Published: April 30, 2025 | Pages: 319-323

INTER-SECTORAL INTEGRATION AND GROWTH DYNAMICS IN THE REGIONAL ECONOMY: THE EXAMPLE OF THE REGIONS OF UZBEKISTAN

Avzaljon Umarov

Deputy Head of the Department of Economics and Finance Namangan, Uzbekistan

Abstract: This study investigates how inter-sectoral integration shapes growth dynamics across Uzbekistan's regions. Building a regional input–output framework, complemented by Location Quotients, network analysis, and spatial econometrics, it assesses how sector linkages translate into diversified and resilient regional growth. Using reconstructed region-level IO tables and time-series regional data, we find that stronger backward linkages from agro-processing and robust forward linkages into logistics, services, and construction are associated with faster regional growth and greater diversification. Regional heterogeneity matters: Fergana's agro-processing, Navoi/Karakalpakstan's downstream activities, Samarkand/Bukhara's tourism linkages, and Tashkent's services-driven diffusion. Policy implications emphasize value chains, infrastructure, human capital, and cross-sector collaboration.

Keywords: Inter-sectoral integration, regional growth, Uzbekistan regions, input-output framework, backward linkages, forward linkages, multipliers, spillovers, value chains, infrastructure.

INTRODUCTION

Regional economies are not merely collections of isolated sectors; they are networks of interdependent activities whose interactions shape growth, resilience, and development paths. Inter-sectoral integration—the extent to which sectors supply and rely on each other's inputs and outputs—creates a web of linkages that can amplify regional growth through multiplier effects, cluster formation, and knowledge spillovers. In Uzbekistan, a country undergoing rapid post-Soviet transition and ambitious development reforms, understanding how sectoral linkages operate across its diverse regions is crucial for designing policies that foster inclusive and sustainable growth. The regions differ markedly in their economic structure: the Fergana Valley concentrates agribusiness and light manufacturing; Navoi hosts extractive industries and large-scale processing; Samarkand and Bukhara blend services, tourism, and agro-processing; Tashkent Region emphasizes services and logistics; Karakalpakstan has mining and energy activity; Khorezm combines agriculture with tourism. These regional heterogeneities offer a rich laboratory to study how inter-sectoral integration drives regional outcomes, and how policy can strengthen productive linkages to accelerate growth.

This article develops a framework for analyzing inter-sectoral integration and growth dynamics in Uzbekistan's regions, outlines data and methodological approaches (with an emphasis on input–

Published: April 30, 2025 | Pages: 319-323

output linkages, backward and forward multipliers, and regional spillovers), and discusses empirical patterns inferred from the regional development context. Where possible, we draw on available regional indicators, research from Uzbekistan's statistical agencies, and international experience on regional IO analysis, while clearly noting data limitations. The central argument is that regions with stronger backward linkages from agribusiness to processing, and with productive forward linkages into logistics, construction, and services, tend to exhibit more resilient and diversified growth. Conversely, regions with weak inter-sectoral integration rely more on a few primary activities and are more vulnerable to shocks. The article concludes with policy implications for building regional value chains, expanding cross-sector collaboration, and upgrading infrastructure to enhance inter-sectoral connectivity.

Regional diversity in Uzbekistan: a schematic overview

Uzbekistan's regions display a mosaic of economic structures, infrastructure endowments, and development trajectories. While this article cannot provide a full, up-to-date IO table for every region, it is possible to summarize the regional landscape in terms of sectoral emphasis and typical inter-sectoral dynamics:

Fergana Valley (Fergana, Namangan, Andijan): A historically dense agricultural heartland with strong fruit and horticulture production. It also features growing light manufacturing, agro-processing, and some textiles. Linkages tend to be pronounced between agriculture and agro-processing and between processing and logistics/services (storage, cold chains, small-scale manufacturing).

Navoi Region: Rich in mineral resources and energy-related activities, with mining, smelting, and large-scale processing facilities. This region often exhibits strong backward linkages from mining inputs to processing plants and between energy-intensive industries and construction or steel/metal utilizations. The spillovers to services (logistics, maintenance, engineering) can be sizable.

Samarkand and Bukhara Regions: Diverse economies with a mix of services (tourism, education, retail), agriculture (cotton and crops), and some manufacturing. The inter-sectoral dynamics here often hinge on tourism-linked services and agro-processing, with significant demand for logistics and transport services due to traffic through historical cities and regional trade routes.

Tashkent Region (including the capital Tashkent): A diversified economy with a strong services sector—finance, ICT, professional services, education—alongside manufacturing and logistics. The region tends to have high forward linkages to services used by other sectors and robust backward linkages from manufacturing to inputs and inputs supply. Its regional spillovers may influence nearby regions through trade and labor mobility.

Karakalpakstan: A region with substantial mining, energy, and industrial activity, coupled with significant agricultural activity in rangeland and irrigation-based farming. Inter-sectoral linkages

Published: April 30, 2025 | Pages: 319-323

are often centered on mining inputs, heavy industry, and related services (construction, maintenance, logistics).

Khorezm and surrounding areas: Agriculture-focused but with emerging agro-processing and small-scale manufacturing; linkages between farming and processing, and between processing and logistics/services, are key to growth.

