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# INNOVATIVE MECHANISMS OF LOGISTICS AND SUPPLY CHAIN MANAGEMENT IN ENHANCING REGIONAL EXPORT COMPETITIVENESS

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**Abstract.** The article examines the impact of logistics efficiency and supply chain management on export performance using the case of Uzbekistan. The study aims to identify the role of logistics factors in enhancing export activities. The research is based on analytical and comparative methods using data from international organizations. The findings indicate that improvements in logistics infrastructure and management practices contribute to export growth and competitiveness. The results are of practical relevance for export-oriented firms.

**Keywords:** logistics efficiency; supply chain management; export activities; foreign economic activity; logistics infrastructure

**Introduction.**In the current conditions of global uncertainty, improving export performance plays a key role in economic development. For Uzbekistan, which is actively diversifying its economy and expanding foreign trade, this task is of particular relevance. As a result of the reforms implemented, foreign economic activity has expanded significantly: between 2017 and 2023, Uzbekistan's total trade turnover increased by 2.4 times. The export structure is gradually shifting toward products with higher value added, including industrial goods and processed agricultural products [1].

At the same time, the production and export of fruits, vegetables, and food products are encouraged through state support measures, which makes the agro-industrial sector especially important for the economy (agriculture accounts for about 19% of GDP and 24% of total employment). According to 2024 data, agricultural exports account for approximately 8.2% of the country's foreign currency earnings, mainly due to supplies to Russia, Pakistan, and Kazakhstan. At the same time, new export directions are being

developed with a focus on the markets of China, Europe, and the Gulf countries [2]. Under these conditions, the efficiency of logistics processes and supply chain management becomes a critical factor in enhancing the competitiveness of Uzbek exports.

The special role of logistics is further emphasized by Uzbekistan's geography and traditional trade patterns. The country is one of only two "double landlocked" states in the world (along with Luxembourg), lacking direct access to the sea. This position increases dependence on overland transit corridors through neighboring countries. Russia, China, and Kazakhstan remain traditional trading partners [3] and are key markets for Uzbek agricultural products (for example, the main volumes of fruit and vegetable exports are directed to the markets of Russia, Pakistan, China, and Kazakhstan). Analysis shows that the expansion and optimization of logistics networks can facilitate access of Uzbek products (cotton, fruits, industrial goods, etc.) to the markets of China, Europe, and the Middle East [4]. Overall, this indicates that improvements in transport and warehousing infrastructure, reductions in delivery times, and lower logistics costs have a direct impact on the republic's export performance.The scientific novelty of the study lies in a comprehensive empirical analysis of the relationship between qualitative and quantitative logistics indicators and the dynamics of Uzbekistan's export performance. For the first time within a single study, a systematic assessment is conducted of how improvements in transport and logistics processes (including multimodal transportation, modern tracking information systems, "single-window" practices, and others) can enhance the export performance of Uzbek producers.[5]

The practical significance of the research is determined by the development of specific recommendations for public authorities, business entities, and logistics operators. The implementation of the proposed measures and approaches will help optimize supply flows from producers to foreign consumers, which is consistent with

the priorities of national programs aimed at expanding agro-industrial exports and diversifying the economy

**Research Methodology.**The research design is based on an analytical framework with a priority on an empirical approach to the study of Uzbekistan's agro-industrial exports. The study employs both inductive methods (the development of generalizations based on observations) and deductive methods (testing hypotheses derived from existing theories).[[6]]

**Analysis and Results** The methodological foundation is realism combined with a predominantly deductive and multi-method approach. Qualitative methods (logical and historical analysis, expert assessments, and systematization) are used alongside quantitative methods (statistical analysis and economic-mathematical modeling) to substantiate the conclusions. This research structure makes it possible to formulate and test hypotheses regarding logistics efficiency in the context of agricultural exports on the basis of real data.

Uzbekistan is one of only two countries in the world that are *double landlocked*, meaning it has no direct access to sea transport routes and is surrounded exclusively by landlocked states. Lacking access to the sea, the country is forced to rely on transit routes through neighboring countries, which significantly affects the cost and time of cargo transportation. According to the World Bank's Logistics Performance Index (LPI), Uzbekistan's logistics performance has been gradually improving. In 2018, the country ranked 99th out of 160, while in 2023 it rose to 88th place (score 2.6). Customs performance has improved substantially: the rank for the *Customs* subcomponent increased from 140th (2018) to 74th (2023). *(Table 1).[7]*

Thus, improving logistics efficiency (infrastructure, customs administration, and transport services) plays a key role in enhancing Uzbekistan's export performance. Data from the LPI and Doing Business indicate consistent improvements in the country's logistics indicators, while trade statistics record a corresponding increase in

export volumes. These results confirm that investments in the optimization of logistics chains and the reduction of border-related barriers directly contribute to the expansion of foreign trade and the diversification of export products.

