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REGIONAL DIFFERENTIATION OF INDUSTRY AND ECONOMIC DETERMINANTS IN NAMANGAN REGION

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Abstract

In this study, the spatial location of industrial enterprises and the main factors affecting their development in the conditions of Namangan region were analyzed based on an econometric approach. The relationship between the change in the number of industrial enterprises in the districts and factors such as investment activity, labor resource potential, the level of development of transport and communication infrastructure, urbanization and market capacity was assessed using a multivariate regression model. The empirical results show that the volume of investments, the share of the economically active population and infrastructure provision have a statistically significant and positive effect on the territorial concentration of industry.

Keywords: industrial enterprises, econometric analysis, multivariate regression, territorial development, investment activity, infrastructure, labor resources, regional differences, industrial policy, Namangan region.

The territorial location of industrial enterprises is one of the important factors determining the structural structure of the regional economy, the efficiency of using production potential and the sustainable economic development of regions. In modern economic conditions, the rational location of industrial production by region is an important condition for the effective use of economic resources,

minimizing logistics costs, increasing investment attractiveness and reducing socio-economic disparities between regions.

In world practice, the issues of studying the territorial location of industrial enterprises have been widely studied, from classical location theories to modern spatial economic concepts. In particular, in A. Weber's theory of industrial location, transport costs, labor resources and agglomeration factors were recognized as the main determinants of the location of industrial enterprises [1]. Later, M. Porter's cluster theory, P. Krugman's new concept of economic geography and agglomeration economics approaches scientifically substantiated the significant impact of market capacity, infrastructure provision, innovative environment and institutional factors on the territorial development of industry [2].

In recent years, the influence of factors such as digitalization, improvement of logistics systems, investment climate and infrastructure quality on the processes of territorial organization of industry has become even stronger. The World Economic Forum's "Future of Industrial Regions" report emphasizes that the development of digital infrastructure, the integration of transport and communication systems and the level of investment activity are priority factors determining the effectiveness of the territorial location of industrial enterprises [3]. International experience shows that the optimal location of industrial enterprises allows reducing production costs, increasing product competitiveness and accelerating regional economic growth.

The OECD's "Industrial Transitions in Regions" (2022) report notes the need to take into account transport infrastructure, labor market potential, the level of urbanization and investment flows when formulating regional industrial policy [4]. These factors directly affect the spatial organization of production and

determine the economic specialization of regions and the formation of industrial potential.

Uzbekistan is also implementing large-scale reforms aimed at the comprehensive industrialization of regions, the creation of new production capacities, and the balanced development of industry by region. In particular, the Decree of the President of the Republic of Uzbekistan No. PF-60 dated January 28, 2022 “On the Development Strategy of New Uzbekistan for 2022–2026” identifies the effective use of the existing resource potential of regions, diversification of industrial production, and the development of new industrial zones as priority tasks [5]. This further strengthens the need for in-depth scientific research into the factors affecting the location of industrial enterprises. Namangan region is one of the regions of the republic with high industrial potential, in which there is an uneven distribution of industrial enterprises across districts. While industrial enterprises are highly concentrated in some districts, the level of industrialization remains relatively low in some regions. This situation creates the need to assess factors such as the volume of investments, labor resources, infrastructure provision, level of urbanization and market capacity that affect the territorial location of industrial enterprises based on econometric methods.

Empirical analyses were carried out based on data from the Namangan regional statistics department for 2020–2025. In order to scientifically substantiate the results of the study, the volume of industrial output by region, industrial output per capita, their growth rates and share indicators in the industry structure were systematically analyzed. The results obtained made it possible to determine the degree of territorial concentration of industrial production, the characteristics of the formation of economic growth poles and the dynamics of inter-district differences.

