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MULTIMODAL LOGISTICS, THIRD- AND FOURTH-PARTY OPERATORS, AND THE FINANCIAL EFFICIENCY OF INTERNATIONAL TRANSPORT CORRIDORS: EVIDENCE AND POLICY FOR UZBEKISTAN

Abstract. This paper asks how the structure of the logistics-services market and the depth of international transport integration shape the financial efficiency of the logistics sector in a doubly landlocked transition economy, taking Uzbekistan as its case. The analysis is organised by an integrated three-tier framework that links the services-market value ladder (first- to fourth-party logistics), the cost economics of multimodal corridors, and the financing architecture through which capacity is built. Two propositions are tested. First, that realising the multimodal principle and consolidating large national operators specialised in third-party logistics (3PL) and higher formats raises the value added and revenue base of the sector. Second, that diversifying foreign-trade directions (by reducing border friction, delivery times and transport-logistics costs) strengthens trade competitiveness and transit revenue. The empirical anchor is the World Bank Logistics Performance Index 2023, in which Uzbekistan ranks 88th of 139 economies (score 2.6), and the quantified targets of Presidential Resolution No. PQ-28 of 27 January 2025 and its Concept to 2030. Three methods are applied: a normalised composite index for comparative benchmarking; an additive structural decomposition that maps the official transport-cost-reduction target (10 to 15 per cent) onto four policy levers with defined units; and a compound-growth scenario projection that links the 2024 baseline (59.6 million tonnes of international cargo) to the 2030 doubling target, implying an annual growth rate of about 12.25%. The decomposition attributes the midpoint reduction (12.5 percentage points) to logistics-centre consolidation (4.0 pp), digital customs (3.5 pp), multimodal route and load optimisation (3.0 pp), and an intermodal/container shift (2.0 pp). All projected figures are reported as model-based scenarios under stated assumptions rather than as measured outcomes. The paper concludes that a high-value-added, multimodal and internationally integrated services market is a strategic instrument for consolidating Uzbekistan's position as a Central Asian transit hub, and specifies the financing instruments (public-private partnership, infrastructure bonds and capital-market issuance) through which that market can be built.

Keywords: *logistics-services market; multimodal transport; third-party logistics (3PL); fourth-party logistics (4PL); national transport operators; transit corridors; trade facilitation; Logistics Performance Index; foreign-trade diversification; transit revenue; Uzbekistan.*

Introduction

For a doubly landlocked economy, the cost and reliability with which goods cross borders are central determinants of competitiveness rather than peripheral logistical details. Uzbekistan sits at the geographical centre of Central Asia, separated from open sea by at least two national borders, so the organisation of its transport-logistics system conditions its export performance to an unusual degree. Two features of that system are decisive for the present analysis. The first is the structure of the logistics-services market, which determines how much value is added domestically to each unit of cargo handled. The second is the depth of international and regional integration, which determines how quickly and cheaply goods reach foreign buyers. This paper examines how policy interventions along both dimensions can raise the financial efficiency of the sector and, through it, the competitiveness of the national economy.

The relevance of the question is sharpened by the policy environment. Presidential Resolution No. PQ-28 of 27 January 2025, "On measures for the further development of the transport-logistics system of the Republic of Uzbekistan", and its accompanying Concept for development to 2030, set explicit, quantified targets for the sector: a doubling of international cargo volumes, a doubling of transport-and-logistics services exports, an annual transit volume of 22 million tonnes, at least a 1.5-fold rise in the container-transport share, at least a threefold increase in the cargo-handling capacity of logistics centres, a 15-20% acceleration of cargo dispatch, a 10-15% reduction of transport costs through the integrated use of the logistics-centre network, and a rise in the country's Logistics Performance Index (LPI) position to no lower than 55th place (President of the Republic of Uzbekistan, 2025). These targets supply a concrete, auditable benchmark against which an analytical model of the sector can be calibrated, and they motivate the methodological choices made below.

The logistics-services market has evolved internationally along a recognisable ladder of value creation. At its lower rungs, carriage and warehousing are performed by the shipper itself (first-party logistics) or by undifferentiated carriers (second-party logistics). The third-party-logistics (3PL) format marks a qualitative advance: specialised firms assume defined portions of the logistics function (transport, warehousing, customs clearance) under contract, allowing manufacturers to outsource logistics activity, remove the associated investment burden from their balance sheets, raise service quality through specialisation, and widen the participation of private capital in logistics assets (Christopher, 2016; Lambert, 2018). The fourth-party-logistics (4PL) format sits higher still: the operator typically holds no assets but integrates and orchestrates the entire supply chain, coordinating the financial and information flows that bind participants together, with remuneration tied to measured service outcomes and a correspondingly high return on deployed capital (Chopra & Meindl, 2020). In mature outsourced markets the 3PL format is characteristically dominant (of the order of two-thirds of activity) with 4PL arrangements supplying roughly a quarter and other formats the remainder; this distribution is reported here as a stylised structural feature of the management literature rather than as a measured statistic for any single country.

