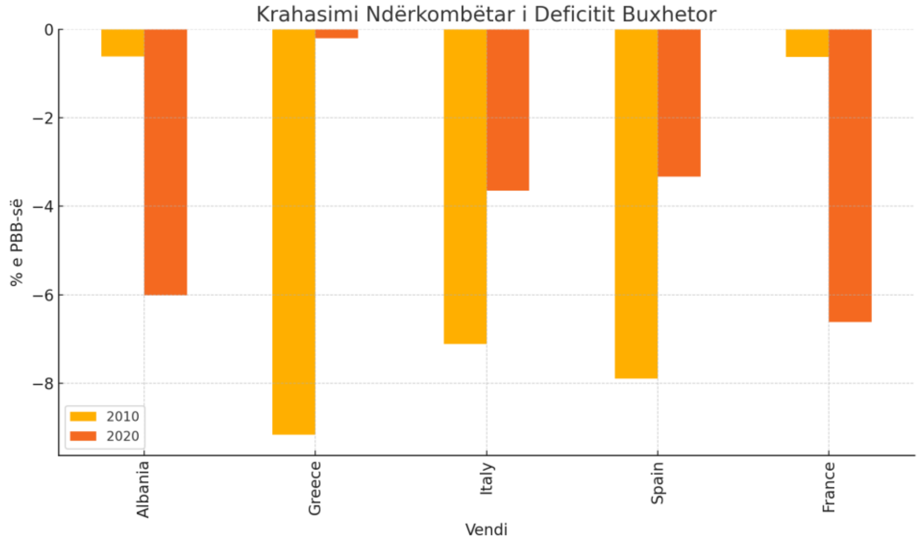


Chart 2. Budget deficit international comparison



2. The Impact of the Budget Deficit on the Economy

Budget revenues saw an annual increase of 19.9 percent at the end of the year, registering a total value of 510 billion alleks [4.1 billion euros], while expenditures reached the level of 596 billion alleks [4.8 billion euros], with an increase of 11.1 per percent compared to 2020. According to data published on the website of the Ministry of Finance, the total tax revenues increased by 19.3 percent compared to 2020, reaching the value of 475.6 billion ALL [3.9 billion euros].While the income from the value added tax reached the level of 161.5 billion lek [1.3 billion euro], with an annual increase of 23.9 percent.
In the 2021 budget, the Albanian government has predicted economic growth of 8.7 percent and a budget deficit of 120.5 billion lek [977 million euros], or 6.9 percent of the Gross Domestic Product.

2.1 Macroeconomic Effects of the Budget Deficit

- Economic Growth: The budget deficit can have a stimulating effect on economic growth in the short term through an increase in public spending. However, in the long run, sustained deficits can lead to high public debts that can limit economic growth.
- Inflation: Deficit financing through money printing or domestic debt can lead to inflation. Rising inflation can reduce purchasing power and create economic instability.
- Unemployment: A budget deficit can help reduce unemployment in the short term by increasing aggregate demand for goods and services. However, a high public debt can negatively affect the labor market in the long run.

2.2 Effects on the Private Sector and Investments

- Private Sector: A high budget deficit can result in higher interest rates, increasing borrowing costs for the private sector. This can limit private investment and negatively affect economic growth.
- Investments: The government can spend more on public investments to stimulate the economy, but this can result in the "squeezing" of the private sector, where private investments are replaced by public investments, not achieving the desired effect.

2.3 Effects on Financial Markets and Interest Rates

- Financial Markets - The budget deficit can affect the confidence of investors in the financial markets. A high deficit can lead to declining investor confidence and increased demands for higher returns.
- Interest Rates: Financing the deficit through borrowing may result in an increase in interest rates. This could increase debt service costs and limit borrowing for the private sector.

2.4 Graphical Analysis of the Impact of the Budget Deficit on the Economy

Chart 3: Economic Growth and Budget Deficit in Albania (2000-2020)

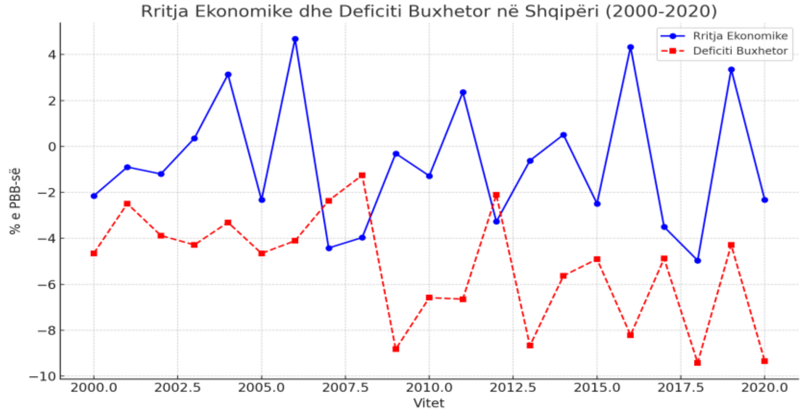
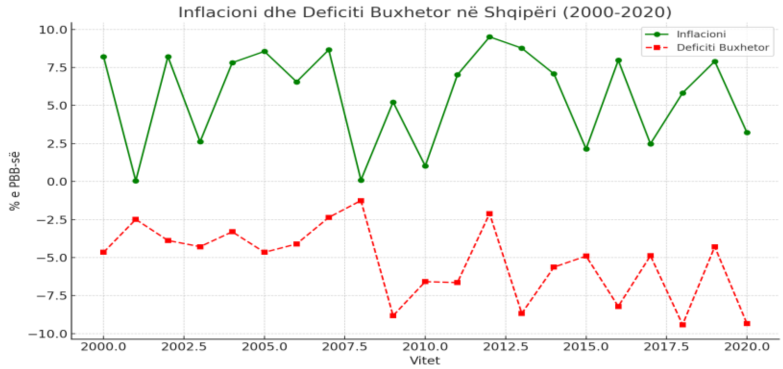


Chart 4: Inflation and Budget Deficit in Albania (2000-2020)



<u>3: Factors Affecting the Budget Deficit</u>

3.1 Political and Institutional Factors

- Political Stability: Political stability or instability can affect the budget deficit. A stable government is better able to implement long-term fiscal policies and manage the deficit. While political instability often leads to excessive spending to satisfy interest groups.
- Fiscal Institutions: Strong fiscal institutions, such as budget rules and independent fiscal councils, can help control the deficit. Weak fiscal institutions often lead to poor management of public finances and increased deficits.

3.2 Economic and Structural Factors

- Economic Structure: The structure of the economy, including the diversification of economic sectors, can affect the budget deficit. Economies that depend on a single sector are more vulnerable to economic shocks and are more likely to face budget deficits.
- Rates of Economic Growth: High rates of economic growth usually lead to higher tax revenues and less spending on social assistance, helping to reduce the deficit. On the other hand, slow economic growth may result in an increase in the deficit.

3.3 Demographic and Social Factors

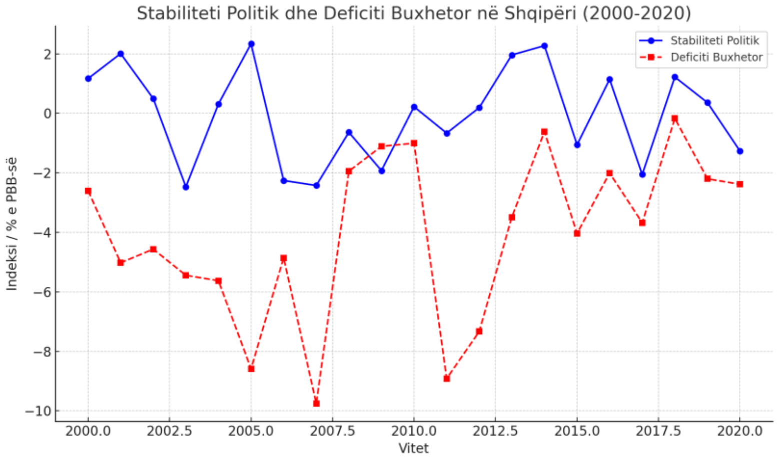
- Population: The demographic structure of the population, such as the percentage of the elderly and the young, can affect the budget deficit. An aging population can increase spending on pensions and health care, increasing the deficit.
- Unemployment rates: High unemployment rates lead to an increase in spending on social assistance and a decrease in tax revenues, influencing the increase in the budget deficit.

3.4 Impact of International Policies and Global Trade

- Trade Agreements: Trade agreements and international economic integration can affect the budget deficit. Trade agreements that increase exports and tax revenue can help reduce the deficit.
- International Aid: Financial aid from international organizations and other countries can help finance the deficit and stabilize the economy.

3.5 Graphical Analysis of Factors Affecting the Budget Deficit

Chart 5: Political Stability and Budget Deficit in Albania (2000-2020)



4: Management and Reduction of the Budget Deficit

4.1 Policies and Strategies for Deficit Reduction

- Fiscal Policies: The implementation of tight fiscal policies, which includes reducing expenses and increasing revenues, is one of the main strategies to reduce the budget deficit.

- Monetary Policies: Increasing interest rates by the central bank to control inflation and stabilize the economy can help manage the deficit. - Structural Reforms: Reforms that improve the efficiency and effectiveness of the public sector, as well as encouraging the development of the sector. private, can help reduce the deficit.

4.2 Increasing Revenue and Improving Tax Collection

- Tax Reform: Improving the tax system to increase revenue collection through expanding the tax base and improving tax collection.

- Fight Against Fiscal Evasion: Strengthening control and enforcement mechanisms to combat fiscal evasion and ensure that all individuals and companies pay their taxes.

4.3 Cuts in Public Expenditure and Efficiency Improvement

- Cuts in Ineffective Expenditures: Identification and elimination of ineffective or unnecessary public expenditures to reduce the budget deficit.

- Efficiency in Public Expenditure: Improving efficiency in the use of public resources to ensure that every coin spent has maximum impact.

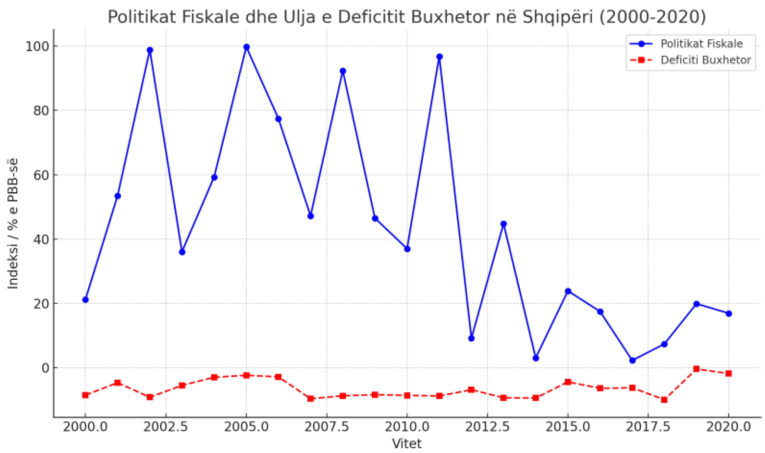
4.4 Debt Restructuring and International Aid

- Debt Restructuring: Negotiating better debt terms with creditors, including lowering interest rates, extending maturities and reducing principal.

- International Aid: Benefit from financial and technical assistance from international organizations and other countries to help manage the deficit and stabilize the economy.

