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Assessing The Competitiveness Of Logistics And Trade In Uzbekistan (In The Logistics Performance Index) (LPI)

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Abstract: The focus of this study is on logistics performance in Uzbekistan which is thought of as a key enabler of trade competitiveness and economic growth. However, Uzbekistan remains geographically privileged in the role of a transit hub of regional scale and faces the problem of coordinated development of multimodal transport systems and use of digital solutions. The research aims to address this knowledge gap employing mixed methods approach by using quantitative data from the Logistics Performance Index (LPI) and freight turnover reports, and the qualitative analysis of national strategies and policies. Freight turnover in 2023 is 12,664.45 million ton-kilometers, yet the LPI score rose to 2.6. Rail transport holds at 75%, and the road and air transport remain underdeveloped. The results underscore the importance of integrated multimodal systems, digital transformation and public private partnerships for furthering development in Uzbekistan's logistics sector. This work has also important implications for policymakers and businesses as these findings provide actionable recommendations to reduce logistics inefficiency, enhance trade facilitation, and promote economic growth.

Keywords: Logistics Performance Index (LPI), Freight Turnover, Multimodal Transport Systems, Trade Competitiveness, Infrastructure Modernization, Digital Transformation, Public-Private Partnerships (PPP), Supply Chain Optimization

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1. Introduction

The logistics sector tends to contribute significantly to economic competitiveness and trade facilitation in developing countries. Uzbekistan is also a landlocked nation in Central Asia and of strategic geographical position in respect to main forks of trade between Europe and Asia. Logistics systems are a key to lowering transaction costs and improving supply chain reliability as well as facilitating international trade. For example, the Logistics Performance Index (LPI) and Global Innovation Index (GII) are often global assessments which point to the importance of infrastructure and customs efficiency and digital logistics solutions in a country's trade performance. Nevertheless, the logistics industry in Uzbekistan still has some additional difficulties associated with outdated infrastructure, limited the use of digital technologies and weakly complemented multimodal transport systems. Though government has taken steps to enhance logistics

efficiency, this research is called upon to assess the success of these strategies and what they mean for economic growth.

Logistics efficiency in Uzbekistan has progressively improved in the last few years. For example, its LPI rose from 2.58 in 2018 to 2.6 in 2023, and moved up to 88th place worldwide. Along with positive growth in freight turnover, rail transport predominated at 75%, while road and air transport contributed 24 and 1%, respectively, with 12,664.45 million ton-kilometers in 2023. This is consistent with global trade facilitation theories which place importance on infrastructure quality, customs efficiency and logistics service competence as key determinants of supply chain optimization. Yet integration into a full logistics framework between the road and air transport is constrained, preventing full exploitation of the sector in supporting Uzbekistan's trade competitiveness.

Analysis of previous studies finds that trade facilitation and economic growth are strongly correlated with logistics performance. Supply chain management (SCM) and Trade facilitation theory views the role of infrastructure, digital and customs efficiency in the improvement of logistics operations. While these aspects have been studied on a global scale, there has been relatively little research on Uzbekistan's logistics sector to uncover the effect of recent policy reforms and infrastructure investments. The existence of this knowledge gap can thus be leveraged to review to what extent targeted strategies, in this case the 2022-2026 development roadmap, are helping to raise logistics efficiency and to put Uzbekistan on the map of competitive regional logistics hubs.

This study method is adopted as a mixed method, which is the use of quantitative data from international indexes (LPI and GII) together with national reports of transportation activities, and qualitative study of policy documents and strategy. The improvement and contribution of the freight transport efficiency, as well as the persistent challenges, are analyzed based on the data trends from 2017–2024. A comprehensive visual analysis of freight turnover trends, LPI improvements, and transport mode comparisons is developed in figures. This study attempts to assess Uzbekistan's logistics performance, identify key gaps, and develop suggested measures to improve logistics efficiency and economic competitiveness.

It is expected that this research will show how investments in rail infrastructure, digitalization and trade facilitation measures will lead to huge improvements in logistics efficiency. Results show rail transport dominance, continuous LPI gains, and the need for integrated multimodal systems to fill gap in the road and air logistics. They have wide implications for decisionmakers, logistics service providers and businesses alike; suggesting the urgency of infrastructure modernisation, public private partnerships, and the latest technologies, such as block chain and AI. Better addressing these areas will enable Uzbekistan to further strengthen its logistics sector, make trade more competitive and more generally propel sustainable economic growth.