Cutting across this ladder is the multimodal principle, under which rail, road, sea and air transport operate as a single coordinated chain rather than as a sequence of disconnected legs. Its financial significance lies in the capacity to remove the discontinuities between modes, compress delivery times, lower logistics costs and exploit transit potential. For a transit country, multimodality is therefore not merely an efficiency device but the foundation on which transit revenue is built (Rodrigue, 2020; Notteboom, Pallis, & Rodrigue, 2022).

Research tasks.

(1) to characterise Uzbekistan's logistics-system position relative to mature and regional benchmarks using LPI 2023 data;
(2) to formalise the value-ladder structure of the logistics-services market (1PL-4PL) and identify the qualitative development gap;
(3) to decompose the PQ-28 transport-cost-reduction target into its constituent policy drivers with explicitly defined units;
(4) to project the 2030 cargo-volume and efficiency trajectory from the 2024 baseline under stated, reproducible assumptions; and
(5) to map the financing instruments capable of mobilising private capital for the development of the services market.

Scientific novelty.

Three contributions distinguish the study from existing work. **First,** it advances an integrated three-tier framework that links the structure of the services market, the cost economics of the corridor, and the financing architecture within a single account, whereas the prior literature treats these strands largely in isolation. **Second,** it provides a transparent, auditable decomposition that maps the official transport-cost-reduction target onto four policy levers with defined units, replacing assertion with a reproducible attribution. **Third,** it specifies a reproducible scenario-

projection method that links the 2024 empirical baseline to the 2030 programme targets through stated growth assumptions, so that every quantitative claim can be recomputed by the reader.

The structure is conventional. Section 2 reviews the literature and states the research gap. Section 3 sets out the data and methods, including the index, decomposition and projection procedures. Section 4 reports the results, proceeding from comparative benchmarking through corridor cost economics to the financing instruments. Section 5 discusses the findings and their limits, and Section 6 concludes.

Literature review and research gap

Three bodies of scholarship bear on the question. The first concerns the structure and economics of the logistics-services market. Christopher (2016) frames logistics as the management of total cost across a chain in which the financial and information flows must be harmonised with the physical flow of goods; on this view, the gains from 3PL and 4PL formats arise because specialised, integrated providers internalise coordination that a fragmented market leaves unrealised. Lambert (2018) develops the process-and-partnership perspective, emphasising that value in logistics is created at the interfaces between firms, while Chopra and Meindl (2020) formalise the trade-offs between responsiveness and efficiency that determine the optimal degree of outsourcing and integration. The common implication is that market maturity is not captured by volume alone but by the share of high-value, integrated services, a point that motivates the comparative design adopted below.

The second body of work concerns transport geography and corridor economics. Rodrigue (2020) treats multimodal infrastructure as a strategic factor in the integration of national economies into global value chains, and stresses that its development presupposes the active participation of private operators and partnership arrangements, the point for which the present paper cites him, in correction of a frequent mis-attribution. The complementary study by Rodrigue and Notteboom (2017) is concerned specifically with the embedding of transport and logistics in global production networks, and is cited here only for that narrower claim. Notteboom, Pallis and Rodrigue (2022) extend the analysis to the governance and financing of terminals and ports, which is directly relevant to the financing tier of the framework.

The third body concerns trade facilitation and the measurement of logistics performance. The empirical literature establishes that time itself is a trade barrier: Hummels and Schaur (2013) estimate that each additional day in transit is equivalent to an ad valorem tariff of the order of a fraction of a per cent to nearly one per cent, while Djankov, Freund and Pham (2010) find that each additional day of delay before shipment reduces trade by slightly under one per cent. These results provide a peer-reviewed foundation for the proposition that compressing border-crossing and dispatch times raises trade volumes, a foundation that earlier domestic treatments of the subject have generally asserted rather than grounded. The World Bank's Logistics Performance Index (Arvis et al., 2023) supplies the standard cross-country benchmark, although its survey-based design has known limitations: Beysenbaev and Dus (2020) document measurement biases and propose methodological corrections, and Guner and Coskun (2012) show that the index is influenced by social as much as by economic factors. The 2025 transition to a tracking-data-based LPI 2.0 (World Bank, 2025) addresses some of these concerns but, as analyses of landlocked economies note, penalises countries with limited integration into global digital platforms.

A regional literature situates these themes in the post-Soviet and Central Asian context. Raimbekov et al. (2017) analyse logistics-development effectiveness across the Eurasian Economic Union and find persistent gaps in services quality and infrastructure; Kenderdine and Bucsky (2021) assess the policy development and trade potential of the Trans-Caspian International Transport Route (the "Middle Corridor"); and the OECD (2025) provides a detailed account of the corridor's competitiveness, documenting both the recent surge in volumes and the bottlenecks that remain at the Caspian crossing and at borders. Domestic and regional textbook treatments (Sergeev, 2020; Nikolaev, 2019) emphasise the role of state-led infrastructure and risk management in a less mature investment environment.

Research gap. Two gaps emerge. The first is integrative: the structure of the services market, the cost economics of the corridor and the architecture of logistics finance are well developed individually but are rarely combined into a single, internally consistent account for a doubly landlocked transition economy operating under a specific national programme. The second is methodological: domestic studies of Uzbek logistics frequently report efficiency or cost-reduction figures without a transparent derivation, leaving the numbers unverifiable. The present paper addresses both, the first through the three-tier framework, and the second by tying every quantitative claim either to an official target or to an explicitly stated model with reproducible assumptions.