4.5 Graphical Analysis of Budgetary Deficit Management and Reduction

Chart 6: Fiscal Policies and Budget Deficit Reduction in Albania (2000-2020)



5: Case Studies and Case Analysis

5.1 In-depth Study of Some Countries with High Budget Deficits

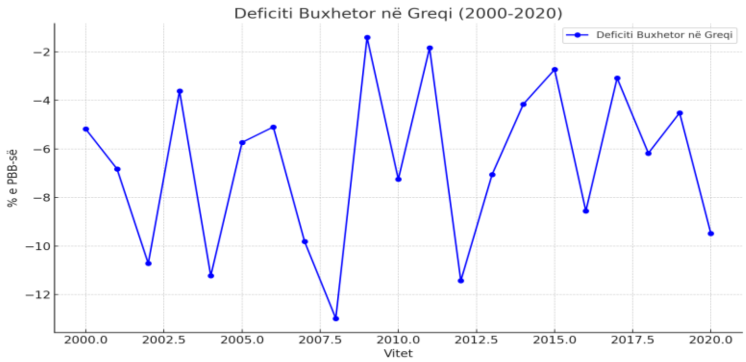
- The case of Greece: Greece is one of the countries that has experienced a deep fiscal crisis. The main causes of Greece's budget deficit include poor financial management, high fiscal evasion, and increased public spending without corresponding revenue growth.
- The case of Italy: Italy has also experienced a high budget deficit for many years. The causes include a high public debt, slow economic growth and a complicated and inefficient fiscal system.
- The case of Spain: Spain experienced a high increase in the budget deficit during the global financial crisis. The main causes include a sharp drop in tax revenues and an increase in spending due to economic stimulus packages.

5.2 Measures Taken and Their Results

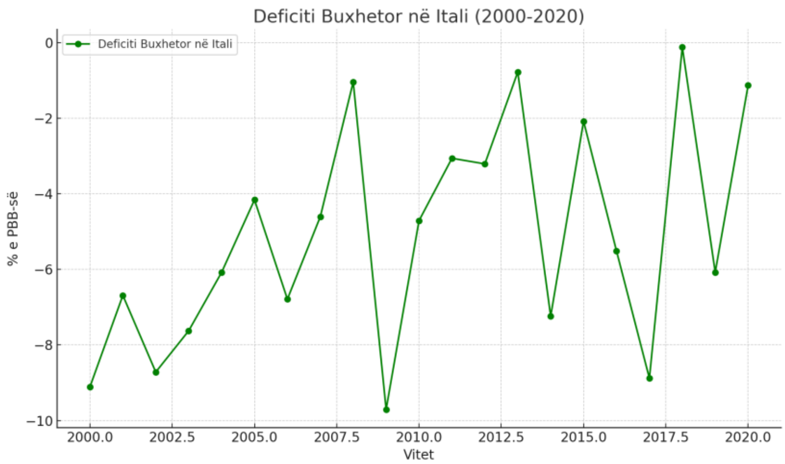
- Greece: In order to manage its fiscal crisis, Greece has undertaken some severe austerity measures, including cutting public spending and raising taxes. However, these measures have led to economic recession and increased unemployment.
- Italy: Italy has undertaken structural reforms to improve the efficiency of the public sector and reduce the budget deficit. These include reforms in the tax system and the labor market.
- Spain: Spain has taken measures to increase tax revenues and reduce public spending. These measures have helped stabilize the economy and reduce the budget deficit.

5.3 Graphical Analysis of Case Studies

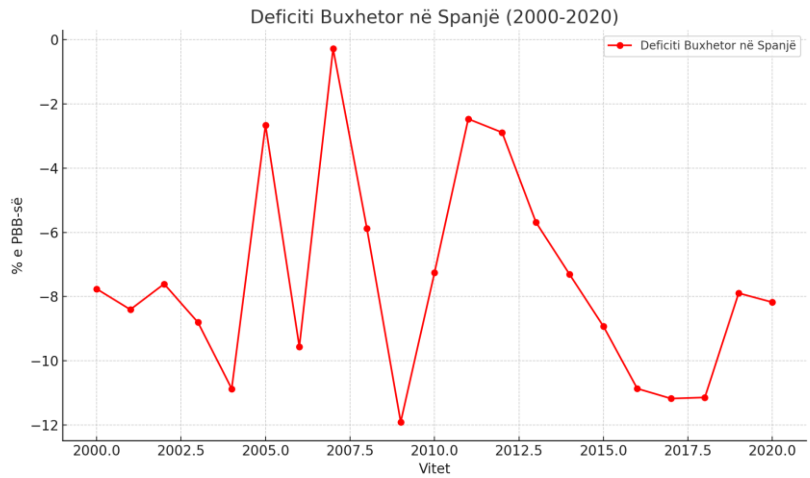
Graph 1: Budget deficit in Greece (2000-2020)



Graph 2: Budget deficit in Italy (2000-2020)



Graph 3: Budget Deficit in Spain (2000-2020)



6. Conclusions and Recommendations

6.1 Summary of Key Findings

- Definition and Causes of Budget Deficit: Budget deficit is a situation where government expenditures exceed revenues for a certain period. The main causes include fiscal and monetary policies, economic crises, corruption and poor financial management.
- Impact on the Economy: The budget deficit has significant impacts on the economy, including economic growth, inflation, unemployment and interest rates. The impact is significant in the private sector and financial markets.
- Factors Affecting the Deficit: Political, economic, demographic and international factors have an important role in determining the level of the budget deficit. - Management Strategies: Fiscal and monetary policies, structural reforms, increasing revenues and improving the collection of taxes are some of the main strategies for managing and reducing the budget deficit.

6.2 Recommendations for Policymakers

- Improvement of Fiscal Management: Implementation of sustainable fiscal policies and improvement of public finance management to reduce the budget deficit in the long term.
- Structural Reforms: Promoting reforms that improve the efficiency and effectiveness of the public sector, as well as promoting the development of the private sector.
- Improvement of Tax Systems: Increase in income through expansion of the tax base and improvement of tax collection. Fighting tax evasion and improving transparency and accountability.
- Political and Institutional Stability: Ensuring a stable political environment and strengthening fiscal institutions to ensure an effective management of public finances.

6.3 Recommendations for Future Researchers

- Further Empirical Studies: Conducting empirical studies to analyze the long-term impact of the budget deficit on the economy and to identify the main factors that influence the efficiency of deficit management policies.
- International Comparative Analysis: The study of different international cases to understand the best practices and to identify the most effective strategies for managing the budget deficit.
- Development of Econometric Models: Development of econometric models to predict the various impacts of the budget deficit and to help formulate effective policies.

References

Bajrami, E. (2020). *The impact of public debt on economic growth in Albania.* The Romanian Economic Journal, 23(77), (pp. 21–?).

Brown, A. (2018). Debt Dynamics and Fiscal Sustainability. Harvard University Press.

Dionisio A., Rolim C., Rego C., 2025. “Determinants of demand for cities with higher education institutions: An approach based on fractional regression”, Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 81-93

Durmishi, A. (2015). *Albania’s fiscal goals, budgetary balance, government debt.* Anglisticum Journal (IJLLIS), 4(10), 51–56.

European Commission. (2021). *conomic Forecasts for EU Member States. Brussels. https://www.investopedia.com/ask/answers/021015/what-effect-fiscal-deficit-economy.asp

FJ Teixeira, SSPV Pescada, F Ruxho, C Palma, F Beha, 2024. “GLAMPING IN LOW-DENSITY TERRITORIES:

THE CASE OF SANTO ALEIXO DA REASTAURA?? O, Regional Science Inquiry 16 (1), 71-80

International Monetary Fund (IMF). (2020). Fiscal Monitor: Policies for the Recovery. Washington,D.C.

Johnson, K. (2015). Fiscal Deficits and Economic Growth. Oxford University Press.

Kallioras D., Niavis S., 2025. “Regional inequalities: Knowledge frontiers and debates”, Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 67-80

Kasapi, A. (2016). *Albanian fiscal deficit during the global financial crisis: Structural or cyclic?* Journal of Economics and Sustainable Development, 7(2), 163–173.

Khan A., Tripathi S., Chandiramani J., 2024. “Smart city initiatives and economic growth in india: an empirical analysis”, Sustainable Regional Development Scientific Journal, Vol. I, (2): Special Issue, pp. 41-56

Krupavicius, A., Šarkute, L., Krasniqi, A., Ladias, Christos Ap. 2024. “Perceived and desired images of society: how (un)equal is society?” Regional Science Inquiry, 16(1), pp. 55-70

Ladias C.A., Ruxho F., Teixeira F., Pescada S., 2023, “The regional economic indicators and economic development of Kosovo”, Regional Science Inquiry, Vol. XV, (1), pp. 73-83

Lampreia M., Teixeira F., Pescada S. P. V., 2024. “The predictive power of technical analysis: evidence from the gbp/usd exchange rate”, Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 67-75

Leka (Klosi), D. (2013). *Public debt in Albania and some ideas on the good management of public finances.* Mediterranean Journal of Social Sciences, 4(10), 332–336.

Lincaru C., Tudose G., Cosnita D., Pirciog S., Grigorescu A., Ciuca V., 2024. “Clusters as engines of sustainable employment growth in Romania1”, Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 10-27

Murja, A., Ndregjoni, A., & Cerpja, T. (2013). *Causes of the growth of public debt and budget deficit in Albania* (report/academic article). (Discusses Maastricht rule, policy recommendations).

Papajorgji P., Tordi A., 2024. “Using quantitative tools to understand political issues”, Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 28-35

Pescada S., Teixeira F., Pereira W., 2025. “Organisational culture at public hospital of Algarve: Internal medicine staff perception”, Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 11-21

Polyzos S., Tsiotas D., 2025. “The viable business practice of optimizing the occupational accidents cost: A microeconomic approach”, Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 32-43

Ruxho F., 2024. “Kosovo employee’s perception of economic growth and decent work according to sustainability”, Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 53-66

Ruxho F., Ladias C.A, 2022. “Increasing funding for the regional industry of Kosovo and impact on economic growth” Regional Science Inquiry Journal, Vol. XIV. (1), pp. 117-126

Ruxho F., Ladias C.A, Tafarshiku A., Abazi E., 2023. “Regional employee’s perceptions on decent work and economic growth: labour market of Albania and Kosovo”, Regional Science Inquiry, Vol. XV, (2), pp.13-23.

Ruxho F., Ladias C.A., 2022. “The logistic drivers as a powerful performance indicator in the development of regional companies of Kosovo” Regional Science Inquiry Journal,Vol. XIV. (2), pp. 95-106

Ruxho F., Petropoulos D., Negoro D.A. 2024. “Public debt as a determinant of the economic growth in Kosovo”, Sustainable Regional Development Scientific Journal, Vol. I, (1), pp. 55-67

Sarkute L., Sina D., Bello, K., Vercuni A., 2024. “Strategic management decisions in the context of foreign direct investment. The role of institutions and economic determinants”, Sustainable Regional Development Scientific Journal, Vol. I, (1), pp. 40-54

Sepetis A., Krupavičius A., Ladias Ap. C. 2024 “Social protection in Greece and sustainable development leaving no one behind”, Sustainable Regional Development Scientific Journal, Vol. I, (1), pp. 83-92

Sequeira T., Rego C., Dionisio A., 2024. “Investment and productivity in the agro-industrial sector: a case study”, Sustainable Regional Development Scientific Journal, Vol. I, (2): Special Issue, pp. 13-26

Smith, J. (2010). Public Debt and Fiscal Policy. Cambridge University Press.

