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04

REGIONAL TRANSPORT CORRIDORS: A COMPARATIVE ANALYSIS OF ALBANIA'S PERFORMANCE WITH NEIGHBOURING COUNTRIES

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Abstract

The objective of this study is to examine Albania's performance within the main regional transport corridors. The research methodology employed is a comparative analysis of the Logistics Performance Indicator (LPI), an index developed and published by the World Bank. The LPI facilitates comparative analysis across the period 2007-2023. Comparisons of LPI values and rankings are comprehensive, encompassing not only Albania but also other nations within the main regional transport corridors. Identifying significant discrepancies between the LPI values and their six constituent components in Albania and other countries within and beyond the regional corridors enables the identification of areas requiring more immediate improvements and necessary interventions by the appropriate authorities. The objective is not solely to enhance the LPI value but also to reduce the disparities with the comparator countries, thereby augmenting the nation's competitiveness. The analysis concludes that Albania has retained the 2023 LPI value close to the average level for the period 2007-2023, primarily due to advancements in transport infrastructure and customs. The data indicate that Albania must pursue broader enhancements across other LPI components, including increasing logistics capacity and quality, adhering to deadlines for destination arrivals, and improving the ability to track movements. The countries within the study's corridors have made progress on these indicators, thereby conferring a competitive advantage over Albania. Extending the time series into the future will facilitate the application of quantitative assessment methods and yield statistically significant results.

Keywords: Regional Transport Corridors, Comparative Analysis, Competitiveness, Logistics Performance Index (LPI).























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I. INTRODUCTION

Transport infrastructure constitutes a fundamental prerequisite for the economic and social advancement of nations. The integration of diverse transportation modalities, the network, and ancillary infrastructure, alongside the establishment of national and regional corridors, is a key driver of enhancing nations' prominence and achieving economies of scale. The literature elucidates foundational theoretical concepts underpinning transport corridors, which are characterised as economic corridors or as a "programmed conceptual model" that aligns with a socio-economic structure aimed at territorial development, fostering economic activities proportionate to the population, and commensurate with a specific stage of growth in the transport infrastructure (Healey, 2004). Accordingly, economic corridors combine infrastructure investments, policies, regulatory and institutional frameworks, their implementation, and extant private and public capacities. Emphasising priority sectors such as tourism, agribusiness, logistics, and IT, transport corridors are designed, constructed, and developed to optimise long-term economic growth in a balanced and inclusive manner. The study aims to examine the significance of transport corridors in Albania, drawing on both sector-specific statistics and related fields. The core hypothesis under investigation is whether transport corridors and associated infrastructure have impacted Albania's competitiveness relative to other countries in the region and beyond, with some being part of major regional transport corridors.

The article is organised as follows: the second section provides a summary of the fundamental literature regarding transport corridors and their socio-economic implications. In the third section, the Logistics Performance Indicator (LPI), developed and published by the World Bank, is introduced in Albanian studies in this field. This indicator, encompassing transport and infrastructure performance aspects, serves as a foundation for developing a comparative analysis across selected years from 2007 to 2023 for Albania and other countries, mainly within the region covered by the main corridors. This section examines the areas that require further development to enhance the country's competitive advantage in infrastructure innovation and beyond. The fourth section concludes and formulates recommendations grounded on the outcomes of the comparative analysis.























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Box 1. LPI – A general overview of the meaning and purpose of use

The World Bank's LPI is a comprehensive index that has covered the entire supply chain across 139 to 160 countries in the 2007 to 2023 publication. It is based on a survey of nearly 1,000 logistics professionals worldwide. It is useful for comparing performance across countries and identifying and prioritising broad reform areas for interventions within countries/regions. The index is based on numerical ratings of 1 (weakest) to 5 (strongest). The LPI is a weighted average of six components: 1. Efficiency of the clearance process (customs); 2. Quality of trade- and transport-related infrastructure; 3. Ease of arranging competitively priced international shipments; 4. Competence and quality of logistics; 5. Ability to track and trace consignment; 6. The frequency with which shipments reach the consignee within the scheduled or expected delivery time. Logistics and infrastructure are a critical contribution to economic activity within and across borders. Efficient transportation and logistics help reduce trade costs and are essential to trade and regional integration. Low international connectivity, inadequate logistics infrastructure, poor logistics services, and lengthy trade procedures at and beyond the border raise logistics costs. Logistics costs amount to 8% of GDP in the United States but rise to 15%-20% in many middle-income countries and to 30% or more in low-income countries, including landlocked or island states.

The LPI tells how easy (perceived) it is to establish efficient and reliable connections between trading countries. Conceptually, the LPI is a revealed metric of supply chain accessibility. The LPI is the primary supply chain benchmark for policymakers and has, since 2007, motivated reforms. The LPI has been used as a component indicator in several high-level dashboards, including those for the Sustainable Development Goals and the World Economic Forum.

Source: World Bank Group (May 2024).