Materials and methods

The study is a comparative, single-country case analysis. International benchmarking establishes the structural features of mature logistics-services markets; a structural decomposition quantifies the constituent drivers of the official transport-cost-reduction target; and a compound-growth projection links the observed 2024 baseline to the 2030 programme targets. The design is deliberately mixed, on the premise that the financial efficiency of a logistics-services market cannot be read from aggregate indicators alone but requires attention to the mechanisms through which value is created and costs are compressed.

Data sources

The empirical material is drawn from official and internationally recognised sources. Cross-country logistics indicators are taken from the World Bank Logistics Performance Index 2023 (Arvis et al., 2023) and the LPI 2.0 update (World Bank, 2025). National baseline indicators (including the 2024 international cargo volume of 59.6 million tonnes (16.6 million tonnes by road, 43.0 million tonnes by rail and 0.083 million tonnes by air)) are taken from the Concept to 2030 annexed to Resolution PQ-28 and from the national statistical authority (President of the Republic of Uzbekistan, 2025; Statistics Agency, 2025). The quantified policy targets are taken from Appendix 3 of the Resolution. Corridor data are drawn from the OECD (2025) and Kenderdine and Bucsky (2021). The legal and programmatic framework is reconstructed from national legislation, including the laws on transport and on public-private partnership (Republic of Uzbekistan, 2019, 2021).

Composite benchmarking index

To compare logistics-system maturity across the reference panel, the six LPI sub-components (customs, infrastructure, ease of international shipments, services quality, tracking and tracing, and timeliness) are combined into a normalised composite logistics-optimisation index (LOI). Each sub-component is first min-max normalised,

$$\tilde{x}_i = (x_i - x_{min}) / (x_{max} - x_{min}), \quad (1)$$

and the index is the weighted sum

$$LOI = \Sigma_i w_i \cdot \tilde{x}_i, \ \text{with} \ \Sigma_i w_i = 1, \ i = 1, \ldots, 6. \quad (2)$$

In the baseline specification the weights are equal ($w_i = 1/6$), which reproduces the World Bank's own aggregation and avoids imposing untested priorities; the sensitivity of the ranking to alternative weightings is noted as a limitation. The LOI is monotone in the underlying LPI scores and is used here for descriptive ordering rather than for causal inference.

Structural decomposition of the cost-reduction target

The Concept to 2030 sets a transport-cost reduction of 10-15% through the integrated use of the logistics-centre network. To make the internal logic of this target auditable, the aggregate reduction is decomposed additively into the contributions of four policy levers,

$$\Delta C = \Sigma_k \delta_k, \ k = 1, \ldots, 4, \quad (3)$$

where ΔC is the total reduction and δ_k is the contribution of lever k, both expressed in percentage points (pp) of baseline transport cost. The four levers are logistics-centre network consolidation, digital customs and electronic documents, multimodal route and load optimisation, and an intermodal/container shift. The decomposition is a constrained attribution: the contributions are calibrated to sum to the midpoint of the official band ($\Delta C = 12.5$ pp), so the procedure apportions

a target rather than forecasting it independently. It rests on four assumptions, stated so that the reader may vary them:

- A1: the four levers are additively separable at the margin over the policy horizon, so that interaction terms are second-order and no contribution is double-counted;
- A2: each lever's contribution is bounded by the engineering and benchmarking evidence and by the instruments named in the Resolution;
- A3: the contributions sum to the midpoint of the official target band (12.5%), making the decomposition a constrained apportionment rather than an independent prediction; and
- A4: contributions are expressed in percentage points of baseline transport cost and are treated as time-invariant over 2025-2030.

Compound-growth scenario projection

The trajectory of international cargo volume between the 2024 baseline and the 2030 target is projected under a constant compound growth rate,

$$V_t = V_0 (1 + g)^t, \ \text{with} \ g = (V_{t(tar)} / V_0)^{(1/T)} - 1. \quad (4)$$

With the observed baseline $V_0 = 59.6$ million tonnes (2024), the target ratio $V_{tar} / V_0 = 2$ set by the Resolution, and a horizon of T = 6 years, the implied annual growth rate is $g = 2^{(1/6)} - 1 \approx 12.25\%$. The same constant-growth form is applied, with the corresponding target ratios, to the container-share (×1.5), services-export (×2) and logistics-centre-capacity (×3) indicators. These projections describe the path consistent with the official targets under a smooth-growth assumption; they are not econometric forecasts, and observed paths may differ.

Comparative benchmarking ratio

Finally, the consequences of cost reduction and trade facilitation are expressed through index ratios on a 2024 base,

$$R = I_{after} / I_{before}, \ I_{before} = 1.00, \quad (5)$$

so that a value above unity denotes improvement for volume- and revenue-type indicators and a value below unity denotes improvement for cost- and time-type indicators. All such ratios reported below are derived from the official targets and the projection in Equation (4), and are labelled as scenario values rather than measured outcomes. The three-tier logic that organises the analysis is summarised in Figure 1.