Stavara M., Tsiotas D., 2024. “A combined graph theoretic and transport planning framework for the economic 10 Sustainable Regional Development Scientific Journal, Vol. I, (2): Special Issue, Oct. 2024 and functional analysis of large-scale road networks”, Sustainable Regional Development Scientific Journal, Vol. I, (2): Special Issue, pp. 27-40

Teixeira F., Pescada, S.S.P.V., Ladias C.A., Hulaj M., Ruxho F., Machado V., 2025. “Stablecoin dp2p: innovation and sustainability in fiat currencies”, Regional Science Inquiry, Vol. XVII, (1), pp. 95-106

Todri A., Sejdini I., Sejdini I. Balukja I., 2025. Stakeholders` perceptions on corporate engagement in social responsibility and sustainable development: Insights from domestic and foreign-owned corporations in Albania“, Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 22-31

Tsiotas D., Polyzos S., 2024. “Analyzing the spatial interactions in the nationwide regional capitals network of Greece”, Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 36-52

Tsiotas, D., Krabokoukis, T., & Polyzos, S. 2020. “Detecting interregional patterns in tourism seasonality of Greece: A principal components analysis approach”, Regional Science Inquiry, 12(2), 91-112.

Tsiotas, D., Polyzos, S., 2024. “Transportation networks and regional development: the conceptual and empirical framework in Greece”, Sustainable Regional Development Scientific Journal, Vol. I, (1), pp. 15-39

Velaj, E., & Prendi, L. (2014). *Tax revenue — the determinant factors: The case of Albania.* European Scientific Journal, Special Issue, (paper).

SOCIAL AND TERRITORIAL IMPACTS OF THE INTEGRATED PARTICIPATION PROGRAMME IN BELA VISTA

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Abstract

This study examines the impact and effectiveness of the Integrated Participation and Development Programme "Our Neighbourhood, Our City", implemented by the Municipality of Setúbal in the city's public housing neighbourhoods. The research specifically focuses on residents' perceptions of the programme's outcomes, emphasising improvements in the neighbourhoods' public image, quality of life, and social cohesion. A mixed-methods approach was adopted to ensure a comprehensive understanding of the programme's effects. The methodology combined strategic tools such as SWOT analysis and problem tree construction with empirical instruments, including a questionnaire administered to 129 residents and a focus group involving representatives from the different neighbourhoods. This triangulation allowed both quantitative and qualitative insights into the social, symbolic, and relational transformations generated by the programme. The findings indicate that 93% of respondents recognised the programme's contribution to enhancing the neighbourhoods' image, with significant improvements noted in neighbourly relations, communication between residents, perceived safety, and the maintenance of shared spaces. Cultural, educational, and health-related initiatives were also perceived as positively impacting community life. The programme demonstrates a capacity to strengthen social cohesion, foster community engagement, and promote a sense of collective responsibility among residents. Overall, the research concludes that the programme represents a best practice in social intervention, highlighting the decisive role of community participation in transforming territories historically marked by stigmatisation and social exclusion.

Keywords: Intervention programme, Social housing, Social exclusion, Community participation, Evaluation of social programmes.
JEL Classification: R10, R50

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1. Introduction

The issue of social housing in Portugal is intrinsically linked to historical processes of urbanisation and migration in the 19th and 20th centuries, when population flows from rural areas moved to urban centres in search of better employment opportunities (Duarte, 2023). This phenomenon, common to several European cities, generated a series of housing pressures that led to the construction of social housing estates intended to meet basic accommodation needs (Alves, 2022). However, these areas have often become spaces where social inequalities are reproduced and territorial stigmatisation persists, reflecting patterns of urban segregation similar to those observed in other international contexts (Born, 2023).

The literature highlights that social housing estates, originally conceived as a housing solution, have, in many cases, become territories of increased vulnerability (Horgan, 2020). Frequently identified problems include social exclusion, precarious community relations, insecurity, deterioration of the built environment, and a lack of robust social support networks (Carreiras, 2018). Furthermore, the persistence of negative public narratives has contributed to reinforcing the marginalisation of these spaces and to the crystallisation of social stigma associated with their residents (Meade, 2021).

In response to these challenges, the academic debate has emphasised the importance of participatory approaches in the revitalisation of stigmatised urban territories (Correia et al., 2023). Concepts such as community empowerment (Kramer et al., 2024), the right to the city (Jones et al., 2020), and spatial justice (Mahon et al., 2023) have been mobilised to underscore the relevance of direct population involvement in urban transformation processes (Kearns & Whitley, 2020). Within this framework, public policies and social intervention programmes face the need to move beyond exclusively top-down models, favouring collaborative methodologies that promote shared responsibility and active citizenship (Uyttebrouck et al., 2023).

It is within this context that the “Our Neighbourhood, Our City” (PNBNC) Programme was implemented by the Municipality of Setúbal in 2012. Targeting the municipal neighbourhoods of Bela Vista, Alameda das Palmeiras, Forte da Bela Vista, Quinta de Santo António, and Manteigadas, the programme adopts an integrated approach based on residents’ participation and the co-creation of solutions to common problems. This approach is distinctive at the national level, positioning the community as the central agent of transformation, in close collaboration with municipal management.

Despite the theoretical and practical relevance of community participation experiences, Portuguese literature remains limited in terms of the empirical evaluation of social intervention programmes in public housing contexts (Pinto & Guerra, 2013). Existing studies tend to prioritise structural analyses of housing policy (Silva et al., 2024) or socioeconomic diagnostics (Santos et al., 2022), leaving open the question of the actual impact of these initiatives on social cohesion dynamics, quality of life, and the perception of territorial image.

Accordingly, this study seeks to address the following research question: in what ways has the “Our Neighbourhood, Our City” Programme contributed to the social, symbolic, and relational transformation of Setúbal’s municipal neighbourhoods? The study hypothesises that community participation, when properly structured and supported, constitutes a key factor in enhancing the image of the territories, reinforcing social cohesion, and improving the quality of life of residents. At the same time, it considers that limitations in the engagement of specific groups, such as young people, may constrain the reach and sustainability of the outcomes achieved.

2. Literature Review

2.1 Social Housing and Territorial Exclusion

Social housing and territorial exclusion are global phenomena that affect contemporary societies, manifesting in similar patterns of socio-spatial segregation and urban marginalisation (Andersson et al., 2022). International research indicates that the concentration of vulnerable populations in specific territories generates complex exclusion dynamics that go beyond mere housing issues (Bramley & Watkins, 2016). Within the European context, studies show that many social housing estates eventually become spaces of accumulated disadvantages, including high unemployment rates, low levels of education, and public health problems (Rodríguez-Pose & Storper, 2020). Additionally, mechanisms of territorial stigmatisation strongly influence residents’ opportunities for social mobility, erecting invisible barriers to access to the labour market and quality public services (Lens, 2022). International literature has also identified processes of “ghettoisation” across various urban contexts, from French suburbs to British housing estates, revealing transnational patterns of spatial marginalisation (Rey, 2017). In Portugal, social housing neighbourhoods reflect these global patterns of territorial exclusion, showing a concentration of socioeconomically vulnerable populations in peripheral areas, often characterised by deficient infrastructure (Branco et al., 2025). The Portuguese specificity lies particularly in the rehousing processes of the 1990s and 2000s, which frequently led to the relocation of populations to areas lacking adequate facilities and with weak connections to urban centres (Branco & Alves, 2020).

2.2 Stigmatisation and Public Image of Social Housing Neighbourhoods

The social construction of negative images associated with social housing estates is a widely documented phenomenon in both international and national literature (Sisson, 2024). Raynor et al. (2020) highlight the broad generalisations that tend to associate social and economic pauperisation with social housing residency, emphasising that this reality is multifaceted and multidimensional. Territorial stigmatisation operates through multiple mechanisms, including sensationalist media coverage, peripheral location of the estates, and distinctive architectural characteristics (Creţan et al., 2025). These factors contribute to social representations linking these areas with marginality, violence, and social disorder (Hynes & Dreher, 2025). Maricchiolo et al. (2021) identify a notable paradox in residents' relationship with their territory: while they value their housing, they simultaneously express negative perceptions of the neighbourhood in which they live, evidencing an affective dissociation between private space and the surrounding community. This phenomenon highlights the complexity of identity dynamics in stigmatised contexts, where residents must constantly negotiate between positive appropriation of their housing and rejection of the negative image associated with the broader territory (Kang & Koo, 2024).

2.3 Social Intervention in Public Housing Neighbourhoods

Addressing social exclusion in public housing contexts requires integrated approaches that go beyond purely physical or assistential interventions (Saran et al., 2023). The specialised literature underlines the importance of participatory strategies that actively involve local communities in identifying problems and co-creating solutions (Weldrick et al., 2025). Evaluating social intervention programmes is fundamental to understanding the effectiveness of the policies implemented (Mavrot et al., 2025). According to Guerra (2002), cited by Silva et al. (2017), six central criteria guide such evaluations: relevance, adequacy, effectiveness, efficiency, equity, and impact. These criteria allow a multidimensional analysis that considers not only quantitative outcomes but also implementation processes and qualitative impacts on community life (Douglas et al., 2024). The sociologist's role in social intervention is particularly relevant in these contexts, given their capacity to problematise social realities and construct objects of study amenable to intervention (Moreau, 2022). Intervention sociology, as defined by the authors, refers to a professional practice in which the practitioner positions themselves, at the request of the client-system, at the centre of a concrete situation, involving the actors who are part of it, with the aim of carrying out a specific mission (Abrantes et al., 2022).

3. Sample and Methodology

3.1 Research Design

This study followed a mixed-methods approach, combining quantitative and qualitative techniques to provide a comprehensive analysis of the "Our Neighbourhood, Our City" (PNBNC) Programme. This choice was justified by the need to capture both the measurable dimensions of the programme's impact and the subjective perceptions and lived experiences of the participating residents.

3.2 Population and Sample

The target population consisted of residents participating in the PNBNC across the five intervention neighbourhoods: Alameda das Palmeiras, Bela Vista, Forte da Bela Vista, Manteigadas, and Quinta de Santo António. These areas house approximately 4,422 inhabitants and display considerable diversity in terms of age, ethnicity, and sociocultural characteristics. The sample comprised 129 residents/participants, selected through convenience sampling during community meetings, festive events, and direct contact within the neighbourhoods. Although non-probabilistic, this strategy allowed access to active programme participants, providing valuable insights into their perceptions and experiences.

3.3 Data Collection Instruments

A variety of data collection instruments were employed to enable triangulation of the information obtained. SWOT analysis was applied to identify the programme's strengths, weaknesses, opportunities, and threats, offering a strategic overview of internal and external conditions. The problem tree facilitated mapping of the causes and effects of the central issue, the negative image of the neighbourhoods, allowing a systemic understanding of territorial dynamics.

The questionnaire, administered to the 129 participants, included items on sociodemographic profile, awareness of and participation in programme activities, as well as perceptions of territorial changes. A focus group, conducted with seven residents representing the different neighbourhoods, allowed for the in-depth exploration of emerging themes and validation of perceptions collected via the questionnaires. Participant observation was carried out during community meetings, programme activities, and site visits to the intervention areas, providing additional data on local dynamics and practices.