II. LITERATURE REVIEW

Research on the economic and social benefits stemming from advancements in the transport sector consistently concludes that the development of this sector and its associated infrastructure are key drivers of economic growth and the enhancement of nations' competitive advantages. Transport activity plays a significant role in small and open economies, such as Albania and most Central and South-Eastern European countries. An efficient transport system enables such economies to advance through internal and external trade activities, facilitates the movement of people and the delivery of services, and fosters economies of scale. Consequently, a functional, well-distributed transport network stimulates economic and social progress in countries and regions. The evolution of transport activity is closely linked to the comprehensive infrastructure for internal and external land, water, and air transport. From this perspective, transport performance





















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must be considered together with investments in proper infrastructure. Given the intense utilisation of infrastructure, the transport sector can be considered an indispensable instrument and catalyst for economic development. This is more evident in a global economy, where the movement of individuals and goods, inclusive of information and communication technologies, necessitates an integrated transport infrastructure. As expressed by Rodrigue & Notteboom (2024), there exists a crucial correlation between the quantity and quality of transport infrastructure and the level of economic development. Efficient transport systems provide economic and social opportunities and benefits, manifested in numerous positive outcomes, such as enhanced accessibility to production and service markets, labour markets, and investment opportunities. Substandard transport systems exhibit limited operating capacity, with accompanying low reliability and safety. These systems usually cost much money, making countries less competitive and reducing people's quality of life.

In globalisation, transport and infrastructure show how competitive a country is in logistics. This is because a country's economic growth often depends on having an efficient transport system.

The transport industry possesses macro and microeconomic significance. At the macroeconomic level, transport influences total added value, employment, and income. In numerous developed economies, transport accounts for 6-12% of GDP, and logistics costs range from 6-25% of GDP. On a microeconomic scale, transport affects the costs for producers, consumers, and supply chains. Typically, higher income levels correspond to a greater proportion of transport in consumption expenditure. Transport constitutes approximately 10-15% of household expenditure in developed nations. For Albania, the proportion of transport in household expenditure for 2023 is projected at approximately 6.8% (INSTAT, 2024). Although relatively modest, this proportion has increased slightly over the years.

The implementation of regional transport policies is actualised, among other elements, through the construction of transport corridors. Transport corridors, in particular, significantly reduce disparities at both national and regional levels. Keser (2015) emphasises that, from the early stages of regional projects, the development of transport infrastructure is considered a prerequisite for reducing inequalities. According to Armstrong & Taylor (2000), "region" and "development" are unified as a concept, with "regional development" gaining increasing significance over time.

Comprehensive studies on transport corridors generally find that transport infrastructure highways, railways, and multimodal corridors—has a substantial impact on the expansion and enhancement of economic activities and social life in the regions traversed by these corridors. Various studies, along with their analyses and conclusions concerning the advantages of transport corridors, are elaborated below (Table 1). In the case of Albania, the academic literature, however, remains limited.





















| Author/Institution | Subject/Conclusions |
|---|---|
| World Bank Group (South Asia Region). (2018, 2019); Krugman (1991) | Transport corridors facilitate the safer, faster movement of goods and services, thereby improving economic activity in general and trade in particular. They reduce transport costs, improve access to larger markets, and promote regional and wider trade integration. |
| Grover <i>et al</i> . (2023); Cohen <i>et al</i> . (2008) | The authors have verified the hypothesis that efficient transport infrastructure supports the clustering, or economic agglomeration, process by allowing businesses to benefit from economies of scale, larger labour markets, and extended supply chains. |
| Bannister & Berechman, 2001 | Transport corridors often lead to economic clustering around key hubs, fostering the development of industrial and special economic zones. |
| Gilliam (2011) | Corridors connect rural areas to urban centres, enabling rural development by improving access to markets, services, and resources. |
| Rodrigue, Comtois, & Slack (2016); Hallam (2011) | Studies show that transport corridors largely promote industrialisation and foreign and domestic investment by improving logistics and reducing delays, critical factors for businesses that depend on the timely delivery of goods and services. |
| Limão & Venables (2001) | The authors estimated that a 10% improvement in transport infrastructure could increase trade flows by up to 25%, attracting more industries and services along transport corridors. |
| Dercon <i>et al.</i> (2008) | Transport corridors help reduce poverty and disparity between urban and rural areas. They increase agricultural productivity, improve labour mobility, and increase access to education and healthcare in vulnerable areas. |
| Bruinsma & Rietveld 1993 | Transport corridors can stimulate growth, but the benefits may not be distributed evenly. In some cases, they can lead to regional |





