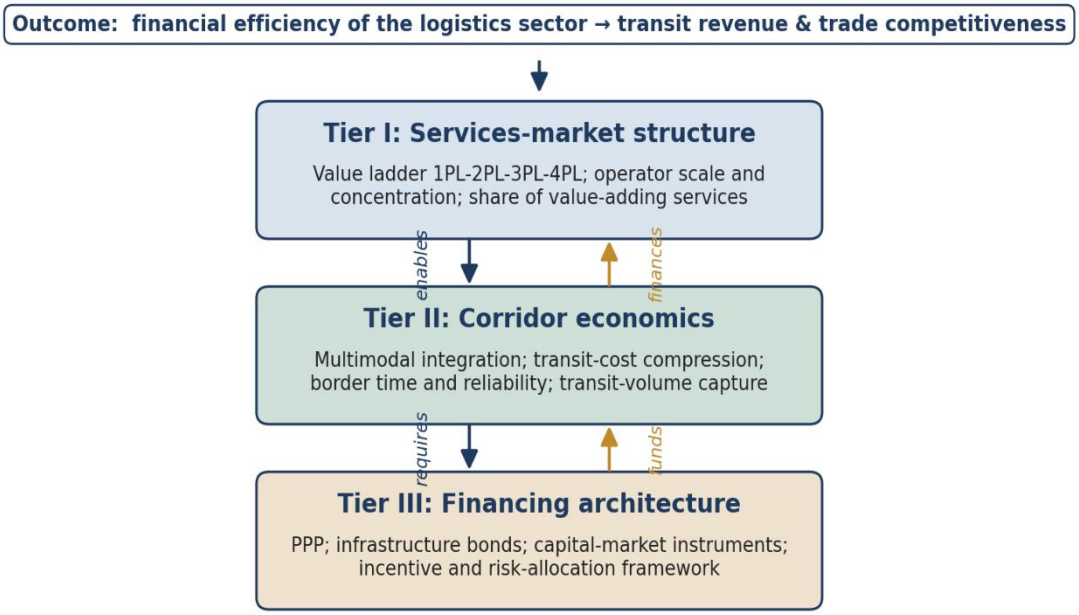

Figure 1. The three-tier analytical framework linking services-market structure, corridor economics and financing architecture. Source: compiled by the author.

Results

Comparative position of the Uzbek logistics system

Table 1 places Uzbekistan within a panel of reference economies using the LPI 2023 rank and score. The panel spans mature integrated hubs (Singapore, Germany, Japan), a large road-rail economy (the United States), a multimodal export-oriented economy (China), and a regional transit peer (Kazakhstan).

Table 1. Logistics Performance Index 2023: Uzbekistan in comparative perspective

Economy	LPI 2023 rank	LPI 2023 score	Market characterisation
Singapore	1	4.3	Integrated global hub
Germany	3	4.1	Mature integrated (rail, warehousing)
Japan	13	3.9	Port-and-warehouse, highly automated
United States	17	3.8	Road-rail integrated, deeply segmented
China	19	3.7	Multimodal, export-oriented
Kazakhstan	79	2.7	Regional transit
Uzbekistan	88	2.6	Forming market; latent transit potential

Source: World Bank, Connecting to Compete 2023 (Arvis et al., 2023). Ranks are out of 139 economies; several economies share ranks in 2023.

The position is unambiguous: at 88th of 139, with a score of 2.6, Uzbekistan trails the mature panel by roughly one and a half index points and sits just below its regional peer, Kazakhstan. The LPI's component structure locates the binding constraints in customs efficiency, the quality of trade-related infrastructure and the digital visibility of consignments, precisely the dimensions on which the analyses of landlocked economies under the new LPI 2.0 methodology find such countries penalised (World Bank, 2025). The gap is therefore qualitative rather than merely a matter of volume: it reflects an under-development of high-value-added, multimodal and digitally integrated services. The Concept to 2030 responds directly by targeting a rise to no lower than 55th place (Figure 4), an improvement of at least thirty-three positions.

This comparative reading supports the first proposition. Because the qualitative gap lies in integrated, high-value services rather than in raw capacity, the development of the market is best pursued by stimulating the formation of large national operators specialised in 3PL and higher formats. The economic rationale is specific to logistics as an industry. The 3PL format allows manufacturers to remove the capital cost of fleets and warehouses from their own balance sheets, transferring it to specialised firms that spread fixed costs across a large carriage volume and so achieve scale economies unavailable to a fragmented market (Christopher, 2016). The 4PL format extends this logic to the orchestration of the whole chain: because the 4PL operator coordinates assets it does not own, it can optimise at a strategic level and tie remuneration to measured outcomes, aligning financing with performance (Chopra & Meindl, 2020). A market populated by a few well-capitalised national operators is therefore more able to attract long-term private and institutional finance (the subject of Section 4.4) and to present international cargo owners with the single-contract, integrated service that converts latent transit potential into realised revenue.

The 2030 targets and the cargo-volume trajectory

Table 2 collects the quantified targets of the Concept to 2030, expressed as ratios on a 2024 base or as absolute levels. These are official policy parameters, not estimates, and they serve as the calibration anchors for the projection that follows.