3.4 Data Analysis Procedures

Quantitative data were organised and analysed using Excel, allowing calculation of frequencies and percentages. Qualitative data underwent content analysis, with thematic categorisation of narratives collected both in the focus group and through participant observation.

The sample revealed a diverse sociodemographic profile, with a predominance of females (80%) and age concentrations among the 15–24 and over-60 age groups. In terms of marital status, there was an even distribution between single and married individuals, both representing 31%. Nationality analysis highlighted the multicultural nature of the territories, with 87% of respondents holding Portuguese nationality, alongside significant representation from Angolan (6%), Cape Verdean (4%), and Mozambican (3%) communities.

Regarding length of residence in the neighbourhoods, a strong sense of territorial rootedness was evident, as the majority of respondents had lived in these areas for over 30 years. Concerning employment status, the sample was predominantly composed of salaried workers (39%), followed by retirees (22%) and unemployed individuals (20%).

The results indicated a high level of programme awareness, with 88% of respondents reporting familiarity with the "Our Neighbourhood, Our City" (PNBNC) programme. This knowledge was primarily acquired through building or courtyard meetings (52%) and, to a lesser extent, via family and friends (28%). In terms of actual participation, 76% of respondents declared involvement in the programme's activities and projects, although only 42% were integrated into working groups or specific committees. Participation in training activities was lower (24%), indicating potential for expansion in this area.

The assessment of the programme's impact on improving the public image of the neighbourhoods was overwhelmingly positive, with 93% of respondents acknowledging the PNBNC's contribution in this regard, 55% of whom rated the quality of this contribution as "Good". Analysing specific dimensions of change, the results showed consistent improvements: 57% of participants reported positive changes in communication between residents, 62% identified improvements in neighbourly relations, and the majority noted enhancements in perceived safety and cleanliness of shared spaces, alongside a broadly positive impact on cultural, educational, and sports activities. Health initiatives, particularly prevention and screening, were also recognised as valuable.

The renovation of buildings and housing yielded more ambivalent results, with some participants expressing frustration at the slow resolution of housing-related issues.

Regarding sustainability, the majority of respondents (85%) expressed concern about the continuity of the programme, considering that its termination would represent a setback in the achievements attained. This perception underlines the importance of institutionalising and sustainably funding initiatives of this nature. Key future challenges identified included the need for greater engagement of young people (endorsed by 60% of respondents), continued municipal support, increased overall resident participation, and the maintenance of the programme's transformative ambitions.

4. Results

The perception of territorial improvement reported by 93% of respondents represents a strong indicator of the success of the strategy adopted, aligning with the literature that emphasises the relevance of community participation in reshaping stigmatised social representations (Boelens et al., 2022). Improvements in neighbourly relations and communication among residents demonstrate that the programme was able to overcome social fragmentation dynamics typical of these territories, as highlighted by Son et al. (2023). This outcome is particularly significant given the ethnic and cultural diversity of the communities, highlighting the programme's capacity to foster social cohesion in highly heterogeneous contexts (Tran et al., 2020). Despite these positive results, the SWOT analysis revealed limitations that warrant critical reflection. Low participation among young people emerged as a structural challenge that may compromise the long-term sustainability of the transformations achieved (Wang et al., 2025). This limitation is especially concerning given that young people represent the future community leaders and agents of change (Sheehan et al., 2022). Furthermore, the lack of development of digital social networks as tools for communication and community mobilisation constitutes a missed opportunity to engage younger population segments, who are accustomed to using these platforms (Stover et al., 2024). The programme also confirms the validity of territorially based participatory approaches that promote community empowerment over traditional assistentialist models, as demonstrated by Martinez et al. (2024). The organisation of thematic groups and the regular convening of residents' meetings illustrate effective methodologies for mobilising and organising local communities (Swart et al., 2023).

5. Conclusions

The evaluation of the "Our Neighbourhood, Our City" Programme demonstrates broadly positive outcomes in transforming the intervention areas and improving the quality of life of the communities involved. The programme has significantly enhanced the public image of the neighbourhoods, fostered greater social cohesion, and developed civic participation skills among residents. This research provides valuable contributions to the knowledge base on social interventions in public housing contexts. Empirically, it offers both quantitative and qualitative evidence on the impact of participatory programmes in transforming stigmatised territories, addressing a notable gap in the national literature concerning the evaluation of housing policies. Methodologically, it highlights the effectiveness of mixed-methods approaches for analysing complex social programmes, combining strategic planning tools, such as SWOT analysis and problem trees, with social research techniques. From a practical perspective, the study identifies critical success factors and challenges inherent in the implementation of participatory programmes, providing useful guidance for practitioners and policy-makers. The findings also have theoretical and practical implications. Theoretically, they reinforce the relevance of community participation and empowerment theories in transforming dynamics of territorial social exclusion. The study thus contributes to consolidating the participatory paradigm in social intervention, demonstrating its effectiveness in altering social representations and community practices. Practically, the programme serves as a transferable model for other urban contexts, emphasising the importance of integrated strategies that combine physical, social, and cultural dimensions. The participatory methodologies implemented have proven to be adaptable and replicable in other territories facing similar challenges.

References

Abrantes, P., Banha, R., Ramos, M., Aníbal, A., & Urze, P. (2022). Inserções, identidades e competências dos sociólogos em Portugal. *Sociologia, Problemas e Práticas*, (100), 65-85. https://doi.org/10.7458/SPP202210025945.

Alves, S. (2022). Divergence in planning for affordable housing: A comparative analysis of England and Portugal. *Progress in Planning*, *156*, 100536. https://doi.org/10.1016/j.progress.2020.100536.

Andersson, E. K., Wimark, T., & Malmberg, B. (2022). Tenure type mixing and segregation. *Housing Studies*, *37*(1), 26-49. https://doi.org/10.1080/02673037.2020.1803803.

Boelens, M., Raat, H., Jonkman, H., Hosman, C. M., Wiering, D., & Jansen, W. (2022). Effectiveness of the Promising Neighbourhoods community program in 0-to 12-year-olds: A difference-in-difference analysis. *SSM-Population Health*, *19*, 101166. https://doi.org/10.1016/j.ssmph.2022.101166.

Born, A. M. (2023). The long shadow of territorial stigma: Upward social mobility and the symbolic baggage of the old neighbourhood. *Urban Studies*, *60*(3), 537-553. https://doi.org/10.1177/00420980221106340.

Bramley, G., & Watkins, D. (2016). Housebuilding, demographic change and affordability as outcomes of local planning decisions: exploring interactions using a sub-regional model of housing markets in England. *Progress in Planning*, *104*, 1-35. https://doi.org/10.1016/j.progress.2014.10.002.

Branco, A. S. O., Xerez, R., & Lima, V. (2025). A critical analysis of homelessness in Lisbon: A data-driven approach. *Housing, Care and Support*, *28*(2), 56–70. https://doi.org/10.1108/HCS-01-2022-0002.

Branco, R., & Alves, S. (2020). Urban rehabilitation, governance, and housing affordability: Lessons from Portugal. *Urban Research & Practice*, *13*(2), 157-179. https://doi.org/10.1080/17535069.2018.1510540.

Carreiras, M. G. (2018). Integração socioespacial dos bairros de habitação social na área metropolitana de Lisboa: Evidências de micro segregação. *Finisterra*, *53*(107). https://doi.org/10.18055/Finis11969.

Correia, D., Feio, J. E., Marques, J., & Teixeira, L. (2023). Participatory methodology guidelines to promote citizens participation in decision-making: Evidence based on a Portuguese case study. *Cities*, *135*, 104213. https://doi.org/10.1016/j.cities.2023.104213.

Creţan, R., Tuţă, A., & Dragan, A. (2025). Towards a more inclusive perception of a territorially stigmatized area? Evidence from an East-Central European city. *Cities*, *158*, 105658. https://doi.org/10.1016/j.cities.2024.105658.

Dionisio A., Rolim C., Rego C., 2025. "Determinants of demand for cities with higher education institutions: An approach based on fractional regression", Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 81-93

Douglas, I. P., Skillicorn, A. T., Chan, D., Bencharit, L. Z., & Billington, S. L. (2024). In their own words: A mixed-methods exploration of public perceptions of affordable housing and their connections to support. *Cities*, *154*, 105383. https://doi.org/10.1016/j.cities.2024.105383.

Duarte, D. (2023). "Anarchy in the streets": anarchism, public order and social housing in Portugal (1900-1940). *Journal of Iberian and Latin American Studies*, *29*(3), 301-318. https://doi.org/10.1080/14701847.2023.2282830.

FJ Teixeira, SSPV Pescada, F Ruxho, C Palma, F Beha, 2024. "GLAMPING IN LOW-DENSITY TERRITORIES: THE CASE OF SANTO ALEIXO DA REASTAURA?? O, Regional Science Inquiry 16 (1), 71-80

Guerra, I. C. (2002). Fundamentos e Processos de uma Sociologia de Acção-O Planeamento em Ciências Sociais. Cascais, Principia. *Publicações universitárias e científicas*.

Hamiti A., 2025. "The relationship between forms of bullying and academic success of high school students in the region of Prishtina, Kosovo", Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 54-66

Horgan, M. (2020). Housing stigmatization: A general theory. *Social Inclusion*, *8*(1), 8-19. https://doi.org/10.17645/si.v8i1.2345.

Hynes, D., & Dreher, T. (2025). Shifting news values to value voice: the case of social housing residents in Australian news media throughout 2020. *Media International Australia*, 1329878X251359743. https://doi.org/10.1177/1329878X251359743.

Jones, R., Goodwin-Hawkins, B., & Woods, M. (2020). From territorial cohesion to regional spatial justice: The well-being of future generations act in Wales. *International Journal of Urban and Regional Research*, *44*(5), 894-912. https://doi.org/10.1111/1468-2427.12909.

Kallioras D., Niavis S., 2025. "Regional inequalities: Knowledge frontiers and debates", Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 67-80

Kang, S., & Koo, J. H. (2024). Exploring stigma experiences of scattered-site public housing residents and its characteristics based on social contact theory. *PloS One*, *19*(11), e0313005. https://doi.org/10.1371/journal.pone.0313005.

Kearns, A., & Whitley, E. (2020). Are housing and neighbourhood empowerment beneficial for mental health and wellbeing? Evidence from disadvantaged communities experiencing regeneration. *SSM-Population Health*, *12*, 100645. https://doi.org/10.1016/j.ssmph.2020.100645.

Khan A., Tripathi S., Chandiramani J., 2024. "Smart city initiatives and economic growth in india: an empirical analysis", Sustainable Regional Development Scientific Journal, Vol. I, (2): Special Issue, pp. 41-56

Kramer, J., Silverton, S., & Späth, P. (2024). Urban governance arrangements for sustainability and justice–linking theory with experience. *Urban Transformations*, *6*(1), 6. https://doi.org/10.1186/s42854-024-00064-4.

Krupavicius, A., Šarkute, L., Krasniqi, A., Ladias, Christos Ap. 2024. "Perceived and desired images of society: how (un)equal is society?" Regional Science Inquiry, 16(1), pp. 55-70

Ladias C.A., Ruxho F., Teixeira F., Pescada S., 2023, "The regional economic indicators and economic development of Kosovo", Regional Science Inquiry, Vol. XV, (1), pp. 73-83

Lampreia M., Teixeira F., Pescada S. P. V., 2024. "The predictive power of technical analysis: evidence from the gbp/usd exchange rate", Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 67-75

Lens, M. C. (2022). Zoning, land use, and the reproduction of urban inequality. *Annual Review of Sociology*, *48*, 421-439. https://doi.org/10.1146/annurev-soc-030420-122027.