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| | inequalities if poorer regions are bypassed, or to environmental damage from construction and increased traffic. They point out that the benefits of transport corridors also depend on the governance and management structures in place. | | | | | | | | |
|--|---|--|--|--|--|--|--|--|--|
| Other references related to the Balkan region and Albania are found below: | | | | | | | | | |
| Xhepa (2000) | The author addresses geopolitical and economic aspects of the development of transport corridors in Central and Eastern Europe and the Balkans. The author concludes that the development of transport corridors increases competitive advantages not only at the level of individual countries but also between regions. Policies should be put at the service of the country's integration interests (Albania). | | | | | | | | |
| Qaja (2021) | Methodologically, the research area is a road corridor connecting settlements and northern Albania with the state of Kosovo. A combined model of corridor management is proposed by integrating and connecting settlements, with an observatory placed at the centre of this corridor. Some theoretical conceptions for "transport corridors" are also suggested. | | | | | | | | |
| EBRD (2019) | Strategic document: Transport Sector Strategy 2019-2024. | | | | | | | | |
| OECD (2021) | Multi-dimensional Review of the Western Balkans - Assessing Opportunities and Constraints. | | | | | | | | |
| European Commission (2018). | Untapped Potential: Intra-Regional Trade in the Western Balkans. | | | | | | | | |

Table 1. Grouping of literature by subject

Source: Based on the literature listed and summarised by the author.

Note: For more information, see References.

Following the literature review, let us present some facts about the transport sector for a group of countries, including Albania. Within the European Union (EU), the average contribution of the transport sector to GDP was approximately 5% during the period 2015-2023. Furthermore, the sector employs over 10 million individuals across EU member states. For the same period, transport's contribution to GDP in Albania averaged 3%, about 2 percentage points lower than that





















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of regional countries in the Balkans and EU member states (Figure 1). According to administrative labour market data, the transport sector in Albania employed around 2.7% of the total workforce during the period 2019-2024 (Figure 2). The number of employees in this sector and its share of total employment have been increasing, especially after 2021.

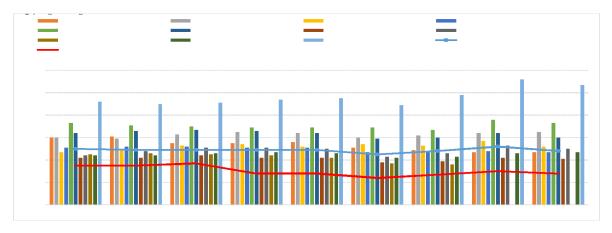


Figure 1. Contribution of Transport to total GDP (%) by country for the period 2015-2023 Source: Eurostat, INSTAT and author's calculations.

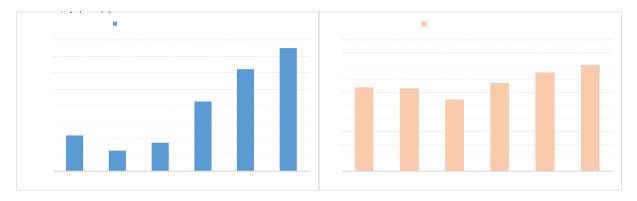


Figure 2. Number of employees in transport and specific weight to total employees.

Source: INSTAT and author's calculations.

Note: According to NACE, employees directly employed in the activity of "land and pipeline transport; water, air and storage transport" are included. Employees in transport support services in other activities are omitted.

























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III. COMPARATIVE ANALYSIS OF THE PERFORMANCE OF TRANSPORT CORRIDORS USING LPI DATA

III.1. Regional Corridors through Albania

Transport corridors in Albania are crucial for facilitating connectivity with neighbouring nations and promoting the movement of goods and individuals within the Western Balkans. Owing to its strategic geographic location, Albania serves as a significant transit route for trade and transportation between the Adriatic Sea and the Balkan Peninsula. The principal transport corridors and routes within Albania include:

- The Blue Corridor / Adriatic-Ionian Highway passes from the northern part of Albania (border with Montenegro) to the southern part (border with Greece). As a primary transport artery in Albania, it connects all the cities along the coast and the major ports. This corridor holds particular significance as it simultaneously connects four Balkan countries: Croatia, Montenegro, Albania, and Greece.
- Corridor VIII: Albania is part of this corridor, which connects all the capitals from the Adriatic Sea (Durrës) to the Black Sea. Originating in Italy, this corridor connects Albania with the Republic of North Macedonia (RMV) and Bulgaria through inland routes, thereby facilitating regional trade and transportation.
- The Durrës-Prishtina Corridor is a vital roadway connecting the coastal city of Durrës in Albania with Kosovo's capital, Prishtina. This route is essential for linking the two countries and enhances trade and communication between them. Stretching approximately 300 km, the Durrës-Prishtina highway provides a rapid, efficient connection between the two nations. This link is significant for bilateral communication and trade and serves as a fundamental corridor for their economic integration into the EU.

Notably, Albania has enhanced its transport infrastructure to strengthen connectivity within the Balkans and further with the European network. Such developments include the construction and modernisation of roads, railways, and ports, aiming to facilitate trade and promote economic growth.

III.2 Performance of the LPI for Albania 2007-2023 in transport corridors

The logistics performance indicator is measured and published by the World Bank. Operations and services related to the mobility of people and goods, and the storage of goods, are logistics services. One of the most important components of the LPI is the infrastructure component, which includes transportation issues (roads, ports, airports, and rail operations) as defined in Annexe 1.