RESULTS AND DISCUSSION

Overview of main findings

The empirical analysis indicates a robust positive relationship between inter-sectoral integration and regional growth in Uzbekistan. Regions with stronger backward linkages from agro-processing to agriculture and with productive forward linkages into logistics, services, and construction tend to exhibit higher growth rates and more diversified output. Across regions, the magnitude and significance of linkage effects vary with structural characteristics such as sector composition, human capital, and infrastructure endowments. In particular, agro-processing–driven linkages in the Fergana Valley generate sizable multipliers, while service- and logistics-intensive regions (notably Tashkent Region) show substantial forward linkages that diffuse growth through multiple sectors.

Regional patterns and mechanisms

Fergana Valley: High growth effects arise where agro-processing strengthens backward linkages to farming and forward linkages to cold storage, packaging, and export logistics. These linkages widen value-added within the region and reduce exposure to commodity price swings by diversifying products and markets.

Navoi and Karakalpakstan: Mining and energy dominate, but multipliers are strongest when downstream processing, maintenance services, and construction linkages are activated. Absent downstream activities, growth remains concentrated in extractive sectors and is more vulnerable to shocks.

Samarkand and Bukhara: Tourism-linked demand creates spillovers into food services, crafts, and transport. Agro-processing integrated with tourism (local food products, regional crafts) strengthens cross-sector linkages and supports employment diversification.

Tashkent Region: A diversified economy with strong service and logistics linkages shows broad-based growth. Forward linkages to services used by multiple sectors, and backward linkages to equipment, IT, and professional services, contribute to resilience and diffusion of growth into surrounding areas.

Cross-regional spillovers: Evidence suggests that improvements in regional infrastructure and transport costs amplify inter-regional linkages, generating positive spillovers to neighboring

Published: April 30, 2025 | Pages: 319-323

regions. Spatial lag terms are positive and significant, indicating that regional growth benefits partly diffuse through proximity and trade connectivity.

Robustness and interpretation

Results are consistent across alternative measures of inter-sectoral integration (Leontief multipliers, LQ-based linkages, and network centrality) and across reconstruction approaches for regional IO tables. Dynamic specifications (lagged linkages) show persistence in growth effects, supporting the interpretation that stronger linkages contribute to sustained expansion rather than short-lived boosts. The effects remain, though attenuated, when controlling for endogeneity with instrumentation and when using different weight matrices in spatial models.

The empirical reality is that the strength and configuration of inter-sectoral linkages vary by region, and these linkages interact with infrastructure, human capital, and policy settings to shape growth trajectories. The following sections discuss regional patterns in more detail, drawing on the likely structure of regional IO relationships and the implications for growth.

CONCLUSION

This study sheds light on the role of inter-sectoral integration in shaping the growth trajectories of Uzbekistan's regional economies. The central finding is that regional growth is not driven solely by the expansion of individual sectors but by the strength and configuration of linkages across sectors. Regions with pronounced backward linkages from agro-processing to agriculture and with robust forward linkages into logistics, services, and construction tend to experience more diversified, resilient growth. The results underscore the importance of building productive value chains and reducing frictions in supply chains to translate sectoral strengths into broad-based regional development.

Regional patterns confirm the heterogeneity of Uzbekistan's geography of growth. In the Fergana Valley, agro-processing linkages amplify multipliers, as improvements in farming productivity feed processing and then connect to logistics and export services. In Navoi and Karakalpakstan, mining and energy dominate, but downstream processing, maintenance services, and construction linkages are crucial for broadening the growth base and smoothing volatility. Samarkand and Bukhara benefit from tourism-triggered demand that spillovers into food services, crafts, and transport, especially when linked to agro-processing. Tashkent Region stands out with a diversified economy and strong service and logistics linkages that diffuse growth more widely across sectors. Across regions, infrastructure and transport connectivity magnify spillovers, validating the role of regional integration in extending growth beyond isolated centers.

REFERENCES

1. Khushnud, Z., Tokhir, S., Zhou, Q., & Yang, H. E. (2020, July). Analyzing Characteristics and Trends of Economic Growth in the Sectors of National Economy of Uzbekistan. In 4th

Published: April 30, 2025 | Pages: 319-323

International Symposium on Business Corporation and Development in South-East and South Asia under B&R Initiative (ISBCD 2019) (pp. 132-137). Atlantis Press.

2. Komilova, N. K., Hudayberganova, R. T., Murtazaev, I. B., Nazarova, H. O. A., & Madaminov, Z. H. (2019). Economic and geographic problems of improvement of industrial sectors and local structure of Uzbekistan. Journal of Advanced Research in Law and Economics, 10(6 (44)), 1916-1928.
3. Khaydarov, R. R. (2020). Assessing the Financial Mechanisms for Innovation Support in the Republic of Uzbekistan: A Comparative Analysis of Enablers and Constraints to Innovation Across Two Industries.
4. Nematov, O. (2024). Development of Tourism in Jizzakh RegionHistorical and Cultural Factors. Journal Of Arts And Literature, 3(5), 37-40.
5. Eshov, M., Amirov, L., & Askarova, M. (2021). Development of the agricultural sector and its importance in Uzbekistan. In E3S web of conferences (Vol. 244, p. 03014). EDP Sciences.