Lincaru C., Tudose G., Cosnita D., Pirciog S., Grigorescu A., Ciuca V., 2024. "Clusters as engines of sustainable employment growth in Romania1", Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 10-27

Mahon, M., Woods, M., Farrell, M., Jones, R., & Goodwin-Hawkins, B. (2023). A spatial justice perspective on EU rural sustainability as territorial cohesion. *Sociologia Ruralis*, *63*(3), 683-702. https://doi.org/10.1111/soru.12444.

Maricchiolo, F., Mosca, O., Paolini, D., & Fornara, F. (2021). The mediating role of place attachment dimensions in the relationship between local social identity and well-being. *Frontiers in Psychology*, *12*, 645648. https://doi.org/10.3389/fpsyg.2021.645648.

Martinez, R. L., Frausto, D., Zavala-Sandoval, J., Serna, A., Corchado, C. G., Alvarado, A., Nkosi, J., & Yen, I. (2024). Community-Led Solutions: How Local Organizing Committees Drive Change for Housing and Health Equity in California's Central Valley. *Journal of Participatory Research Methods*, *5*(2). https://doi.org/10.35844/001c.120257.

Mavrot, C., Potluka, O., Balzer, L., Eicher, V., Haunberger, S., Heuer, C., & Viallon, F. X. (2025). What evaluation criteria are used in policy evaluation research: A cross-field literature review. *Evaluation and program planning*, *108*, 102512. https://doi.org/10.1016/j.evalprogplan.2024.102512.

Meade, R. R. (2021). Territorial stigmatization in theory and practice, and its implications for community development: an introduction to the themed section. *Community Development Journal*, *56*(2), 191-202. https://doi.org/10.1093/cdj/bsab002.

Moreau, B. (2022). Sociological Theories of Intervention. Psychosociological and Microsociological Approaches. *Review of European Studies*, *14*(1). https://doi.org/10.5539/res.v14n1p28.

Papajorgji P., Tordi A., 2024. "Using quantitative tools to understand political issues", Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 28-35

Pescada S., Teixeira F., Pereira W., 2025. "Organisational culture at public hospital of Algarve: Internal medicine staff perception", Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 11-21

Pinto, T. C., & Guerra, I. (2013). Some structural and emergent trends in Social Housing in Portugal: Rethinking housing policies in times of crisis. *Cidades, Comunidades e Territórios*, (27). https://doi.org/10.7749/citiescommunitiesterritories27330.

Polo A., Caca E., Zyberi I., Ladias C.A, Ruxho F., 2025. "Foreign direct investment in real estate in Albania and its impact on GDP", Regional Science Inquiry, Vol. XVII, (1), 2025, pp. 135-142

Polyzos S., Tsiotas D., 2025. "The viable business practice of optimizing the occupational accidents cost: A microeconomic approach", Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 32-43

Raynor, K., Panza, L., Ordóñez, C., Adamovic, M., & Wheeler, M. A. (2020). Does social mix reduce stigma in public housing? A comparative analysis of two housing estates in Melbourne. *Cities*, *96*, 102458. https://doi.org/10.1016/j.cities.2019.102458.

Rey, H. (2017). Ghettos, banlieues–is the difference disappearing?. *International Social Science Journal*, *67*(223-224), 55-61. https://doi.org/10.1111/issj.12148.

Rodríguez-Pose, A., & Storper, M. (2020). Housing, urban growth and inequalities: The limits to deregulation and upzoning in reducing economic and spatial inequality. *Urban Studies*, *57*(2), 223-248. https://doi.org/10.1177/0042098019859458.

Ruxho F., 2024. "Kosovo employee's perception of economic growth and decent work according to sustainability", Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 53-66

Ruxho F., Ladias C.A, 2022. "Increasing funding for the regional industry of Kosovo and impact on economic growth" Regional Science Inquiry Journal, Vol. XIV. (1), pp. 117-126

Ruxho F., Ladias C.A, Tafarshiku A., Abazi E., 2023. "Regional employee's perceptions on decent work and economic growth: labour market of Albania and Kosovo", Regional Science Inquiry, Vol. XV, (2), pp.13-23.

Ruxho F., Ladias C.A., 2022. "The logistic drivers as a powerful performance indicator in the development of regional companies of Kosovo" Regional Science Inquiry Journal,Vol. XIV. (2), pp. 95-106

Ruxho F., Petropoulos D., Negoro D.A. 2024. "Public debt as a determinant of the economic growth in Kosovo", Sustainable Regional Development Scientific Journal, Vol. I, (1), pp. 55-67

Santos, T., Ramalhete, F., Julião, R. P., & Soares, N. P. (2022). Sustainable living neighbourhoods: Measuring public space quality and walking environment in Lisbon. *Geography and Sustainability*, *3*(4), 289-298. https://doi.org/10.1016/j.geosus.2022.09.002.

Saran, A., Hunt, X., White, H., & Kuper, H. (2023). Effectiveness of interventions for improving social inclusion outcomes for people with disabilities in low-and middle-income countries: A systematic review. *Campbell systematic reviews*, *19*(1), e1316. https://doi.org/10.1002/cl2.1316.

Sarkute L., Sina D., Bello, K., Vercuni A., 2024. "Strategic management decisions in the context of foreign direct investment. The role of institutions and economic determinants", Sustainable Regional Development Scientific Journal, Vol. I, (1), pp. 40-54

Sepetis A., Krupavičius A., Ladias Ap. C. 2024 "Social protection in Greece and sustainable development leaving no one behind", Sustainable Regional Development Scientific Journal, Vol. I, (1), pp. 83-92

Sequeira T., Rego C., Dionisio A., 2024. "Investment and productivity in the agro-industrial sector: a case study", Sustainable Regional Development Scientific Journal, Vol. I, (2): Special Issue, pp. 13-26

Sheehan, K., Bhatti, P. K., Yousuf, S., Rosenow, W., Roehler, D. R., Hazekamp, C., Wu, H., Orbuch, R., Bartell, T., Quinlan, K. & DiCara, J. (2022). Long-term effects of a community-based positive youth development program for Black youth: health, education, and financial well-being in adulthood. *BMC public health*, *22*(1), 593. https://doi.org/10.1186/s12889-022-13016-z.

Silva, C. A., dos Santos, M. O. G., Baltazar, M. S., & Saragoça, J. M. L. (2017). Avaliação de projetos de intervenção social: Uma reflexão sobre as experiências em projetos nacionais, regionais e da bacia do Mediterrâneo. *Desenvolvimento e Sociedade*, *2*(2), 115-123.

Silva, H. A., Farias, H. J. A. T. L., & Pessoa-de-Oliveira, A. K. (2024). Políticas Públicas de Habitação em Portugal: As contribuições do Poder Público para combate ao déficit habitacional. *Vernácula-Territórios Contemporâneos*, *2*(6). https://doi.org/10.18312/verncula.v2i6.2576.

Sisson, A. (2024). Public housing and territorial stigma: Towards a symbolic and political economy. *Housing Studies*, *39*(5), 1199-1218. https://doi.org/10.1080/02673037.2022.2108383.

Son, J. Y., Yang, J. J., Choi, S., & Lee, Y. K. (2023). Impacts of residential environment on residents' place attachment, satisfaction, WOM, and pro-environmental behavior: evidence from the Korean housing industry. *Frontiers in Psychology*, *14*, 1217877. https://doi.org/10.3389/fpsyg.2023.1217877.

Stavara M., Tsiotas D., 2024. "A combined graph theoretic and transport planning framework for the economic 10 Sustainable Regional Development Scientific Journal, Vol. I, (2): Special Issue, Oct. 2024 and functional analysis of large-scale road networks", Sustainable Regional Development Scientific Journal, Vol. I, (2): Special Issue, pp. 27-40

Stover, J., Avadhanula, L., & Sood, S. (2024). A review of strategies and levels of community engagement in strengths-based and needs-based health communication interventions. *Frontiers in Public Health*, *12*, 1231827. https://doi.org/10.3389/fpubh.2024.1231827.

Swart, L. A., Ismail, G., & Seedat, M. (2023). Community participation in a low‐income neighborhood: The salience of sociodemographic characteristics, perceptions and experience of violence, and neighborhood attachment. *Journal of community psychology*, *51*(1), 319-333. https://doi.org/10.1002/jcop.22905.

Teixeira F., Pescada, S.S.P.V., Ladias C.A., Hulaj M., Ruxho F., Machado V., 2025. "Stablecoin dp2p: innovation and sustainability in fiat currencies", Regional Science Inquiry, Vol. XVII, (1), pp. 95-106

Todri A., Sejdini I., Sejdini I. Balukja I., 2025. Stakeholders` perceptions on corporate engagement in social responsibility and sustainable development: Insights from domestic and foreign-owned corporations in Albania", Sustainable Regional Development Scientific Journal, Vol. II, (1), 2025, pp. 22-31

Tran, E., Blankenship, K., Whittaker, S., Rosenberg, A., Schlesinger, P., Kershaw, T., & Keene, D. (2020). My neighborhood has a good reputation: Associations between spatial stigma and health. *Health & place*, *64*, 102392. https://doi.org/10.1016/j.healthplace.2020.102392.

Tsiotas D., Giannakis E., Papadas C., 2025. "A modularity decomposition model of evolving input-output sectorial structure, Regional Science Inquiry, Vol. XVII, (1), pp. 107-133

Tsiotas D., Polyzos S., 2024. "Analyzing the spatial interactions in the nationwide regional capitals network of Greece", Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 36-52

Tsiotas, D., Krabokoukis, T., & Polyzos, S. 2020. "Detecting interregional patterns in tourism seasonality of Greece: A principal components analysis approach", Regional Science Inquiry, 12(2), 91-112.

Tsiotas, D., Polyzos, S., 2024. "Transportation networks and regional development: the conceptual and empirical framework in Greece", Sustainable Regional Development Scientific Journal, Vol. I, (1), pp. 15-39

Uyttebrouck, C., Schelings, C., Van Doosselaere, S., & Teller, J. (2023). Implementing empowerment projects in urban neighbourhoods: actors and interactions. *Town Planning Review*, *94*(6), 635-660. https://doi.org/10.3828/tpr.2023.15.

Wang, H., Luo, S., & Furuya, K. (2025). Examining the Pathways Between Neighborhood Green Spaces and the Subjective Well-Being of Older Adults in Japanese Public Housing Complexes. *Urban Forestry & Urban Greening*, 129037. https://doi.org/10.1016/j.ufug.2025.129037.

Weldrick, R., Canham, S. L., Mahmood, A., Patille, R., & Gurung, S. (2025). Mechanisms to promote social integration in a temporary housing program for older persons experiencing and at-risk of homelessness. *The Gerontologist*, *65*(6), gnaf086. https://doi.org/10.1093/geront/gnaf086.

Announcements, Conferences, News

ICEG 2026: 20

International Conference on Economic Geography September 07-08, 2026 | Rome, Italy.

Event Overview

The International Conference on Economic Geography (ICEG 2026), organized by the World Academy of Science, Engineering and Technology (WASET), will be held on September 07-08, 2026, in Rome, Italy, to bring together academic scientists, researchers, and research scholars to exchange and share their experiences and research results on all aspects of Economic Geography.