In the case of Albania, the data show that compared to the first year of LPI measurement (2007), the trends of the LPI and its constituent components have improved. The increase in the LPI in recent years has been influenced by "Infrastructure" and "International Shipments", which in 2023 were 2.7 and 2.8, respectively (Figure 3). The LPI components with above-average performance are





















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"International Shipments" and "Timeliness". The "Infrastructure" component has seen rapid improvement from 2016 to 2023. This component has a normalised weight of about 17% in the aggregated LPI, the same as that of "Logistic Competence & Quality".

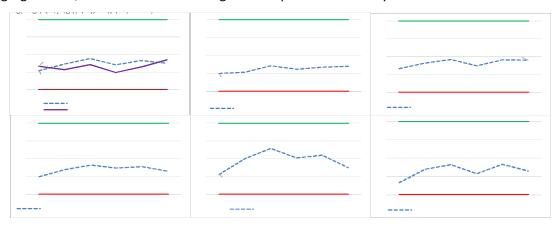


Figure 3. Performance of the LPI and its components for Albania over the years.

Source: World Bank, https://lpi.worldbank.org/ and author's calculations.

Table 2 shows Albania's ranking, in ascending order by year, for the indicator (the lower the ranking, the weaker the country's performance). The LPI for Albania represents an improvement in ranking compared to other countries participating in the survey. Thus, from 139th in 2007, where it was 11 places behind, in 2023 it ranks 97th, leaving 42 places behind. Regarding the infrastructure component, the ranking shows high instability. However, the 68th ranking in 2023 has moved it to a more central position, leaving about 71 countries behind, with a weaker infrastructure performance than Albania.

| No. of Years countries in the study | LPI Grouped | Customs Rank | Infrastructure Rank | International Shipments Rank | Logistics Competence & Quality | Timeli ness Rank | Tracking & Tracing Rank | | | | |
|-------------------------------------|---|-----------------|------------------------|------------------------------------|--------------------------------|------------------------|-------------------------------|-----|--|--|--|
| | the study | Rank | (1) | (2) | (3) | Rank (4) | (5) | (6) | | | |
| 2007 | 150 | 139 | 132 | 78 | 109 | 130 | 144 | 145 | | | |
| 2010 | 155 | 119 | 129 | 112 | 104 | 103 | 120 | 124 | | | |
| 2012 | 155 | 78 | 86 | 99 | 70 | 91 | 45 | 88 | | | |
| 2016 | 160 | 117 | 121 | 148 | 110 | 102 | 94 | 135 | | | |
| 2018 | 160 | 88 | 114 | 110 | 69 | 92 | 73 | 95 | | | |
| 2023 | 139 | 97 | 90 | 68 | 75 | 120 | 125 | 117 | | | |
| | Countries below Albania, according to the LPI rank and components | | | | | | | | | | |























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| | | No. of | | Infrastructure | International | Logistics | Timeli | Tracking & |
|-------|--------------|-----------|---------|----------------|---------------|------------|--------|------------|
| | No. of | countries | Customs | Rank | Shipments | Competence | ness | Tracing |
| | countries in | ranked | Rank | | Rank | & Quality | Rank | Rank |
| Years | the study | below | | | | Rank | | |
| 2007 | 150 | 11 | 18 | 72 | 41 | 20 | 6 | 5 |
| 2010 | 155 | 36 | 26 | 43 | 51 | 52 | 35 | 31 |
| 2012 | 155 | 77 | 69 | 56 | 85 | 64 | 110 | 67 |
| 2016 | 160 | 43 | 39 | 12 | 50 | 58 | 66 | 25 |
| 2018 | 160 | 72 | 46 | 50 | 91 | 68 | 87 | 65 |
| 2023 | 139 | 42 | 49 | 71 | 64 | 19 | 14 | 22 |

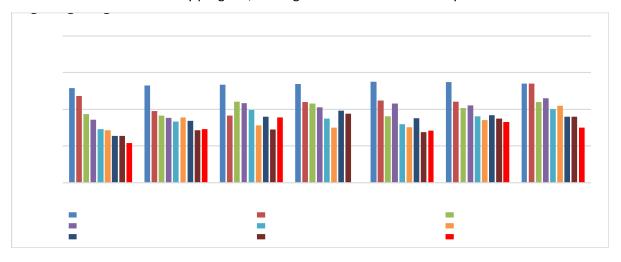
Table 2. Albania's rank over the years

Source: World Bank, https://lpi.worldbank.org/ and author's calculations. Note: The higher the rank, the weaker the indicator in relation to other countries in the group.

Significant improvements in the rankings were observed in 2018 and 2023 for the components "Custom" and "Infrastructure." Conversely, components 4, 5, and 6 showed substantial declines in the rankings. Analysing these trends indicates that infrastructure is a component that positively influences the performance of the LPI, particularly after 2016 in Albania.