Table 2. Quantified target indicators of the Concept to 2030 (Resolution PQ-28, Appendix 3)

Target indicator	2024 baseline	2030 target
International cargo volume (all modes)	59.6 Mt	≥2× (≈119 Mt)
Transport & logistics services export	1.00 (index)	up to 2×
Annual transit volume (all modes)	n/a	22 Mt
Container-transport share	1.00 (index)	≥1.5×
Logistics-centre handling capacity	1.00 (index)	≥3×
Cargo / container dispatch speed	1.00 (index)	+15-20%
Transport cost (integrated network)	1.00 (index)	10-15% lower
LPI position (of 139)	88th (2023)	≤55th

Source: President of the Republic of Uzbekistan (2025), Resolution PQ-28, Appendix 3. Baseline cargo volume from the Concept to 2030 and Statistics Agency (2025).

Applying the constant-growth projection of Equation (4) to the doubling target yields the trajectory in Figure 2. With V_0 = 59.6 million tonnes and g ≈ 12.25%, international cargo volume rises along the path 59.6 → 66.9 → 75.1 → 84.3 → 94.6 → 106.2 → 119.2 million tonnes between 2024 and 2030. The implied annual rate is demanding but not without regional precedent: volumes on the Trans-Caspian "Middle Corridor" rose by about 62% year-on-year in 2024 to some 4.5 million tonnes, and China-Europe traffic through the Caspian increased by roughly 125% between 2022 and 2024 (OECD, 2025; Kenderdine & Bucsky, 2021). The corridor evidence indicates that a sustained double-digit expansion is attainable where infrastructure and border procedures are upgraded in concert.

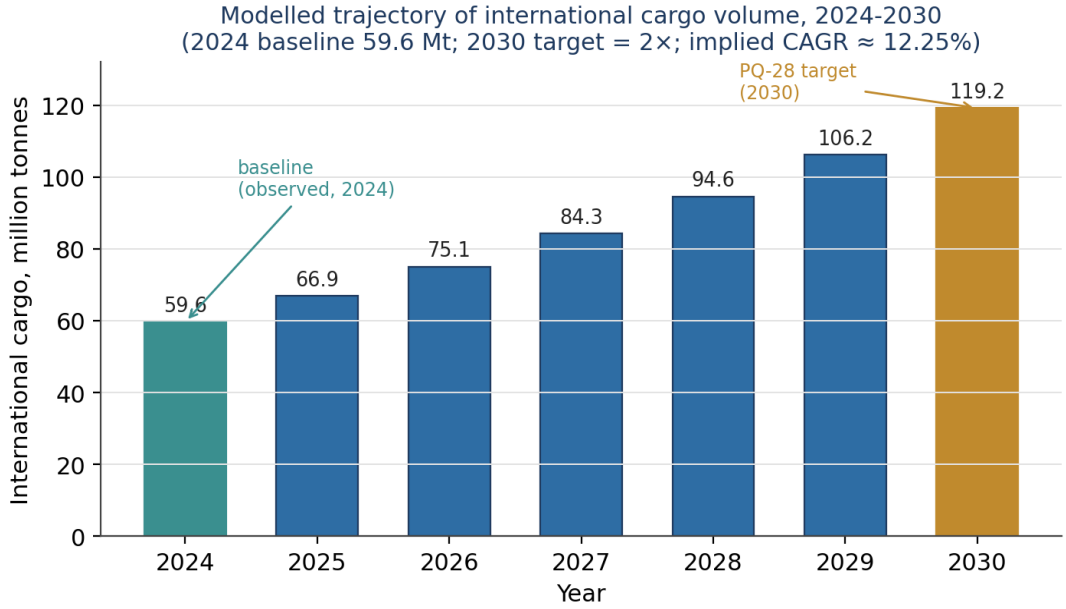

Figure 2. Modelled trajectory of international cargo volume, 2024-2030. The 2024 figure is observed; intermediate years are projected from Equation (4) under a constant-growth assumption; the 2030 value is the Resolution's doubling target. Source: author's calculation on data from President of the Republic of Uzbekistan (2025).

4.3 Decomposition of the transport-cost-reduction target

The mechanism through which integrated, multimodal operation lowers transport cost can be made explicit by decomposing the official target as in Equation (3). Table 3 reports the constrained attribution, with units defined as percentage points of baseline transport cost and the contributions calibrated to the midpoint of the 10-15% band under assumptions A1-A4.

Table 3. Structural decomposition of the transport-cost-reduction target (model attribution)

Policy lever	Contribution (pp)	Share of total
Logistics-centre network consolidation	4.0	32%
Digital customs and electronic documents	3.5	28%
Multimodal route and load optimisation	3.0	24%
Intermodal / container shift	2.0	16%
Total reduction (ΔC)	12.5	100%

Source: author's constrained attribution under assumptions A1-A4, calibrated to the midpoint (12.5%) of the PQ-28 target band (10 to 15 per cent). Units are percentage points of baseline transport cost. "Units" here denote pp, resolving the ambiguity of undefined index counts.