ICEG 2026 serves as an interdisciplinary platform for presenting contemporary research, exchanging ideas, and discussing new trends and challenges across the full spectrum of economic geography. Key themes include (but are not restricted to) global and regional economic dynamics, spatial economics, economic growth, financial and environmental economics, sustainable development, labor and migration, fintech ecosystems, economic policy, urban and regional development, and many emerging subfields.

Prospective authors are invited to submit abstracts, full papers, or e-posters showcasing original research, whether conceptual, empirical, or theoretical. All submissions undergo blind peer review by three independent reviewers. Accepted papers are published in indexed conference proceedings and considered for special journal issues.

The conference supports academic exchange through presentations, discussions, and networking opportunities, offering value to students, educators, and industry professionals.

ICEG 2026 also provides sponsorship and exhibitor opportunities for organizations wishing to engage with the global research community.

With its strong emphasis on innovation, interdisciplinary dialogue, and global collaboration, ICEG 2026 aims to deepen the understanding of economic geography in a rapidly evolving world and to inspire new research trajectories that address contemporary economic, social, and spatial challenges.

Key dates:

Abstracts/Full-Text Paper Submission	December 17, 2025
Notification of Acceptance/Rejection	December 31, 2025
Final Paper (Camera Ready) Submission & Early Bird Registration	May 17, 2026
Conference Dates	September 07-08, 2026

More information:

Website URL: https://waset.org/economic-geography-conference-in-september-2026-in-rome
Program URL: https://waset.org/conferences-in-september-2026-in-rome/program
Contact URL: https://waset.org

Event overview edited by Associate Professor Dimitrios Tsiotas

International Conference on Urban Economy and Regional Development (ICUERD-26)

26–27 February 2026 | Rome, Italy | Hybrid

Event Overview

The International Conference on Urban Economy and Regional Development (ICUERD-26) will take place on 26–27 February 2026 in Rome, Italy. This interdisciplinary event serves as a forum for researchers, scientists, academicians, policymakers, and industry experts from all backgrounds to convene and share their expertise and insights. Attendees will have the opportunity to engage in stimulating discussions, exchange ideas, and establish valuable connections.

ICUERD-26 welcomes contributions on topics such as urban economy, regional development strategies, economic geography, innovation districts, urban competitiveness, smart city economics, economic resilience, and sustainable development. Oral and poster sessions offer opportunities for researchers to showcase their work and gain recognition.

The event is hosted under the umbrella of the Scholars Network for Research and Innovation (SNRI), an organization dedicated to professional development and global knowledge exchange.

The event emphasizes networking, collaboration, and academic excellence.

Key dates:

Early Registration Deadline	27th January 2026
Paper Submission Deadline	6th February 2026
Registration Deadline	11th February 2026
Conference Date	26th - 27th February 2026

More information:
https://www.snrischolars.com/event/call-for-paper.php?id=3414014

Event overview edited by Associate Professor Dimitrios Tsiotas

Academic Profiles

DR. Agim A. Krasniqi
President of the Kosovo Association of Scientists - SHSHKOS

Doctor of The Integration of Information Technologies in Social Communications: Impact on Business Management and Public Administration

Dr. Agim A. Krasniqi is a senior public official, academic researcher and author from the Republic of Kosovo, with more than two decades of institutional and professional experience in public administration, governance and education policy. He currently serves as a senior official at the Ministry of Education, Science, Technology and Innovation (MASHTI), while remaining actively engaged in scientific research, academic publishing and public policy analysis.

Academic background and education

Dr. Krasniqi has completed his doctoral studies in Administrative Sciences. Doctoral Dissertation: The Integration of Information Technologies in Social Communications: Ethics and Corruption in Public Administration in the Republic of Kosovo.

Academic and professional career

Over more than 20 years, Dr. Krasniqi has held senior and decision-making positions within central public administration. His professional activity includes policy development, institutional oversight, regulatory processes, strategic planning and cooperation with national and international partners. He has been directly involved in reforms related to education governance, transparency, accountability mechanisms and public sector integrity.

Research interests and scientific contribution

His research focuses on public administration reform, ethics and integrity in higher education, corruption prevention mechanisms, governance and institutional accountability, political and strategic communication, leadership and organizational management, and digital transformation in public institutions. His scholarly work contributes to contemporary debates on governance quality, ethical standards and institutional performance in transitional democracies.

Scientific publications

Dr. Krasniqi is a Honorary Co-Editor-in-Chief of the Sustainable Regional Development Scientific Journal – SRDSJ, www,srdsjournal.eu and has published scientific articles in peer-reviewed international recognized journals addressing ethics, corruption, higher education governance and information management. His research explores unethical behavior and integrity deficits in higher education institutions, corruption risks in public administration and the impact of information management on the quality of scientific research.

Textbooks and monographs

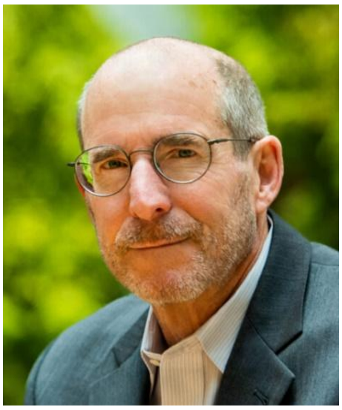
He is the author of five scientific monographs:

- Corruption: Forms of Expression and Prevention
- Democracy and Transition
- Local Governance
- Ethics and Corruption in Public Administration in the Republic of Kosovo and
- Manipulation and Irresponsibility in Political Communication.

Academic engagement and public activity

Dr. Krasniqi serves as Secretary and Member of the Scientific Council at the Albanian Institute for Geopolitics (ISSN indexed) and actively participates in international scientific conferences and academic initiatives. For more than a decade, he has also been engaged as a public analyst and commentator, offering evidence-based perspectives on governance, education policy, ethics and political developments.

Academic Profile by:
Ass. Professor. Dr. Drita Shaqiri
Sustainable Regional Development Scientific Journal - SRDSJ



Professor JAMES H. STOCK
Vice President of the American Economic Association - AEA

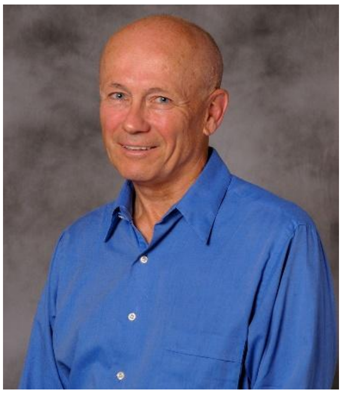
Vice Provost for Climate and Sustainability, Director, Salata Institute for Climate and Sustainability, and Professor, Department of Economics and Kennedy School, Harvard University.

Statement of Purpose: Every day, economists produce credible and important analyses, train the leaders of tomorrow, and generate creative solutions to practical problems. Yet our field is under stress: trust in expertise is waning, federal funding is diminishing, and the academic job market is tightening. The AEA cannot solve all these trends, but it can help while adhering to its nonpartisan mission. We can do more to educate the press and the public about the credible, important, relevant, and viewpoint-diverse work done by economists. We can promote alternative research funding sources while demonstrating the returns to public support. We can strengthen connections with non-academic economists and showcase their value and impact in the private, public, and nonprofit sectors. Such education about the profession for the public and for a diverse pipeline is especially important now, and I would be honored and eager to help.
Present and Previous Positions: Vice Provost for Climate and Sustainability, 2021–, Harold Hitchings Burbank Professor of Political Economy, Department of Economics, 2007–, Chair, Department of Economics, 2006–09, Professor, Kennedy School, 1991–, and Assistant and Associate Professor, Kennedy School, 1983–90, Harvard University; Director, 2021–, Salata Institute for Climate and Sustainability; Member, 2013–14, Council of Economic Advisers; Co-Editor, 2015–23, *Brookings Papers on Economic Activity*; Co-Editor, 2018–22, *Environmental and Energy Policy and the Economy* (NBER); Co-Editor, 2009–12, *Econometrica*; Managing Editor and Chair, Board of Editors, 1992–2003, *The Review of Economics and Statistics*; Professor of Economics, 1990–91, University of California, Berkeley; National Fellow, 1986–87, Hoover Institution.
Degrees: Ph.D. in Economics, University of California, Berkeley, 1983; M.A. in Statistics, University of California, Berkeley, 1982; B.S. in Physics, Yale University, 1978.
Publications: "The Macroeconomic Impact of Europe's Carbon Taxes," (with Metcalf), *AEJ: Macroeconomics*, 2023; "The Size–Power Tradeoff in HAR Inference," (with Lazarus and Lewis), *Econometrica*, 2021; "Identification and Estimation of Dynamic Causal Effects in Macroeconomics Using External Instruments," (with Watson), *Economic Journal*, 2018; "The Cost of Reducing Greenhouse Gas Emissions," (with Gillingham), *JEP*, 2018; "Empirical Evidence on Inflation Expectations in the New Keynesian Phillips Curve," (with Mavroeidis and Plagborg-Møller), *JEL*, 2014; "Forecasting Using Principal Components from a Large Number of Predictors," (with Watson), *Journal of the American Statistical Association*, 2002; "Instrumental Variables Regression with Weak Instruments," (with Staiger), *Econometrica*, 1997; "Stochastic Trends and Economic Fluctuations," (with King, Plosser, and Watson), *AER*, 1991; "Asymptotic Properties of Least Squares Estimators of Cointegrating Vectors," *Econometrica*, 1987; *Introduction to Econometrics*, (with Watson), (2003, 2007, 2011, 2015, 2019).
Other Affiliations and Honors: Member, NBER Business Cycle Dating Committee, 2009–12, 2016–; Member, Panel of Economic Advisers, Congressional Budget Office, 2017–; Member, Climate-related Financial Risk Advisory Committee of the Financial Stability Oversight Council, 2023–; University Fellow, Resources for the Future, 2019–; Member, American Academy of Arts and Sciences, elected 2006; Fellow, *The Econometric Society*, elected 1992; Member, Economic Advisory Panel, Federal Reserve Bank of New York, 2021–25; Member, Massachusetts Council of Economic Advisers, 2008–12; Co-chair, NBER–NSF Conference on Time Series, 2001–12; Sloan Research Fellowship, 1988.

Academic Profile by:
Ass. Professor. Dr. Filipos Ruxho
Sustainable Regional Development Scientific Journal - SRDSJ

References:

https://www.aeaweb.org/about-aea/leadership/election-winners



Professor PETER WILKINSON HOWITT
| 2025, Nobel Prize for Economics with Philippe Aghion "for the theory of sustained growth through creative destruction,"

Is a Canadian economist known for his theoretical work on innovation, technological change, and long-term economic growth. In 2025 he shared half of the Nobel Prize for Economics with Philippe Aghion "for the theory of sustained growth through creative destruction," a framework describing how new technologies and companies replace older ones, driving sustained development. The other half of the prize was awarded to the economic historian Joel Mokyr for complementary work on the historical roots of innovation and industrialization.

Early life and education
Howitt received a bachelor's degree from McGill University in Montreal in 1968 and a master's in economics from the University of Western Ontario the following year. His doctoral studies in macroeconomic theory provided the foundation for his later research on innovation and economic growth.