III.3. LPI: Countries and regions of transport corridors

Apart from Albania, the comparative analysis includes Italy, Greece, Bulgaria, Croatia, Montenegro, and the Republic of North Macedonia, although data for Kosovo are missing. Over the years, Albania's Logistics Performance Index (LPI) has recorded only modest improvements, with an average score of 2.5. About rankings, Albania is consistently positioned last or second-to-last among the countries listed above (Figure 4). Italy, Greece, and Bulgaria have the highest LPI scores, while Croatia shows the most steady progress, moving closer to the levels of Italy and Greece.



























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Figure 4. LPI performance over the years for Albania and other countries in comparison

Source: WB, https://lpi.worldbank.org/

Note: NA data for Albania in 2014.

Compared with the highest-performing nation in the study, Italy, Albania's LPI value represents, on average, 67.4% of Italy's. Furthermore, it is more closely aligned with Montenegro's LPI value (99%).

| | | | | | | | | Albania Relative |
|----------------|------|------|------|------|------|------|------|------------------|
| | | | | | | | | to other |
| | | | | | | | | countries |
| LPI /LPI Italy | 2007 | 2010 | 2012 | 2014 | 2016 | 2018 | 2023 | (mean) |
| Italy | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Greece | 0.94 | 0.81 | 0.77 | 0.87 | 0.86 | 0.86 | 1.00 | 0.78 |
| Bulgaria | 0.80 | 0.78 | 0.87 | 0.86 | 0.75 | 0.81 | 0.86 | 0.83 |
| Croatia | 0.76 | 0.76 | 0.86 | 0.83 | 0.84 | 0.83 | 0.89 | 0.82 |
| Bosnia & | | | | | | | | 0.90 |
| Herzegovina. | 0.69 | 0.73 | 0.81 | 0.74 | 0.69 | 0.75 | 0.81 | |
| North | | | | | | | | 0.93 |
| Macedonia | 0.68 | 0.76 | 0.70 | 0.68 | 0.67 | 0.72 | 0.84 | |
| Serbia | 0.64 | 0.74 | 0.76 | 0.80 | 0.74 | 0.76 | 0.76 | 0.92 |
| Montenegro | 0.64 | 0.67 | 0.67 | 0.78 | 0.63 | 0.73 | 0.76 | 0.99 |
| Albania | 0.58 | 0.67 | 0.76 | us | 0.64 | 0.71 | 0.68 | 0.67 |

Table 3. LPI Score Relative to Italy and Albania relative to other countries (mean). Source: WB, https://lpi.worldbank.org/ and author's calculations.

Note: The grey cells indicate the lowest LPI levels relative to the others.

The "Infrastructure component" (IC) has a significant impact on the LPI level. Historically, Albania recorded the lowest values of this metric in 2007, 2010, 2016, and 2018. A marked improvement is observed in 2023, when the IC surpasses those of Serbia, Montenegro, and Bosnia and Herzegovina (Figure 5).























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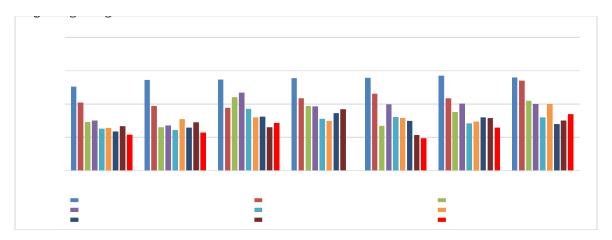


Figure 5. Performance of Infrastructure Component: Albania and other countries.

Source: WB, https://lpi.worldbank.org/;

Note: NA data for Albania in 2014.

| Infrastructure | | | | | | | | Albania Relative to other |
|-------------------|------|------|------|------|------|------|------|------------------------------|
| Relative to Italy | 2007 | 2010 | 2012 | 2014 | 2016 | 2018 | 2023 | countries (mean) |
| Italy | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Greece | 0.87 | 0.79 | 0.77 | 0.84 | 0.87 | 0.82 | 0.97 | 0.72 |
| Bulgaria | 0.70 | 0.62 | 0.86 | 0.78 | 0.62 | 0.72 | 0.82 | 0.85 |
| Croatia | 0.71 | 0.63 | 0.90 | 0.77 | 0.79 | 0.78 | 0.79 | 0.80 |
| Bosnia & | | | | | | | | |
| Herzegovina. | 0.64 | 0.60 | 0.77 | 0.68 | 0.69 | 0.63 | 0.68 | 0.91 |
| North Macedonia | 0.65 | 0.68 | 0.70 | 0.66 | 0.68 | 0.64 | 0.79 | 0.88 |
| Serbia | 0.62 | 0.62 | 0.70 | 0.72 | 0.66 | 0.67 | 0.63 | 0.94 |
| Montenegro | 0.66 | 0.66 | 0.62 | 0.75 | 0.55 | 0.67 | 0.66 | 0.96 |
| Albania | 0.59 | 0.58 | 0.65 | us | 0.52 | 0.60 | 0.71 | 0.61 |

Table 4. Infrastructure Score Relative to Italy and Albania relative to other countries (mean).