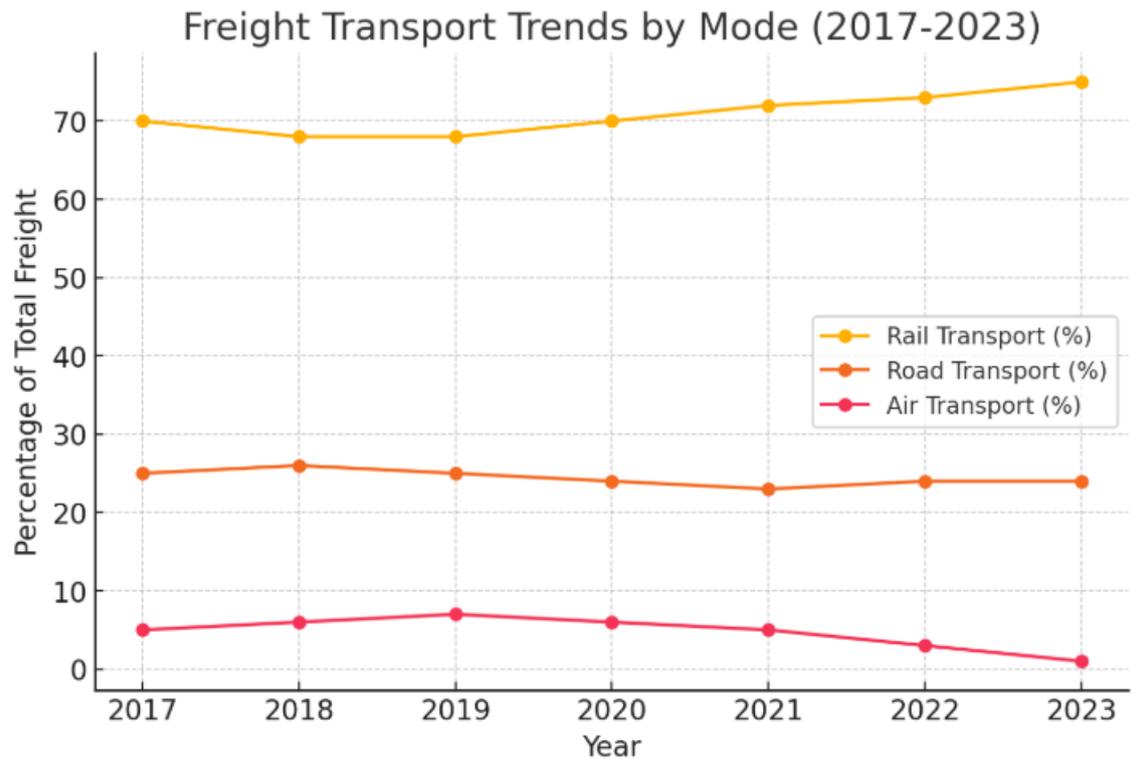
2. Materials and Methods

This study methodology employs both qualitative and quantitative processes to assess logistics performance in Uzbekistan and its contribution to the trade efficiency and economic growth. Data for the research has come from international indexes and national reports, and we have focused on the figures to 2024 to ensure that the analysis remains current and relevant. Quantitative data were primarily sourced from the Logistics Performance Index (LPI), which evaluates six critical components: infrastructure quality, shipment ease, customs efficiency, service competence, timeliness, and tracking systems. For example, Uzbekistan increased from 2.58 to 2.6 in 2018 to 2023, to rank 88th in the world. Likewise, the 2024 Global Innovation Index (GII) presented Uzbekistan's 83rd place in logistics related innovations. They were analyzed to see growth patterns, and what they imply for the economy.

In order to enrich the analysis, national freight turnover data from 2017 to 2023 were added. In 2023, freight turnover stood at 12,664.45 million ton-kilometers, up 4.8% on a

year earlier as shown in **Table 1**. International freight movement was overwhelmingly by rail, 75 percent of the cargo, or through road, 24 percent, or air, 1 percent. This proportion reveals the great importance for rail infrastructure to Uzbekistan's logistics sector..