Academic and professional career
While completing a Ph.D., Howitt joined the faculty of the University of Western Ontario, where he taught from 1972 to 1996. He then served on the economics faculty at Ohio State University from 1996 to 2000 before joining Brown University. At Brown he was the Charles Pitts Robinson and John Palmer Barstow Professor of Economics and later became a professor emeritus. He is affiliated with the National Bureau of Economic Research and the American Economic Association.

Major contributions and research
Along with Philippe Aghion, Howitt developed the Schumpeterian model of how innovation evolves within an economy, first published in their 1992 *Econometrica* article, "A Model of Growth Through Creative Destruction." The framework linked technological progress to measurable patterns of productivity growth and influenced subsequent research on the concept, known as endogenous growth, or economic growth driven by forces within the economy itself. Their work formalized Joseph Schumpeter's idea of creative destruction, the process by which new companies and technologies replace older ones as a central mechanism of innovation and economic expansion.
The model that Howitt helped develop has since been extended to study macroeconomic fluctuations, unemployment, and policy design for innovation-based economies. His own research explored how factors such as education, finance, and competition influence a nation's capacity to generate and sustain technological progress.

Academic Profile by:
Ass. Professor. Dr. Filipos Ruxho
Sustainable Regional Development Scientific Journal - SRDSJ

References:
https://www.nobelprize.org/prizes/economic-sciences/2025/howitt/facts/

Associate Professor ANDREA CARAGLIU
Regional and Urban Economics at Politecnico di Milano, Italy
Former Executive Director of the Regional Science Association International - RSAI

Andrea Caragliu is Associate Professor of Regional and Urban Economics at Politecnico di Milano, Italy, where he acts as Coordinator of the Ph.D. programme in Architecture, Built Environment, and Construction Engineering. His work focuses on agglomeration economies, macroeconometric regional growth, cross-border regions, and smart urban development.

Assoc. Prof. Caragliu was appointed as Editor-in-Chief of Regional Science Policy and Practice, a journal of the Regional Science Association International (RSAI), in January 2025. Previously, he had acted as Executive Director of the RSAI and joined several Horizon/FP, DG Regio, and ESPON projects as partner/principal investigator.

Member and Auditor (2013-2016) of the Italian Association of Regional Science (AISRe); **member** of the European Regional Science Association (ERSA), American Economic Association (AEA); Urban Economics Association (UEA), American Association of Geographers (AAG), European Economic Association (EEA).

Refereeing activity for research institutions: Austrian Science Fund, Belgian Research Council, Fondecyt National Projects Competition, Czech Science Foundation, Estonian Research Council, European Research Council, Hungarian Research Council (Nemzeti Kutatási, Fejlesztési és Innovációs Hivatal), Israel Science Foundation, Paris Region Fellowship Programme, Polish National Science Centre, Research Development and Innovation Authority Saudi Arabia, Sapienza Università di Roma.

Publications Impact

- 46 articles on WoS-indexed journals
- 30 articles on ANVUR A class journals
- 13,243 citations on Google Scholar
- 5,601 citations on Scopus
- 4,1220citations on Web of Science
- Top 2% of world authors by impact in the category “Urban and regional planning” in the Stanford ranking (Ioannidis, John P.A. (2025), “August 2025 data-update for "Updated science-wide author databases of standardized citation indicators"”, Elsevier Data Repository, V8, doi: 10.17632/btchxktzyw.8)

Academic Profile by:
Ass. Professor. Dr. Filipos Ruxho
Sustainable Regional Development Scientific Journal - SRDSJ

References:

https://www.sciencedirect.com/journal/regional-science-policy-and-practice/about/news/meet-andrea-caragliu-the-new-editor-in-chief-of-regional-science-policy-and-practice?utm_campaign=STMJ_1740741656_SC&utm_medium=BAN&utm_source=WEB&dgcid=STMJ_1740741656_SC

https://www.regionalscience.org/index.php/about-us/council.html

Book Reviews

Technology Adoption and Social Issues: Concepts, Methodologies, Tools, and Applications, 2018 | Edited by | IGI Global | ISBN: 9781522552017 | p.1736

Technology Adoption and Social Issues: Concepts, Methodologies, Tools, and Applications is a comprehensive three-volume book collection offering an extensive examination of technological adoption and its social implications in scientific research. Edited by Mehdi Khosrow-Pour (the Executive Editor of IGI Global) and supported by an international team of associate editors and contributors (originating from the USA, UK, Egypt, Finland, and Poland), the collection includes 80 chapters spanning foundational theories, methodological developments, applied research, and critical social perspectives. It provides a reference for researchers, practitioners, and institutions engaged in understanding the multifaceted processes through which societies adopt, negotiate, and integrate technological innovations.

The structure of the series is deliberate and progressive. The first volume (including 2 sections and 24 Chapters) introduces the Fundamental Concepts and Theories that have shaped the field of technology adoption. The second volume (including 2 sections and 28 Chapters) shifts focus toward methodological frameworks, tools, and applied technological models. The third volume (including 2 sections and 28 Chapters) advances into broader organizational and social implications.

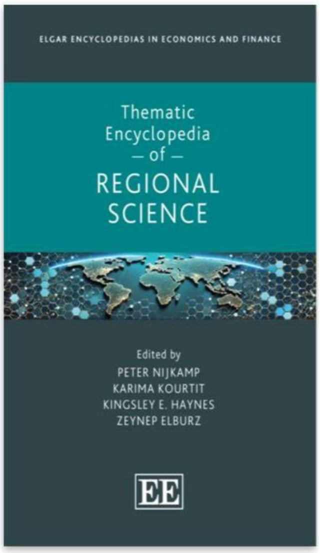
A distinctive strength of the entire collection is its international and interdisciplinary orientation. The chapters draw on research conducted by researchers originating from various countries across all continents, allowing readers to compare how technological adoption unfolds throughout diverse spatial economies. This diversity enriches the technology adoption analysis and offers a holistic view of how cultural norms, institutional capacities, governance frameworks, and socio-economic conditions shape adoption patterns, serving the spatial dimension through its embodiment of geographical diversity of empirical case studies.

Overall, this three-volume book provides a valuable resource for academics researching technological innovation, for practitioners confronting the challenges of digital transformation, and for policymakers aiming to design inclusive and culturally sensitive technology strategies.

More information can be found at the URL:

https://www.igi-global.com/book/technology-adoption-social-issues/187119#description

Book Review by Dimitrios Tsiotas
Associate Professor, SRSD J



The Thematic Encyclopedia of Regional Science, ISBN: 9781800379275 Edited by Peter Nijkamp, Karima Kourtit, Kingsley E. Haynes, and Zeynep Elburz

The *Thematic Encyclopedia of Regional Science* (2025) offers a comprehensive, structured, and interdisciplinary exploration of the diverse concepts, theories, and analytical tools defining Regional Science. Edited by Peter Nijkamp, Karima Kourtit, Kingsley E. Haynes, and Zeynep Elburz, the volume brings together global expertise to provide a coherent synthesis of how regions, cities, and spatial systems function within the modern economy.

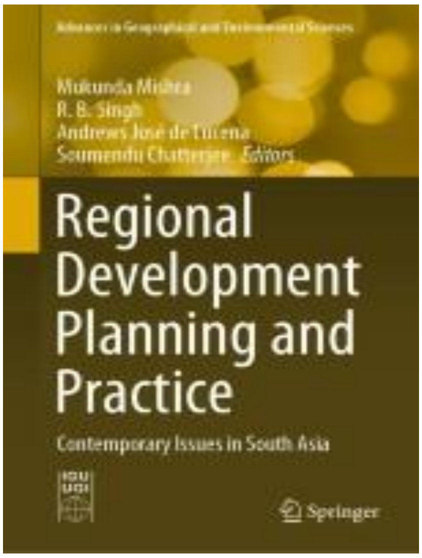
This work systematically maps the multifaceted body of knowledge encompassing spatial economics, urban and regional development, environmental systems, technological change, governance, and socio-economic dynamics. Through hundreds (over 300) of expert-written entries, the Encyclopedia highlights the interdisciplinary nature of the field, examining the wide range of concepts, theories, methods, and models that shape spatially oriented approaches to the social sciences.

Organized into seven major thematic domains (Space and time; Actors and society; Goods and markets; Services and economy; Transport and interactions; Governance and policy; and Methods and techniques), the Encyclopedia covers a vast range of topics such as location theory, land use, regional disparities, urban systems, environmental sustainability, innovation ecosystems, transport and mobility, spatial econometrics, governance structures, and place- based policy approaches. Entries are designed to be accessible yet rigorous, offering definitions, analytical perspectives, and insights into emerging research trajectories.

Acclaimed by leading figures such as Paul Krugman[1] and Saskia Sassen[2], the Encyclopedia highlights the dynamism and global relevance of regional science, capturing both advanced and emerging world contexts. It serves as an essential resource for students, scholars, policymakers, and professionals working in urban and regional economics, human geography, spatial planning, environmental studies, transportation, and related fields.

Rich in scope and analytical depth, the *Thematic Encyclopedia of Regional Science* stands as a definitive guide to understanding the spatial dimensions of contemporary economic, social, and environmental transformations. More information can be found at the URL:
https://www.e-elgar.com/shop/gbp/thematic-encyclopedia-of-regional-science-9781800379275.html?srsltid=AfmBOoprzxKTF3-NEWRsM5IFSKVc_2jTw5E6AspXa_b_7dyYTntA5jnG

Book Review by Dimitrios Tsiotas,
Associate Professor, SRDS J



Regional Development Planning and Practice Contemporary Issues in South Asia | by Authors Marek Degorski, Bozena Degorska | Springer Singapore | Book | 2022 |

This book, through a bunch of systematic and analytical notes and scientific commentaries, acquaints the readers with the innovative methods of regional development, measurement of the development in regional scale, regional development models, and policy prescriptions. Conceptualizing development as a regional process is a geographer's brainchild, and the sense of region has long been rooted deeply in the fundamental research practices that geographers are accustomed to.

The geographical perspective of regions entails conceptualizing them nested horizontally as the formal region and hierarchical relationships in space with spatial flows or interactions as the functional region. In geographical research, the region works as a tool by serving as a statistical unit of analysis. More importantly, however, regions serve as the fundamental spatial units of management and planning by specifying a territory or a part of it for which a certain spatial development or regulatory plan is sought.

This book addresses the complex processes in different regions of the world, particularly South Asia, to perceive the regional development planning involved and the sustainable management practiced there. The book is a useful resource for socio-economic planners, policymakers, and policy researchers.

Book Review by:
Ass. Professor. Dr. Filipos Ruxho
Sustainable Regional Development Scientific Journal - SRDSJ

References:

https://www.springerprofessional.de/en/sustainable-regional-development-environmental-practices/19873772

Guidelines

For the writers & a format model for the articles submitted
to be reviewed & published in the journal

Sustainable Regional Development Scientific Journal

(RePec, EconPapaers, RSAI, BnF) – www.srdsjournal.eu

Guidelines for the Writers & a format model for the Articles submitted to be reviewed & published in thejournal.

The Title of the paper must be centered, and the font must be Times New Roman, size 12, in Uppercase, in Bold

For the writers' personal information use the Times New Roman font, size 11, in bold, and centered. Use lowercase for the first name and uppercase for the last name. The line below the name includes the professional title and workplace; use the Times New Roman font, size 10, centered. In the third line write only the contact e-mail address in Times New Roman 10, centered.