Source: WB, https://lpi.worldbank.org/ and author's calculations.

Note: The grey cells indicate the lowest levels in the comparison.

The IC value for Albania is, on average, 61% of Italy's, while it is closer to Montenegro's (96%).

In the following, a comparative analysis will be conducted, grouped by participating countries in regional corridors and beyond, as well as by other components of the LPI.

























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The Blue Corridor passes through Croatia, Montenegro, Albania, and Greece. Within this corridor, Albania's Logistics Performance Index (LPI) closely aligns with Montenegro's in 2016 and 2018. Compared to Greece, Albania's average standing is approximately three times lower.

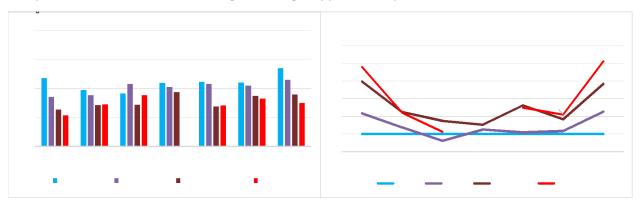


Figure 6. Performance of LPI and relative rank for countries of the Blue Corridor

Source: WB, https://lpi.worldbank.org/ and author's calculations.

By comparing the LPI and its components in 2023 with the average values for 2007-2023, it is evident that countries' performance has been affected differently by each component. In the case of Greece and Croatia, the strongest positive impacts came from International Shipments and Logistics Competence & Quality. The latter also had a positive, though smaller, effect in Montenegro. Meanwhile, Albania maintained its 2023 LPI score close to the period average, mainly due to improvements in Infrastructure (IC) (+0.4) and Customs (+0.2).

| Country | Greec | е | Croati | a | Montene | gro | Albania | | |
|------------------------------------|-----------|------|-----------|------|-----------|------|-----------|------|--|
| | Mean | | Mean | | Mean | | Mean | | |
| | 2007-2023 | 2023 | 2007-2023 | 2023 | 2007-2023 | 2023 | 2007-2023 | 2023 | |
| LPI | 3.2 | 3.7 | 3.0 | 3.3 | 2.7 | 2.8 | 2,481 | 2.5 | |
| Customs (1) | 2.9 | 3.2 | 2.9 | 3.0 | 2.4 | 2.6 | 2.2 | 2.4 | |
| Infrastructure (2) | 3.2 | 3.7 | 2.9 | 3.0 | 2.4 | 2.5 | 2.3 | 2.7 | |
| International Shipments (3) | 3.1 | 3.8 | 3.0 | 3.6 | 2.6 | 2.8 | 2.7 | 2.8 | |
| Logistics Competence & Quality (4) | 3.1 | 3.8 | 3.0 | 3.4 | 2.5 | 2.8 | 2.4 | 2.3 | |
| Timeliness (5) | 3.7 | 3.9 | 3.4 | 3.2 | 2.9 | 3.2 | 2.9 | 2.5 | |
| Tracking & Tracing (6) | 3.4 | 3.9 | 3.0 | 3.4 | 2.6 | 3.2 | 2.3 | 2.3 | |

Table 5. LPI and its components (mean) – Blue Corridor























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Source: WB, https://lpi.worldbank.org/ and author's calculations

Albania needs to improve Logistics Competence & Quality and Timeliness, as there are significant gaps in these two components compared to Greece and Croatia, and to a lesser extent with Montenegro. In terms of International Shipments, 2023 saw a slight improvement over the average, with Albania performing at a similar level to Montenegro.

Corridor VIII extends from Italy, passing through Albania, continuing to the Republic of North Macedonia and Bulgaria. In these countries, Albania's logistics performance index (LPI) aligns more closely with North Macedonia's in 2016 and 2018. There is greater variability among the Corridor VIII countries than among those of the Blue Corridor. In terms of relative ranking compared to Italy, Albania ranks approximately 5 times lower on average, about 2 times lower than Bulgaria, and around 1.3 times lower than North Macedonia.

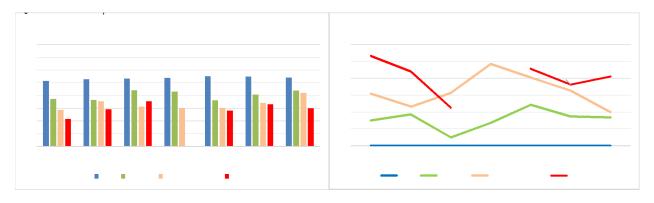


Figure 7. Performance of LPI and relative rank for some countries in Corridor VIII.