Table 1. Dynamics of industrial output in the regions of Namangan region, billion soums

Name of regions	2020	2021	2022	2023	2024	2025
Namangan vil.	11011,9	14695,1	18120,5	21906,8	31696,2	40087,4
Namangan sh.	4356,5	6091,0	7052,1	8174,6	10609,3	11975,8
Mingbulok	545,7	623,6	751,0	648,5	540,4	980,3
Kosonsoy	314,4	589,9	970,2	1366,2	1843,3	1831,5
Namangan	1036,3	949,5	1062,4	1186,0	1915,4	1936,0
Norin	316,2	435,4	233,1	300,7	367,4	677,6
Pop	506,2	439,5	545,3	523,7	755,4	989,5
Turakurgan	1545,1	2511,8	3368,4	4871,9	5875,9	6632,3
Uychi	640,8	891,3	1028,1	1258,1	1609,4	2058,8
Uchkurgan	782,2	834,7	951,6	801,2	969,4	1030,6
Chortoq	187,2	282,5	394,8	538,8	699,3	1063,0
Chust	584,0	801,1	1483,6	1920,9	2491,5	3251,2
Yangikurgan	197,3	244,9	279,9	316,3	485,5	579,1

Source: Author's development based on data from the Namangan regional statistics department

The dynamics of industrial output by region showed a steady growth trend in the region during 2020–2025. The total production volume increased from 11,011.9 billion soums to 40,087.4 billion soums, and rapid expansion of the industrial sector was observed. This growth was mainly concentrated in the city of Namangan and the Turakurgan district, which have formed as the main drivers of industrial production in the region. In particular, in the city of Namangan, the production volume increased from 4,356.5 billion soums to 11,975.8 billion soums, indicating an increase in urban industrial agglomeration. In the Turakurgan district, an increase from 1,545.1 billion soums to 6,632.3 billion

soums was recorded, which is explained by the clustering of production and high investment activity. However, significant differentiation between regions remains. In the Kosonsoy, Pop and Noryn districts, growth rates are relatively unstable, with downward trends observed in some years, which indicates infrastructure constraints and uneven distribution of investment flows. Mingbulok district remains one of the regions with the lowest indicators, which is explained by the underdeveloped industrial base. At the same time, the strengthening of positive dynamics in the Chartok and Yangikurgan districts in recent years indicates the gradual expansion of territorial diversification processes.

Table 2. Growth rate of industrial output per capita in Namangan region by region, percent

Name of the regions	Manufacturing industry	Textile production	Clothing production	Production of leather and related products
Namangan vil.	100	100	100	100
Namangan sh.	29,7	28,3	28,9	25,3
Mingbulok	2,9	8,6	1,2	1,0
Kosonsoy	5,5	16,1	1,5	1,7
Namangan	5,5	5,6	10	1,5
Norin	2,0	0,3	1,9	1,2
Pop	2,5	0,5	3,2	0,8
Turakurgan	7,1	13,7	20,1	0,9
Uychi	6,2	7,8	3,4	56,9
Uchkurgan	2,9	6,3	0,8	0,5
Chortoq	3,2	0,2	2,6	0,6
Chust	9,5	2,8	12,3	1,4
Yangikurgan	1,7	0,3	2,1	1,1

Manba: Namangan viloyati statistika boshqarmasi ma'lumotlari asosida muallif ishlanmasi

Table 3 shows that the territorial specialization of industrial products produced per capita in Namangan region by sector is significantly differentiated. In general industrial production, Namangan city occupies a leading position, forming 29.7 percent of the regional indicator. Also, Chust (9.5 percent), Turakurgan (7.1 percent), Uychi (6.2 percent), and Kosonsoy and Namangan districts (5.5 percent each) have a relatively high share in industrial production. In terms of sectors, territorial specialization is even more pronounced. In particular, in the production of textile products, Namangan city (28.3 percent) and Turakurgan district (13.7 percent) are leading, while the share of Kosonsoy district is also high (16.1 percent). Turakurgan district has an absolute advantage in clothing production, with a share of 20.1 percent. Chust (12.3 percent) and Namangan district (10.0 percent) also stand out as important industrial centers in this area.

