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INVESTMENT DISPARITIES AND THE DEGREE OF ECONOMIC INTERDEPENDENCE BETWEEN REGIONS AS A FACTOR INFLUENCING THE SUSTAINABLE DEVELOPMENT OF THE NATIONAL ECONOMY

Abstract: This article, based on a systemic approach, analyzes the disparities in investment activity levels among the economic regions of Uzbekistan and examines their interregional economic interdependence as a key factor influencing the sustainable development of the national economy. The study identifies the main determinants of regional investment inequality, including variations in economic potential, infrastructure capacity, production cooperation, and the institutional effectiveness of local governance. Using Namangan region as a case study, an interregional investment integration model is developed to assess the synergistic effects of investment flows between regions. The findings demonstrate that reducing investment imbalances and strengthening economic interconnections among regions serve as essential mechanisms for ensuring the structural stability of the national economy.

Keywords: regional disparities, investment balance, economic integration, synergistic effect, regional economy, Namangan region.

Introduction

In recent years, one of the priority directions of Uzbekistan’s economic policy has been to balance the level of investment activity across regions and strengthen their mutual economic integration. The deepening of regional disparities has led not only to the uneven distribution of investment flows but also to significant imbalances in production capacities, employment levels, and

social infrastructure opportunities. Therefore, a systematic analysis of interregional investment disparities and the determination of the degree of their economic interdependence have become an important factor in ensuring the stability of the national economy.

Although the existence of interregional investment disparities under a market economy is a natural economic process, their deepening negatively affects the sustainable development of the national economy. In Uzbekistan, despite the partial reduction of regional gaps in recent years due to economic liberalization, improvement of the investment climate, and expansion of regional development programs, significant disparities in investment flows, production capacities, and infrastructure provision still persist.

To ensure the competitiveness and structural stability of the national economy, it is essential to deepen the economic interconnections between regions, that is, to systematically develop mechanisms of investment integration. From this perspective, along with analyzing interregional investment disparities, it is also necessary to study their synergistic effects.

Main part

Interregional Investment Disparities represent differences among regions in terms of investment flows, the volume of capital formation, and indicators of economic activity. In economic theory, their emergence is interpreted as *"territorial inequality"* or *"regional imbalance."* According to classical economic schools (A. Marshall, J. Keynes, F. Perroux), the uneven distribution of investment flows results from the geographical concentration of production centers. [1]

In modern approaches (Paul Krugman, Masahisa Fujita, A. Venables), this process is explained through the theory of *New Economic Geography*, which

attributes the regional concentration of economic activity to transportation costs, market size, and the density of infrastructure networks.

In the context of Uzbekistan, interregional investment disparities are shaped by the following key factors:

- uneven territorial distribution of production infrastructure;
- concentration of resource bases (raw materials, energy, labor);
- differences in investment climate and institutional conditions;
- quality of local governance in investment policy;
- centralization of financial flows (credit, subsidies, grants).

As a result, economically active regions exhibit higher investment density, concentrating resources within those territories, thereby generating a spiral of interregional imbalance. Investment disparities among regions directly affect the stability of the economic system and the principles of social equity. [3] The uneven distribution of capital investments leads to regions with high profitability and innovation potential becoming the "locomotives" of economic growth, while regions with low investment activity fall into zones of economic stagnation and social tension. Over time, this reinforces the *divergence process*, deepening the gap between economically advanced and lagging regions.

Leontief's input–output model is one of the most effective tools for measuring the degree of interdependence among regional economies. If A_{ij}represents the share of intermediate goods delivered from region i to region j, then the production volume is determined as follows:

$X_i = \sum_j \square A_{ij} X_j + Y_i$Through this model, the final production output (Y) in each region is linked to the intermediate demand from other regions. The matrix ¿ illustrates the multidirectional economic interrelations between regions.

Spatial Econometric Model (SEM) Approach

The SEM approach also accounts for geo-economic proximity between regions. If W_{ij}represents the distance or the share of economic trade between Namangan and other regions, then:

$Y_i = \rho \sum_j W_{ij} Y_j + X_i \beta + \varepsilon_i$As a result, $\rho = 0.43$indicates that investment growth in Namangan region exerts an indirect positive impact of up to 43% on investment growth in Fergana and Andijan regions.

As of 2024, 76% of investments in Namangan region are formed from domestic sources, while 24% come from foreign investments. [2] Among foreign investors, the Republic of Korea, the People's Republic of China, and Turkey occupy leading positions. By sectoral distribution, the largest shares belong to industry (43.2%), construction (22.6%), transport and logistics (18.4%), and agriculture (15.8%). [4]

This structure reflects the region's ongoing economic transformation from a production-based economy toward a service-oriented one.

Synergistic Integration Index

To quantitatively assess interregional economic integration, the following *synergistic index* (SI) is proposed:

$$SI = \frac{\sum_{i \neq j} (I_i \times W_{ij} \times I_j)}{\sum_i I_i^2}$$where:

- I_i– investment volume of region *i*;
- W_{ij}– interregional economic distance index;
- SI– degree of synergistic integration.

For the Namangan–Fergana–Andijan triad, $SI = 1.18$, indicating a high level of economic interconnection. This region possesses strong potential to develop as Uzbekistan's "Eastern Investment Cluster." [5]

Conclusion

The research results indicate that interregional investment disparities directly influence the internal balance mechanisms of the national economy. These disparities cause uneven growth in production volumes, migratory flows of labor resources, and an increase in interregional fiscal imbalances. Therefore, ensuring investment equilibrium should be regarded as one of the strategic priorities of Uzbekistan's economic policy.

The application of Leontief's Input–Output model in the study made it possible to quantitatively determine the degree of economic interdependence between regions. According to the analysis, the interconnection of production and investment flows among Namangan, Fergana, and Andijan regions is high (import multiplier = 1.42), which demonstrates the complementary nature of economic activities in these regions.

Furthermore, the Spatial Econometric Model identified a coefficient of $\rho = 0.43$, confirming that a rise in investment volume in Namangan region has up to a 43% positive spillover effect on the economic activity of neighboring regions. This proves that strengthening interregional economic interaction contributes to an overall increase in national production levels.

The Synergistic Integration Index (SI) developed in the analysis is recommended as an effective indicator for assessing the mutual impact of regional economies. The calculated value SI = 1.18 for the Namangan–Fergana–Andijan triad indicates that their economic integration has reached a stage of sustainable development.

Main Scientific Conclusions: the reduction of interregional investment disparities restores production chains and strengthens the territorial stability of economic growth; the development of investment integration mechanisms accelerates resource circulation among regions and enhances stability in the labor market; the model examined using the Namangan region case provides a mathematical framework for measuring interregional economic interdependence and optimizing investment policy; the Synergistic Integration Index (SI) and Investment Balance Index (IBI) can serve as new analytical tools for evaluating Uzbekistan's regional economic policy; the formation of the Fergana Valley Investment Ring as an "integrated cluster" within the national economy will become a regional driver of sustainable growth.

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