Source: WB, https://lpi.worldbank.org/ and author's calculations

By comparing the LPI level and its component indicators in 2023 with their respective averages for the period 2007-2023, for countries along Corridor VIII and the Blue Corridor, the aggregated performance indicator for each country has been influenced to varying degrees by specific components. Specifically in Italy, modest improvements were observed in components (2, 4, and 6), offset by declines in components (3 and 5). For Bulgaria, improvements were more concentrated and pronounced in components (1, 2, and 4). In North Macedonia, positive impacts were higher across almost all components, registering significant increases in 2023 compared to their respective averages, with gains ranging from 0.4 to 0.7 points. Meanwhile, Albania's performance was primarily influenced by improvements in Infrastructure (IC) and Customs.

| Country | Italy | | Bulgaria | | North Macedonia | | Albania | |
|---------|-----------|------|-----------|------|-----------------|------|---------|------|
| | | | | | | | Mean | |
| | Mean | | Mean | | Mean | | 2007- | |
| | 2007-2023 | 2023 | 2007-2023 | 2023 | 2007-2023 | 2023 | 2023 | 2023 |























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| LPI | 3.7 | 3.7 | 3.0 | 3.2 | 2.7 | 3.1 | 2,481 | 2.5 |
|----------------|-----|-----|-----|-----|-----|-----|-------|-----|
| Customs (1) | 3.4 | 3.4 | 2.7 | 3.1 | 2.4 | 3.1 | 2.2 | 2.4 |
| Infrastructure | | | | | | | | |
| (2) | 3.7 | 3.8 | 2.7 | 3.1 | 2.6 | 3.0 | 2.3 | 2.7 |
| International | | | | | | | | |
| Shipments (3) | 3.5 | 3.4 | 3.1 | 3.0 | 2.7 | 2.8 | 2.7 | 2.8 |
| Logistics | | | | | | | | |
| Competence & | | | | | | | | |
| Quality (4) | 3.7 | 3.8 | 3.0 | 3.3 | 2.7 | 3.2 | 2.4 | 2.3 |
| Timeliness (5) | 4.0 | 3.9 | 3.5 | 3.5 | 3.0 | 3.5 | 2.9 | 2.5 |
| Tracking & | | | | | | | | |
| Tracing (6) | 3.8 | 3.9 | 3.0 | 3.3 | 2.6 | 3.2 | 2.3 | 2.3 |

Table 6. LPI and its components (mean) - Corridor VIII

Source: WB, https://lpi.worldbank.org/ and author's calculations

The comparative analysis suggests that Albania needs to make broader-based improvements to the components of the LPI, so that growth is driven not only by infrastructure but also by factors related to logistics competence and quality.

V. CONCLUSIONS

Transport corridors can be considered as key elements in fostering the development of economic, social, cultural, and knowledge sectors at both national and regional levels. Because of their importance, they are called economic corridors. This article shows that Albania's transport and infrastructure sector has grown thanks to the reconstruction and modernisation of national and international transport corridors. This growth has increased the sector's share in GDP and employment.

Analysing the trend of the Logistics Performance Index (LPI) and its related components for Albania reveals a slight improvement in the indicator. Compared with regional countries and participants in the Blue Corridor and Corridor VIII, Albania's LPI score is 2.5, ranking last or second-to-last among other countries. The countries with the highest LPI performance are Italy, Greece, and Bulgaria, while Croatia has demonstrated the most stable upward dynamics. In relative terms, compared with the highest-performing country (Italy), Albania's LPI value averages about 67.4% of Italy's score. Albania's score is much closer to that of Montenegro (99%) and North Macedonia (93%).

When comparing LPI scores and components in 2023 with the averages from 2007 to 2023, Greece and Croatia improved most in International Shipments and Logistics Competence & Quality. Bulgaria improved mainly in Infrastructure, Customs, and Logistics Competence & Quality. North





















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Macedonia showed improvements across nearly all components, with increases of 0.4 to 0.7 points. Meanwhile, Albania maintained its LPI value for 2023 close to the period average, primarily influenced by improvements in Infrastructure and Customs.

The data suggest that Albania needs broader-based improvements across all LPI components. Growth should be integrated and not rely solely on infrastructure and custom. Rapid improvements are recommended in Logistics Capacities, Competence, and Quality. In these areas, the regional countries participating in the studied corridors made significant progress in 2023, thereby strengthening their competitive advantages relative to Albania. Despite notable improvements in infrastructure, further accelerated development is essential to strengthen competitiveness and reduce the gap with more advanced countries such as Italy, Greece, Bulgaria, and Croatia.

REFERENCES

Armstrong, M., Taylor, J. (2000). Regional Economics and Policy. 3rd Edition. Wiley-Blackwell.