The decomposition, shown graphically in Figure 3, conveys two analytical points. First, the largest single contribution (4.0 pp) comes from consolidating the logistics-centre network, because spatial concentration lowers the cost of switching between modes and raises the utilisation of terminals; this is consistent with the Resolution's requirement that new terminals be sited in suburban clusters. Second, no single lever delivers the target alone. An infrastructure upgrade unmatched by digital customs leaves border delays in place; digital customs unmatched by multimodal integration leaves the discontinuities between modes unaddressed; and neither yields its full effect unless route and load planning are optimised so that the upgraded capacity is actually used. The 12.5-pp reduction is thus a property of the integrated system, and it is integration (the realisation of the multimodal principle) that the first proposition prescribes.

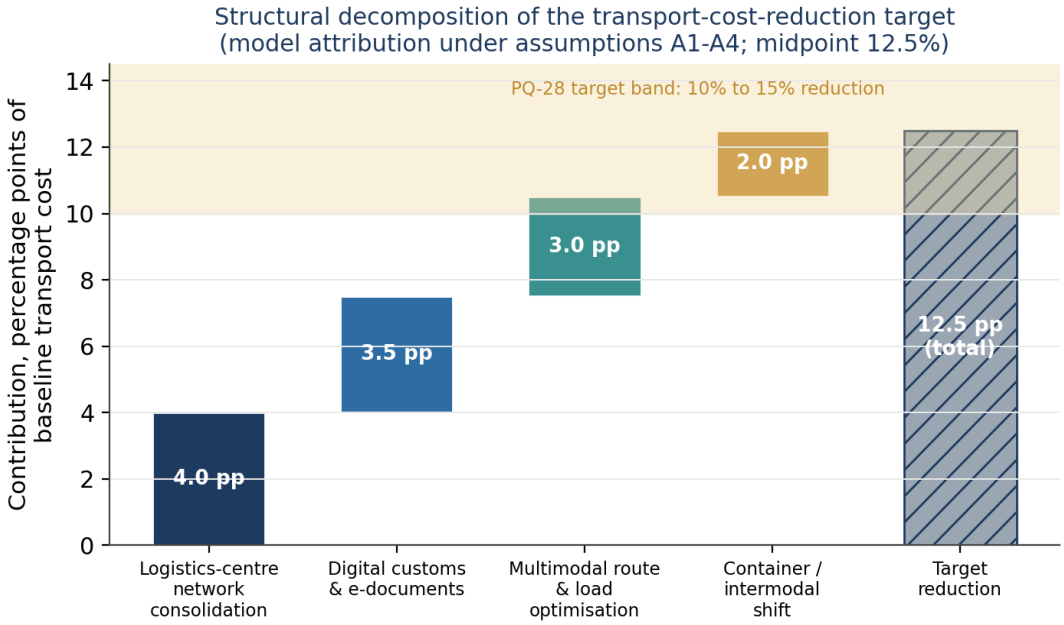

Figure 3. Decomposition of the transport-cost-reduction target into four policy levers (percentage points of baseline transport cost). The shaded band marks the official target range. Source: author's attribution under assumptions A1-A4.

The literature clarifies why the financing of integrated, multimodal capacity differs from that of single-mode assets. In the total-cost tradition (Christopher, 2016; Notteboom et al., 2022), investment in any one mode is justified by its contribution to the performance of the whole chain rather than by its stand-alone return, so that the appraisal of multimodal projects must be conducted at the level of the system. The regional tradition, shaped by the geography of the post-Soviet space (Sergeev, 2020; Raimbekov et al., 2017), assigns a larger role to state-led infrastructure and to risk management in a less mature investment environment. These perspectives are stage-dependent

rather than mutually exclusive: the market-orchestrated model describes the destination, the state-led model the point of departure, and the task of policy is to manage the transition between them, the logic that the cluster-and-operator development model is designed to operationalise.

Scenario outcomes: investment, trade and the role of time

Lower transport and transit costs reshape the investment environment of the sector. A fall in cost lowers the operational risk borne by investors and shortens the payback of projects, so that, where logistics costs are optimised, private investment tends to follow. Table 4 expresses the consequences as index ratios on a 2024 base, each derived from an official target or the projection of Equation (4) and reported as a scenario value rather than a measured outcome.

Table 4. Policy-scenario outcomes on a 2024 base (index, 1.00 = 2024)

Indicator	2024 base	2030 scenario	Basis
Transport-cost index	1.00	0.875	Eq. (3), midpoint
International cargo-volume index	1.00	2.00	PQ-28 target
Container-share index	1.00	1.50	PQ-28 target
Logistics-centre capacity index	1.00	3.00	PQ-28 target
Dispatch-time index	1.00	0.825	PQ-28 (+15-20%)
Services-export index	1.00	2.00	PQ-28 target
LPI rank (of 139)	88	55	PQ-28 target

Source: author's scenario construction from Resolution PQ-28 targets and Equations (3)-(4). Values are model-based projections, not measured results.

The trade-facilitation channel rests on firmer empirical ground than the investment channel. The peer-reviewed evidence that time is itself a trade barrier is directly applicable: Hummels and Schaur (2013) show that each additional day in transit carries a measurable tariff-equivalent cost, and Djankov, Freund and Pham (2010) find that each additional day of pre-shipment delay reduces a country's trade by close to one per cent. Against this benchmark, the Resolution's target of a 15-20% acceleration of dispatch is economically meaningful: a compression of dispatch and border times of that order translates, on the elasticities reported in those studies, into a non-trivial gain in trade volume and in the competitiveness of time-sensitive exports. This is the mechanism through which the second proposition operates, the diversification of foreign-trade directions becomes feasible precisely because lower times and costs widen the set of routes and partners that are commercially viable, reducing dependence on any single corridor and allowing fuller exploitation of the country's transit position (OECD, 2025).