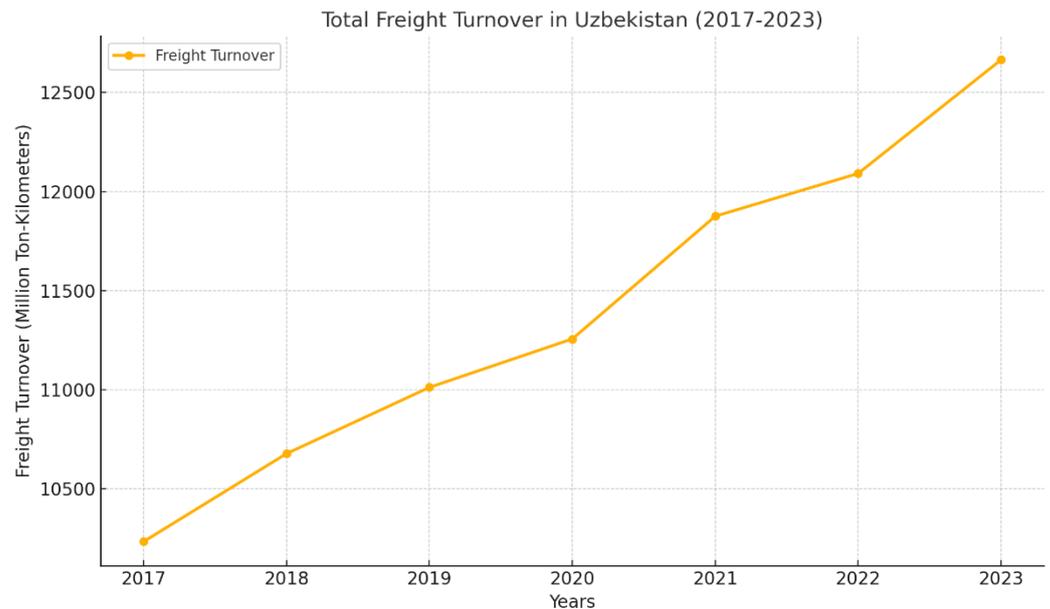
Government strategies like the 2022–2026 development plan, which emphasizes infrastructure improvements, digital transformation of logistics processes (e.g., e-Permit and e-TIR systems) and container transportation were included in the study. Figure 1 presents further information regarding trends in freight transport modes, which, while showing strong dominance by rail transport, also displays a slow decline in air freight's share over the years.



In this first attempt at the mixed methods approach, the research thus examines the correlation of logistics improvements and trade performance. Key findings include the fact that increased transport infrastructure investment and digital innovation and policy reforms are essential for increasing trade volumes and global competitiveness. This methodology provides a robust framework for understanding how quantitative and qualitative data can be integrated with visual representations to understand Uzbekistan's logistics landscape inclusive of actionable insights for future development up to 2024.