**Table 1.**

**Comparative Logistics and Trade Indicators in Central Asian Countries (2023)**

| Country | LPI Score | LPI Rank | Exports, USD million | Main Export Markets |
|---|---|---|---|---|
| *Kazakhstan* | *2,7* | *79* | *78 736* | *China, Russia, Netherlands, Turkey* |
| *Uzbekistan* | *2,6* | *88* | *21 017* | *Russia, China, Kazakhstan, Turkey, Europe* |
| *Tajikistan* | *2,5* | *97* | *1 261* | *Afghanistan, Russia, Turkey* |
| *Kyrgyzstan* | *2,3* | *123* | *3 385* | *Russia, Kazakhstan, China* |

*Table 1. Prepared by the author based on statistical sources*

According to *Doing Business 2020*, despite reforms (including risk-based inspections and document simplification), export procedures remained labor-intensive: Uzbekistan ranked 152nd in the Trading Across Borders index (score 58.2). Export clearance required more than 128 hours per shipment (96 hours for documentation and 32 hours at the border) and cost approximately USD 570 in total formalities.

- **LPI Index (World Bank):** 2018 – 99th place; 2023 – 88th place (score 2.6).
- **LPI Subcomponents (2023):** Customs – 74th (2.6), Infrastructure – 89th (2.4), Shipments – 91st (2.6), Competence – 92nd (2.6), Tracking – 105th (2.4), Timeliness – 101st (2.8).

- **Doing Business 2020, Trading Across Borders:** Rank 152 (score 58.2) – duration of export procedures (documents/border) – 96/32 hours; cost ~USD 570.

The obtained empirical data confirm general regional trends: improvements in logistics contribute to export growth. Thus, studies note that the development of logistics infrastructure creates new jobs and expands cross-border trade [8]. According to the World Bank's Logistics Performance Index (LPI), Uzbekistan has been steadily improving its performance: in 2018 its LPI score was 2.58 (compared to 2.81 for Kazakhstan); however, in recent years the country has risen in the global ranking from 129th to 88th place. At the same time, official statistics record steady growth in export indicators: for example, in 2024 Uzbekistan's merchandise exports increased by 8.4%. These results are consistent with our conclusions regarding the effectiveness of current logistics transformations.

From an economic and managerial perspective, the identified patterns demonstrate the practical importance of improving supply chains. Investments in multimodal transport corridors and terminals reduce transit costs and geopolitical risks. In particular, a multi-vector transport strategy (the development of alternative routes) makes it possible to avoid reliance on a single transit corridor and to reduce vulnerability to external shocks. Specifically, the construction of new logistics terminals (for example, in the Georgian port of Poti) and the modernization of roads accelerate cargo handling and shorten delivery times. In parallel, logistics digitalization is underway: a national "e-Logistics" platform has been introduced, enabling online freight management, route tracking, and service comparison. This, in turn, significantly accelerates customs procedures (export customs clearance time has been reduced to approximately 20 minutes) and increases supply chain transparency [9]. The formation of logistics clusters (bringing together producers, processors, and exporters) is also supported by government programs, strengthening their competitive advantages. Taken together, these measures allow businesses to reduce logistics costs and manage risks, including those related to transport accessibility and market volatility.

Finally, the findings align with the objectives of the state export strategy, particularly for the agro-industrial sector. A target has been set to increase agro-industrial exports to USD 20 billion by 2030, with processed products accounting for 30%. Our results indicate that logistics transformations can contribute to achieving these goals: improvements in transport infrastructure and digital services expand access of farmers and processors to foreign markets, while the creation of agro-clusters integrates small producers with processing enterprises. Thus, the empirical findings support the government's strategy to diversify and modernize the export structure, especially in agriculture.

**Limitations of the study.**Our analysis is based on aggregated macroeconomic data and indices, as there are no publicly available micro-level data on logistics costs for individual enterprises. This limits the ability to conduct an in-depth assessment of the impact of logistics innovations on each business and imposes constraints on the precision of the conclusions. Nevertheless, the identified general trends provide important practical guidance for businesses and public policy aimed at developing export-oriented supply chains.

**Conclusion.**The conducted study confirmed the significant role of logistics efficiency and supply chain management in enhancing export performance. Using Uzbekistan as a case study, it was shown that improvements in logistics indicators—particularly the development of transport infrastructure, simplification of customs procedures, and enhancement of logistics service quality—are accompanied by growth in export volumes and an expansion of delivery geography. A comparative analysis with other Central Asian countries demonstrates that Uzbekistan shows steady progress in logistics development, creating favorable conditions for further expansion of export potential, especially in the agro-industrial sector.

From a practical perspective, the results are highly relevant for businesses. First, investments in optimizing logistics processes, including the use of multimodal transportation and digital logistics platforms, reduce costs and increase the reliability of export deliveries. Second, participation in logistics clusters and agro-logistics

centers facilitates the integration of producers into international supply chains and simplifies access to foreign markets. Third, focusing on long-term partnerships with logistics operators and export agents reduces risks associated with transit and fluctuations in the external market environment. Collectively, these measures align with the priorities of the national export development strategy and strengthen the competitive positions of export-oriented enterprises.

At the same time, the results highlight the need for further in-depth research in this area. Promising directions for future studies include the analysis of micro-level data at the enterprise level, assessment of the economic impact of logistics digitalization, and examination of supply chain resilience under external shocks. Additional interest lies in the empirical study of cold supply chains in the agro-industrial sector and their effect on the quality and cost of exported products. Advancing research in these areas will provide a more detailed understanding of the mechanisms through which logistics influences export performance and improve the rationale for managerial decision-making.

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