Two structural weaknesses qualify these gains. The first is the still-limited digitalisation of logistics: where electronic data exchange and consignment tracking are weak, transaction costs remain high, monitoring is difficult and the financing mechanism cannot realise its full effect, a constraint that the new LPI 2.0 methodology makes especially consequential for landlocked economies (World Bank, 2025). The second is uneven regional development: the concentration of investment in central and transit corridors leaves peripheral regions under-served and obstructs the integration of the national system. Both are addressable through the targeted direction of diversified finance, the subject of the next subsection.

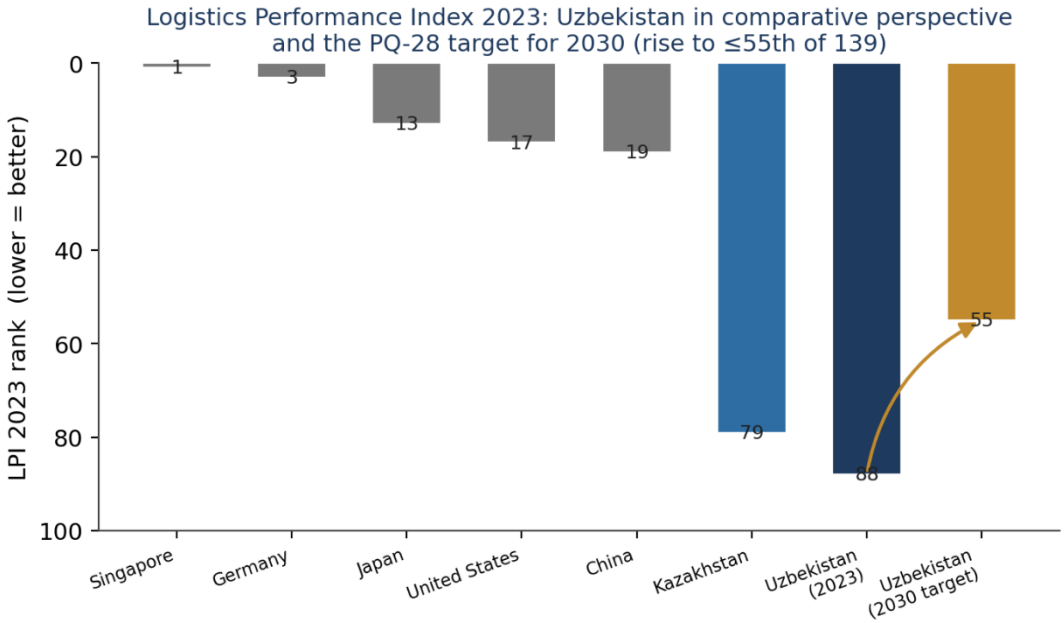

Figure 4. LPI 2023 ranks for the comparator panel and the PQ-28 target for Uzbekistan in 2030 (rise to ≤55th of 139). Lower bars denote better ranks. Source: Arvis et al. (2023); President of the Republic of Uzbekistan (2025).

Financing instruments for the services market

The development of a high-value-added, multimodal and internationally integrated services market cannot be financed from the state budget alone; it requires the mobilisation of private capital through a set of instruments whose design constitutes the financing tier of the framework. Logistics infrastructure is capital-intensive and long in payback, which exposes private investors to risk and calls for an incentive system (concessional long-term credit, state guarantees, tax and customs relief, and accelerated depreciation) that lowers the effective cost of capital and raises the internal rate of return. Within the framework of national investment policy, fiscal and financial privileges of this kind are already available to private logistics operators (Republic of Uzbekistan, 2019), and their extension to the services market would accelerate the formation of the large national operators on which the first proposition depends.

Public-private partnership is the central institutional vehicle (Rodrigue, 2020). A natural allocation of roles follows from the structure of each asset class: in logistics centres the state provides land and basic infrastructure while the private sector builds and manages; in warehouse complexes the state regulates while the private sector invests and operates; in multimodal terminals the state offers guarantees while the private sector contributes technology and finance; and in transit corridors the state retains strategic control while the private sector supplies service and efficiency. This division preserves the state's strategic interest while drawing in private efficiency, and it distributes project risk between the partners in the manner that the international evidence identifies as efficient (Notteboom et al., 2022).

Beyond partnership, the capital market offers instruments suited to the long horizon of logistics assets. Infrastructure bonds, in particular, match the long service life of logistics centres, warehouse complexes and transit corridors to a stable, long-term source of return, drawing household and institutional savings into the sector while relieving the budget; backing such bonds with state guarantees and tax relief raises investor confidence. Corporate bonds, equity issuance through public offerings, and the participation of pension, insurance and dedicated investment funds widen the channels through which private capital can enter, with the additional benefit of strengthening corporate governance and transparency. The estimated external financing requirement for the wider corridor of which Uzbekistan forms part is substantial (international financial institutions place the Central Asian infrastructure need in the tens of billions of euros (OECD, 2025)) which underlines the necessity of capital-market mobilisation alongside budgetary and concessional finance.