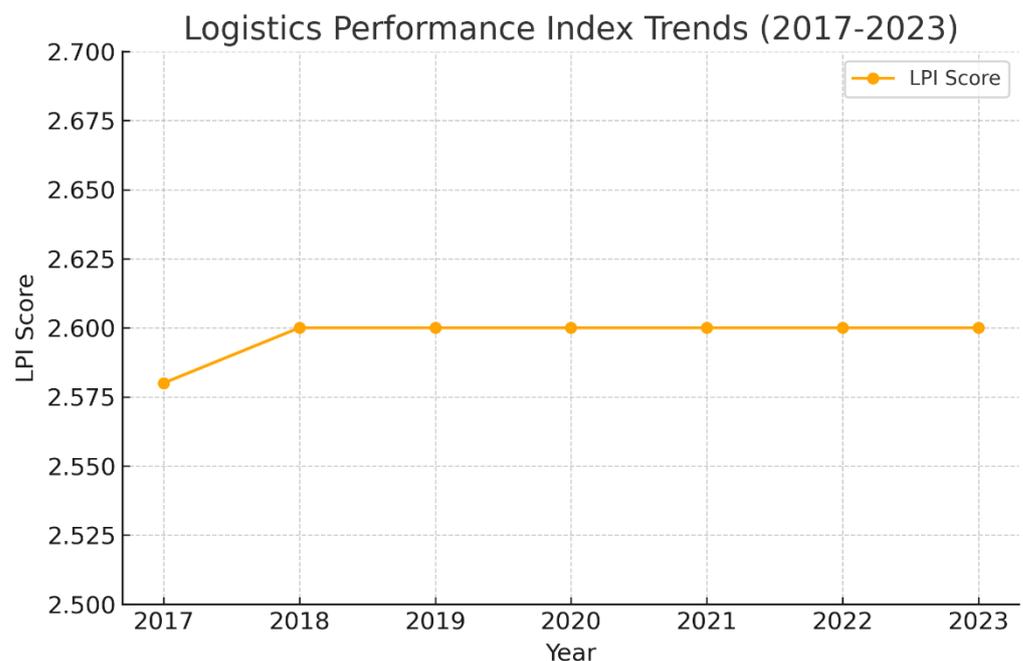
3. Results

Over the last few years, the strategic investments and policy reforms in the logistics sector in Uzbekistan have brought about consistent improvement. A complete outlook has been derived by developing three key figures to depict freight turnover, LPI trends and transport mode contributions

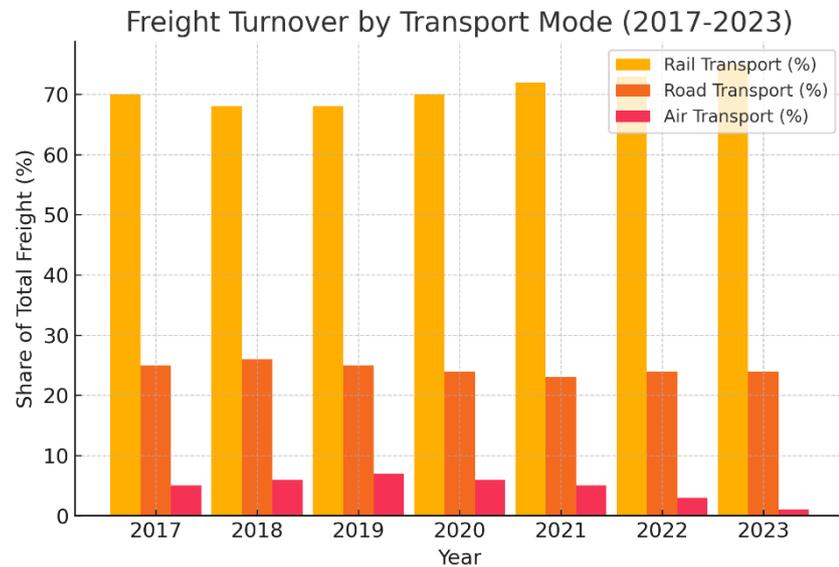


The total freight turnover in Uzbekistan from 2017 to 2023 is shown in the **Figure 1**. Finally, total freight turnover has been on an upward trend with **12,664.45 million** ton-kilometers in 2023, increasing by 4.8% annually. The railroad industry still dominates, with some 75% of all foreign freight, road transport takes 24% and air transport 1%. The growth is due to trends in rail infrastructure modernization and containerised transport set out in the 2022 - 2026 development strategy. Logistics influence the volume of trade. Uzbekistan has developed a strategy for improving the quality of logistics cargo for 2022-2026, which aims to improve the quality of transport infrastructure, simplify industrial cargo transport and provide logistics services. By 2026, Uzbekistan will improve its position in the "Logistics Level" index and increase the country's international competitiveness by promoting efficiency.

From 2024, the loading of cargo and logistics centres, which will play an important role in measuring cargo and logistics processes, will be expanded. Technological solutions such as real-time management and efficient vehicle allocation systems will also be introduced to manage efficiency. These changes will further strengthen the link between trade volumes and logistics, and increase the country's place in global trade.



Uzbekistan's improvement on the Logistics Performance Index (LPI) is shown in **Figure 2**. In 2023, the LPI score of Uzbekistan increased to 2.6 from 2.58 registered in 2018 and the country climbed onto the 88th place on global standings. This positive trend in the statistics reflects positive changes in customs clearance, trade infrastructure and systems for the tracking of goods. Despite this, however, Uzbekistan has not yet completely outpaced the competition in the region in the area of digitalization and logistics service quality.



Freight turnover by transportation mode (rail, road, and air) are analyzed in **Figure 3**. As a rule, the growth of rail transport is consistent with road transport's share declining. Its role in freight operations is relatively small, and so it experiences decline, or decline in air transport. This data highlights a strategic advantage for long distance and bulk cargo transportation that must be modernized: rail systems in Uzbekistan.