- Arvis, J. F, Ulybina, D., and Wiederer, Ch. (2024). From Survey to Big Data The New Logistics Performance Index. World Bank Group, Macroeconomics, Trade and Investment Global Practice May 2024. Retrieved from https://documents1.worldbank.org/curated/en/099159405162478279/pdf/IDU1898e51581 445914e9218cd110f8195f5a07f.pdf
- Banister, D. & Berechman, Y. (2001). Transport Investment and the Promotion on Economic Growth. Journal of Transport Geography, 9, 209-218. Retrieved from https://doi.org/10.1016/S0966-6923(01)00013-8
- Bruinsma, F., Rietveld, P. (1993). Urban Agglomerations in European Infrastructure Networks. Urban Studies, 1993, vol. 30, issue 6, 919-934. Retrieved from https://degree.ubvu.vu.nl/repec/vua/wpaper/pdf/19930008.pdf
- Cohen, J.P. & Morrison Paul, C.J. (2008). Agglomeration, Productivity and Regional Growth. Production Theory Approaches. Retrieved from https://www.researchgate.net/publication/228661401 Agglomeration productivity and re gional_growth_Production_theory_approaches
- Dercon, S., Gilligan, D.O., Hoddinott, J. (2008). The Impact of Agricultural Extension and Roads on Poverty and Consumption Growth in Fifteen Ethiopian Villages. American Journal of Agricultural Economics 91(4), November 2008. Retrieved from DOI:10.1111/j.1467-8276.2009.01325.x





















- European Bank for Reconstruction and Development. (2019). Transport Sector Strategy 2019-2024 (Approved by the Board of Directors on 30 October 2019).
- European Commission. (2018). Untapped Potential: Intra-Regional Trade in the Western Balkans. Retrieved from https://economy-finance.ec.europa.eu/system/files/2018-05/dp080 western balkans.pdf
- Grover, A., Lall, S., Timmis, J. (2023). Agglomeration economies in developing countries: A metaanalysis. Regional Science and Urban Economics. Vol. 101, July 2023, 103901. Retrieved from https://doi.org/10.1016/j.regsciurbeco.2023.103901
- Gwilliam, K. (2011). Africa's Transport Infrastructure: Mainstreaming Maintenance and Management. The World Bank. Retrieved from https://dx.doi.org/10.1596/978-0-8213-8456-5
- Hallam, D. (2011). International investment in developing country agriculture issues and challenges. Food Security Journal, 3 (Suppl. 1): 91-98.
- Healey, P. (2004). The Treatment of Space and Place in the New Strategic Spatial Planning in Europe. International J. Urban and Regional Research, 28(1): 45–67. February.
- INSTAT. (October 2024). Household Budget Survey, 2023. Retrieved from https://www.instat.gov.al/media/14109/hbs_2023_0310_eng.pdf
- Keser, H. (2015). Importance of Transport Corridors in Regional Development: The Case of TRACECA. Sosyoekonomi. 2015, Vol. 23(24), 163-182. Retrieved from https://scispace.com/pdf/importance-of-transport-corridors-in-regional-development-4p3h8yq1ad.pdf
- Krugman, P. (1991). Increasing Returns and Economic Geography. Journal of Political Economy, 99(3): 483-499. June.
- Limão, N. and Venables, A.J. (2001). Infrastructure, Geographical Disadvantage, Transport Costs, and Trade. The World Bank Economic Review, 15, 451-479. Retrieved from https://doi.org/10.1093/wber/15.3.451
- Muneeza, A., Dappe, M. H., Melecky, M., Goldblatt, R. (2019). Wider Economic Benefits of Transport Corridors Evidence from International Development Organizations. World Bank Group (South Asia Region). Policy Research Working Paper 9057. Retrieved from https://documents1.worldbank.org/curated/en/404351573674156323/pdf/Wider-Economic-Benefits-of-Transport-Corridors-Evidence-from-International-Development-Organizations.pdf





















- OECD (2021). Multi-dimensional Review of the Western Balkans Assessing Opportunities and Constraints. Retrieved from https://www.oecd.org/en/publications/multi-dimensionalreview-of-the-western-balkans 4d5cbc2a-en.html
- Qaja, B. (2021). "Transport Corridors". Large scale planning for regional and national development Case study: Albania. PhD Thesis. Retrieved from https://iris.unife.it/handle/11392/2478842
- Roberts, M., Melecky, M., Bougna, Th., Xu, Y (S). (2018). Transport Corridors and Their Wider Economic Benefits - A Critical Review of the Literature. World Bank Group (South Asia Region). Policy Research Working Paper, 8302. Retrieved from https://documents.worldbank.org/pt/publication/documentsreports/documentdetail/667501516199287820/transport-corridors-and-their-widereconomic-benefits-a-critical-review-of-the-literature
- Rodrigue, J-P. & Notteboom, Th. (2024). The Geography of Transport Systems (Chapter 3). 6th Edition, New York: Routledge, ISBN 9781032380407. Retrieved from http://transportgeography.org/contents/chapter3/transportation-and-economicdevelopment/
- Rodrigue, J-P., Comtois, C., Slack, B. (2016). The Geography of Transport Systems. 4th ed. London, England: Routledge
- World Bank. (2023). Connecting to Compete. Trade Logistics in the Global Economy. Appendix 5: The LPI Methodology (pg. 62).
- Xhepa, S. (2000). Zhvillimi i korridoreve të transportit në Evropën Qendrore e Lindore dhe në Ballkan. Buletini Ekonomik, Vëllimi 3, Nr. 2, Banka e Shqipërisë.



