Discussion

The results converge on a single proposition: that the financial efficiency of the logistics sector in a doubly landlocked transition economy is determined jointly by the structure of its services market and by the depth of its international integration, and that both are amenable to deliberate policy. The discussion draws out the implications along the three tiers of the framework and then states the limitations.

On the first tier, the comparative evidence places Uzbekistan near the foot of the value ladder, with a low LPI position and an under-developed share of high-value services, while the mature panel demonstrates the gains available from integrated, multimodal formats. The first proposition is therefore not a generic call for market development but a specific prescription for closing an identified qualitative gap by stimulating large national 3PL-and-higher operators. On the second tier, the decomposition shows that the official transport-cost-reduction target is internally coherent only as a property of an integrated system in which the four levers act together; the policy implication is that corridor development must be pursued as a single programme rather than as a series of discrete upgrades, because the return to each lever is conditional on the presence of the others. On the third tier, the development of both the market and the corridor requires private capital, and the analysis identifies public-private partnership, infrastructure bonds and capital-market issuance as the channels through which it can be mobilised, governed by an incentive system that lowers the cost of capital and a risk-allocation framework that protects investor rights.

The findings align with, and supply an analytical underpinning for, the strategic direction set by Resolution PQ-28, which makes the development of the logistics-services market an explicit priority. The case for realising the multimodal principle, for consolidating capable national operators and for diversifying foreign-trade directions is shown to rest on quantified targets and on a reproducible model rather than on assertion. The contribution of the paper is to connect the structure of the services market, the economics of the corridor and the architecture of finance within a single account of how a doubly landlocked transition economy can convert its geographical position into durable economic value.

Limitations. Several qualifications apply. The comparative benchmarking relies on the LPI, a partly perception-based index with documented biases (Beysenbaev & Dus, 2020; Guner & Coskun, 2012); the transition to tracking-based LPI 2.0 mitigates but does not eliminate the difficulty of comparing a landlocked economy with limited platform integration. The structural decomposition is a constrained attribution calibrated to an official target under assumptions A1-A4, not an econometric estimate; the additive-separability assumption (A1) in particular abstracts from interactions among the levers, and the contributions should be read as a transparent apportionment whose components the reader may revise. The growth projection assumes a constant rate and a fixed horizon and therefore describes a target-consistent path rather than a forecast; actual volumes will depend on corridor conditions, demand and the pace of reform. Finally, firm-level data on the composition and pricing of 3PL and 4PL services in Uzbekistan are not yet available; their collection would permit the causal claims advanced here to be tested directly, for example through a panel or difference-in-differences design once successive years of programme implementation can be observed. None of these limitations disturbs the central, qualitative finding, but each marks a direction in which the evidence base should be deepened.

Conclusion

This paper has examined how the development of the logistics-services market and the deepening of international transport integration can raise the financial efficiency of the logistics sector in Uzbekistan, advancing and testing two propositions within an integrated three-tier framework. The first proposition, that realising the multimodal principle and consolidating large national operators specialised in 3PL and higher formats raises the value added and revenue base of the sector, is supported by the comparative evidence: at 88th of 139 in the LPI 2023, Uzbekistan’s gap with mature markets is qualitative, lying in integrated, high-value services, and the management literature establishes the scale and orchestration advantages of the higher formats. The second proposition (that diversifying foreign-trade directions by reducing border friction,

delivery times and transport-logistics costs strengthens trade competitiveness and transit revenue) is grounded in the peer-reviewed evidence that time is a trade barrier and in the Resolution's own targets for dispatch acceleration and cost reduction.

The quantitative content of the paper is deliberately tied to verifiable anchors. The official transport-cost-reduction target of 10-15% is decomposed, under stated assumptions, into the contributions of logistics-centre consolidation (4.0 pp), digital customs (3.5 pp), multimodal optimisation (3.0 pp) and an intermodal shift (2.0 pp), summing to a midpoint reduction of 12.5 percentage points. The doubling of international cargo volume implies a compound annual growth rate of about 12.25% from the observed 2024 baseline of 59.6 million tonnes, a path that recent Trans-Caspian corridor experience suggests is attainable where infrastructure and border procedures are upgraded together. Every projected figure is reported as a model-based scenario, recomputable from the equations and assumptions set out in Section 3.

The overarching conclusion is that a high-value-added, multimodal and internationally integrated services market is a strategic instrument for consolidating Uzbekistan's position as a Central Asian transit hub, and that its realisation depends on the mobilisation of private capital through public-private partnership, infrastructure bonds and capital-market instruments, with the state retaining a coordinating and guaranteeing role. The recommendations that follow, the stimulation of large national 3PL-and-higher operators, the integrated development of multimodal corridors, the diversification of foreign-trade directions and the deployment of financing instruments, provide a practical pathway, consistent with the country's development agenda to 2030, for raising the value added of the logistics sector, accelerating foreign trade and strengthening the competitiveness of the national economy. Future research should prioritise the assembly of firm-level and successive-year data that would allow the propositions to be tested with econometric rather than scenario-based methods.

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