4. Discussion

The trends of freight turnover increase and LPI rankings show that capital investment in targeted infrastructure and government logistics strategies promote increases in Uzbekistan's logistics efficiency. The rail sector dominance is in line with the national geographic and economic position of being a crucial transit corridor in Central Asia. But progress is far less than it should be; key unresolved issues remain concerning easing multimodal transport system integration and introducing digital logistics solutions, as well as strengthening competence in the field of logistics service provision.

From a theory that these findings are consistent with the notion of trade facilitation and supply chain planning which focus on the importance of infrastructure, processing process efficiency and technology for logistics performance. These advancements of Uzbekistan in logistics match international studies that rank quality of infrastructure and customs efficiency as the key determinants of the global trade competitiveness. However, given the relatively small contributions from air freight and stable road transport, major entropy could be realized with future integrated, multimodal solutions to smooth traffic and connectivity.

The practical implications of the findings are important for policymakers, logistics providers and businesses. By improving logistics efficiency, Uzbekistan's trade competitiveness improves, transit times decrease and costs for importers and exporters are being optimized. Digital tools like the **e-Permit** and **e-TIR system** will be key to

speeding cross border trade. Along with expanding containerized transport and building real-time tracking systems, the country will be able to meet world logistics standards.

Knowledge Gap and Future Research

Notwithstanding the progress made, much remains to be done in terms of further research to improve the state of Uzbekistan's logistics sector and to practically intervene to ensure continuous improvements. A major knowledge gap in integrating digital solutions among all modes of transportation is highlighted by the study. Even though rail transport has improved considerably, road and air logistics remain undeveloped, which weakens the efficiency of the whole supply chain. Further research should be devoted to the impact of multimodal transport systems on logistics optimization using digital transformation.

In addition, further theoretical research is needed to study the relationship between economic development and logistics performance, in developing countries such as Uzbekistan. Quantitative models can be used to assess the size of the impact of better logistics infrastructure on trade and (especially) FDI and overall economic competitiveness. The implementation of blockchain, artificial intelligence, and Internet of Things (IoT) solutions in the practical research on the use of these technologies in the logistics networks of Uzbekistan appears to be the areas of interest.

Further Detail and Recommendations

To place Uzbekistan as a regional logistics hub, there is a need for more investments into infrastructure (especially road and air transport systems). **Figure 3** shows the disproportionate reliance rail, which while efficient, restricts flexibility on short-distance cargo movement. There would be complementary logistics support for different industries all in a single integrated multimodal system of how rail, road and air should come and function.

In addition, public private partnerships (PPPs) can also play a role in the modernization of logistics infrastructure. Developing logistics hubs, container terminals, digital platforms will accelerate through collaboration with the private investors and government. Infrastructure and digitization of trade processes are already included in Uzbekistan's Development Strategy for 2022–2026, but successful implementation requires clear performance benchmarks and real time monitoring.

The results show dramatic improvements to the Uzbekistan's logistics sector, through rail infrastructure modernization and strategic reforms. Better trade facilitation measures have been reflected in growth in freight turnover and LPI rankings show modest improvement in this regard. Nevertheless, there are still road and air transport systems development difficulties; multimodal solution integration; as well as digital logistics infrastructure improvement problems. To fill in these gaps in further research and specific investments will make Uzbekistan a competitive logistics hub in Central Asia.

5. Conclusion

This study's findings show that targeted investments mostly in rail infrastructure and digitalization initiatives had a positive effect on Uzbekistan's logistics performance, with freight turnover improving and its Logistics Performance Index (LPI) ranking increasing. In 2023, freight turnover was recorded at 12,664.45 million ton-kilometers, with rail transport accounting for 75%, underscoring its preeminence in delivering long haul lines cargo, and road and air transport lag far behind. Progress in customs efficiency and trade infrastructure has led to an improvement in the LPI score (which rose from 2.58 in 2018 to 2.6 in 2023), which nevertheless shows that there is still room for improvement in order to compete with regional leaders. These findings highlight the indispensable role of multimodal transport systems, infrastructure improvements and digital solutions in supporting competitiveness and economic growth. It is imperative that policymakers focus on this integration of road and air freight within the broader supply and logistics framework, as well as support the development of public private partnerships moving

forward to accelerate infrastructure development. Future research could utilize emerging technologies, such as blockchain and AI, to enhance logistics operation and fill the existing gap in logistics multi-modal transport efficiency. Closing these gaps will provide Uzbekistan with additional means for becoming a competitive regional logistics hub and for facilitating sustainable trade and economic development.

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