Name LAST NAME
Professional Title, WorkplaceE-mail Address

Name LAST NAME
Professional Title, WorkplaceE-mail Address

Abstract

The abstract consists of a single paragraph, no longer than 250 words. The font must be Times New Roman, size 11. The text must be justified. The title "Abstract" must be aligned left, in Times New Roman, size 11, in bold. A space of one line must be left between the title and the text of the abstract. The abstract must contain sufficient information, be factual, and include the basic data of the paper.
Keywords: Use 3 to 5 keywords, separated by commas
JEL classification: We kindly request that you classify your paper according to the JEL system, which is used to classify articles, dissertations, books, book reviews, and a variety of other applications. The use of the JEL classification is necessary so that your paper be properly indexed in databases such as EconLit. Select the codes that represent your article and separate them by commas. You can find information on the JEL system here: https://www.aeaweb.org/jel/guide/jel.php

1. **Introduction**

All articles must begin with an introduction, a section which demarcates the theoretical background and the goals of the paper.

The present document provides the necessary information and formatting guidelines for you to write your article. We recommend that you copy this file to your computer and insert your own text in it, keeping the format that has already been set. All the different parts of the article (title, main text, headers, titles, etc.) have already been set, as in the present document- model. The main text must be written in regular Times New Roman font, size 11, justified, with a 0.5 cm indent for the first line of each paragraph.

We recommend that you save this document to your computer as a Word document model. Therefore, it will be easy for you to have your article in the correct format and ready to be submitted. **The only form in which the file will be accepted is MS Word 2003**. If you have a later version of Microsoft Office / Word, you can edit it as follows:

- Once you have finished formatting your text, create a pdf file, and then save your file as a Word "97-2003" (.doc) file.
- Compare the two files – the pdf one and the Word "97-2003" (.doc) one.
- If you do not note any significant differences between the two, then – and only then – you

can submit your article to us, **sending both the pdf and the Word “97-2003” (.doc) files** to our e- mail address. If you use a word processor other than Microsoft Word, we recommend that you follow the same procedure as above, creating a pdf file and using the appropriate add-on in order to save your document in MS Word “97-2003” (.doc) form. Once you compare the two files (and find no significant differences), send us both.

1. General Guidelines on Paper Formatting

1.1. Body

The body of the text consists of different sections, which describe the content of the article (for example: Method, Findings, Analysis, Discussion, etc.). You can use up to three levels of sections – sub-sections. For the Body of the text, use the default format style in Word, selecting the Times New Roman font, size 11, justified, with a 0.5 cm indent for the first line of each paragraph (this is further detailed in the section “Paragraphs”).

1.2. References

The references included in the paper must be cited at the end of the text. All references used in the body of the paper must be listed alphabetically (this is further detailed in the section “References”).

1.3. Appendices

The section “Appendices” follows the section “References”.

2. Page formatting

2.1. Page size

The page size must be A4 (21 x 29,7 cm), and its orientation must be “portrait”. This stands for all the pages of the paper. “Landscape” orientation is inadmissible.

2.2. Margins

Top margin: 2,54cm Bottom margin: 1,5cm
Left and right margins: 3,17cmGutter margin: 0cm

2.3. Headers and Footers

Go to “Format” → “Page”, and select a 1,25cm margin for the header and a 1,25cm margin for the footer. Do not write inside the headers and footers, and do not insert page numbers.

2.4. Footnotes

The use of footnotes or endnotes is expressly prohibited. In case further explanation is deemed necessary, you must integrate it in the body of the paper.

2.5. Abbreviations and Acronyms

Abbreviations and acronyms must be defined in the abstract, as well as the first time each one is used in the body of the text.

2.6. Section headers

We recommend that you use up to three sections – sub-sections. Select a simple numbering for the sections – sub-sections according to the present model.

2.7. First level header format

For the headers of the main sections use the Times New Roman font, size 11, in bold and underlined, and leave a size 12 spacing before the paragraph and a size 6 spacing after the paragraph. The header must be aligned left. Use a capital letter only for the first letter of the header.

2.8. Second level header format

For second level headers, follow this model. Use the Times New Roman font, size 11, in bold, and leave a size 12 spacing before the paragraph and a size 3 spacing after the paragraph. Select a 0.5 cm indent. The header must be aligned left. Use a capital letter only for the first letter of the header.

2.8.1. Third level header

For third level headers, follow this model. Use the Times New Roman font, size 11, in bold and italics, and leave a size 6 spacing before the paragraph and a size 0 spacing after the paragraph. The header must be aligned left, with a left indent of 1 cm. Use a capital letter only for the first letter of the header.

3. Paragraphs

In every paragraph, use the Times New Roman font, size 11, with single line spacing. We recommend you modify the default (normal) format style in Word and use that in your text. For all paragraphs, the spacings before and after the paragraph must be size 0, and the line spacing single. Use a 0,5cm indent only for the first line of each paragraph. Leave no spacings nor lines between paragraphs.

3.1. Lists

In case you need to present data in the form of a list, use the following format:

- Bullet indent: 1,14cm
- Text:
  - Following tab at: 1,5 cm
  - Indent at: 1,5cm

Use the same format (the above values) if you use numbering for your list.

1. Example of numbered list 1
2. Example of numbered list 1

4. Figures, images, and tables

4.1. Figures and images

Insert your figures and images directly after the part where they are mentioned in the body of text. They must be centered, numbered, and have a short descriptive title.

Figures put together "as they are", using Office tools, are absolutely inadmissible. The figures used must have been exclusively inserted as images in Word, in gif, jpg, or png form (with an analysis of at least 200dpi), and in line with the text. The width of an image must not exceed 14,5cm so that it does not exceed the margins set above.

The images, figures, and tables must be inserted "as they are" in the text, in line with it.

Figures and images which have been inserted in a text box are absolutely inadmissible.

4.1.1. Reference inside the text

Avoid phrases such as "the table above" or the "figure below" when citing figures and images. Use instead "in Table 1", "in Figure 2", etc.

4.1.2. Examples

A model of how to format figures/images follows. For the title, use the Times New Roman font, size 10, in bold. Write the title above the figure, and set a size 6 spacing before the title anda size 0 spacing after it. The line spacing of the title must be 1.5 line. Both the image and its title must be centered.

Directly below the figure you must cite the source from which you took the image, or any note regarding the figure, written in Times New Roman, size 10. Write it below the figure, leaving a size 0 spacing before and after it, use a line spacing of 1.5 line, and make it centered.

Image 1: Title

Source: cite the source

4.2. Tables

For the title, use the Times New Roman font, size 10, in bold. Write the title above the table, and set a size 6 spacing before the title and a size 0 spacing after it. The line spacing of the title must be 1.5 line. Both the table and its title must be centered. The width of the table must not exceed 14,5cm so that it does not exceed the page margins set.

Table 1. Example of how a table must be formatted

Age	Frequency	Percentage %
Under 40	44	32.1
40 - 49	68	49.6
Over 50	25	18.2
Total	**137**	**100.0**

Source: cite the source

If the table needs to continue on the next page, select in the “Table properties” that the first line be repeated as a header in every page, as in the above example of Table 1. **Tables (or figures or images) which are included in pages with a “Landscape” orientation are absolutely inadmissible.**
Every table must have horizontal lines 1 pt. wide at the top and bottom, as shown in the example. The use of vertical lines and color fill at the background of the cells is strictly prohibited.
Directly below the table you must cite the source or any note regarding the table, written in Times New Roman, size 10. Write it below the table, leaving a size 0 spacing before and a size 6spacing after it, and make it centered.

5. Mathematical formulas

There is a variety of tools in order to insert and process mathematical formulas, such as the “Mathematics”, found in the most recent editions of Word, “Math Type”, “Fast Math Formula Editor”, “MathCast Equation Editor”, “Math Editor”. Since it is impossible for us to provide youwith compatibility with all these tools in all their editions, **we can only admit your paper if it contains mathematical formulas solely in the form of images.**
Keep a continuous numbering for the mathematical formulas and center them in the page, as shown in the following example:

(1) $$y = ax^2 + bx + c$$

The same stands for formulas or particular mathematical symbols you may have integrated in your text. For instance, if you want to use the term in your text, you ax^2 must insert it as an imaged, in line with the text. The images containing the mathematical formulas must be legible (at least 300dpi).

<u>In the exceptional case of a text which may contain a great number of mathematical formulas, the writer may send it to us in TeX form if they so wish.</u>

6. References

We recommend that you use the Chicago Manual of Style Author-Date system, as it is recommended by the AEA (American Economic Association) for the journals included in the EconLit database, and it is the dominant style of bibliography in the field of Economics. For more information, you can go to the following links:

- https://www.aeaweb.org/journals/policies/sample-references
- http://www.chicagomanualofstyle.org/tools_citationguide.html
- http://libguides.williams.edu/citing/chicago-author-date#s-lg-box-12037253

6.1. Online references (internet citations)

Check your links again before sending your file, to confirm that they are active.
Avoid long internet links. Where possible, also cite the title of the website operator-owner. Return the font color to black, and remove the hyperlink. Links such as the following are impractical and distasteful, therefore should be avoided.

Example of an inadmissible hyperlink
https://el.wikipedia.org/wiki/%CE%9F%CE%B9%CE%BA%CE%BF%CE%BD%CE%BF%CE%BC%CE%B9%CE%BA%CE%AC

6.2. References Formatting

For your list of references, use the Times New Roman font, size 10, with single line spacing. The paragraph format must include a size 0 spacing before the paragraph and a size 0 spacing after it, aligned left. Use a 0,5 cm indent only for the first line of each paragraph. Leave no spacings or lines between paragraphs.

6.3. Example of how References must be formatted

Ruxho F., 2024. “Kosovo employee’s perception of economic growth and decent work according to sustainability”, Sustainable Regional Development Scientific Journal, Vol. I, (3), pp. 53-66

Ruxho F., Ladias C.A, 2022. “Increasing funding for the regional industry of Kosovo and impact on economic growth” Regional Science Inquiry Journal, Vol. XIV. (1), pp. 117-126

Ruxho F., Ladias C.A, Tafarshiku A., Abazi E., 2023. “Regional employee’s perceptions on decent work and economic growth: labour market of Albania and Kosovo”, Regional Science Inquiry, Vol. XV, (2), pp.13-23.

Ruxho F., Ladias C.A., 2022. “The logistic drivers as a powerful performance indicator in the development of regional companies of Kosovo” Regional Science Inquiry Journal, Vol. XIV. (2), pp. 95-106

Ruxho F., Petropoulos D., Negoro D.A. 2024. “Public debt as a determinant of the economic growth in Kosovo”, Sustainable Regional Development Scientific Journal, Vol. I, (1), pp. 55-67

Sanchis, D. Z., Haddad, M. D. C. F. L., Girotto, E., & Silva, A. M. R. (2020). Patient safety culture: perception of nursing professionals in high complexity institutions. *Revista brasileira de enfermagem*, *73*, e20190174. https://doi.org/10.1590/0034-7167-2019-0174.

Romer, Christina D., and David H. Romer. 2010. “The Macroeconomic Effects of Tax Changes: Estimates Based on a New Measure of Fiscal Shocks: Dataset.” American Economic Review. http://www.aeaweb.org/articles.php?doi=10.1257/aer.100.3.763 (accessed August 22, 2012).