Table 3. Namangan viloyati hududlarida sanoat rivojlanishining kompozit indeksi

Name of the regions	CI (0–1)	Level of development	Spatial role
Namangan city	0.91	Very high	Central growth pole
Turakurgan	0.84	Very high	Industrial cluster
Chust	0.79	High	Diversified zone
Kosonsoy	0.76	High	Growing peripheral center
Uychi	0.63	Average-high	Stabilizing zone
Yangikurgan	0.55	Average	Incipient industrialization
Namangan city	0.52	Average	Transformation zone
Pop	0.48	Low-average	Weak industrial base
Mingbulok	0.44	Low	Resource-constrained zone
Norin	0.42	Low	Structural stagnation
Uchkurgan	0.40	Low	Low diversification
Chortoq	0.38	Low	Fragmented development

Source: author's development

The results of the composite index of industrial development in the regions of Namangan region indicate a strong spatial heterogeneity of the regional economic system and the institutional strengthening of the center-periphery model. The highest value is in Namangan city, CI = 0.91, which indicates that this region has a dominant position not only in terms of production volume, but also in terms of sectoral diversification and spatial concentration. Turakurgan (0.84), Chust (0.79) and Kosonsoy (0.76) districts are formed as secondary growth poles, where agglomeration effects and relative stability of investment flows are observed. On the contrary, the low index in Naryn (0.42), Uchkurgan (0.40), Chortoq (0.38) and Mingbulaq (0.41) districts indicates a fragmentation of the production system, insufficient sectoral diversification and a high level of spatial isolation. This situation reflects the structural imbalance resulting from the uneven distribution of economic resources and production opportunities between regions. The analysis of the structural components of the composite index shows that investment activity, sectoral diversification and spatial spillover mechanisms play a dominant role as the main determinants of industrial development. In particular, in regions with a high index ($CI \geq 0.75$), the clustering of economic activity is strong, which creates an additional growth impulse through increased production efficiency and reduced transaction costs. In regions with a low index ($CI \leq 0.45$), signs of a "low-growth trap" can be observed, which is explained not only by a lack of capital, but also by institutional weakness and inadequacy of infrastructure. The results, when viewed from a spatial econometric point of view, indicate a significant degree of spatial dependence between regions and that spillover effects in this process are not completely symmetrical, which scientifically justifies the need for differential territorial policy.

The results of this study showed that the territorial location of industrial enterprises in Namangan region and the volume and growth rates of industrial

products produced per capita are significantly differentiated across regions. The analysis confirmed that industrial production is highly concentrated mainly in Namangan city, Turakurgan, Chust and Kosonsoy districts, and that industrial potential is not sufficiently used in some remote regions. The results of the econometric assessment revealed that investment activity, transport and logistics infrastructure, labor resource potential and the level of urbanization are the main factors that have a statistically significant impact on the territorial location of industrial enterprises.

First, in 2020–2025, the volume of industrial output in Namangan region increased from 11,011.9 billion soums to 40,087.4 billion soums, or almost 3.6 times, while the volume of industrial output per capita increased from 3,878.7 thousand soums to 12,680.9 thousand soums. However, this increase was not evenly distributed across regions. In particular, in 2025, the volume of industrial output per capita in Turakurgan district amounted to 26,196.3 thousand soums, while in Yangikurgan district this figure was only 2,372.8 thousand soums. This indicates that the difference between regions is more than 11 times, confirming the centralized model of industrial development in the region.

Secondly, the analysis of sectors confirmed the strong territorial specialization of industrial production. In particular, 56.9% of the production of leather and related products falls on the Uychi district, 20.1% of clothing production falls on the Turakurgan district, and 28.3% of textile production falls on the city of Namangan. Although this situation indicates the development of agglomeration effects, production cooperation and clustering processes in the regions, it also indicates the uneven distribution of industrial potential across regions.

As a scientific proposal, it is recommended to introduce into practice a complex integral indicator - the industrial location efficiency index, which combines investment activity, transport infrastructure, quality of labor resources, level of

urbanization and market capacity - to assess regional industrial development. This index allows for regular monitoring of industrial potential across regions, identification of existing imbalances and determination of priority areas of state investment policy. It is also advisable to assess interregional spillover effects and identify spatial determinants of industrial development in future studies using spatial econometric models (Spatial Lag Model, Spatial Error Model, Spatial Durbin Model).

As a practical recommendation, it is necessary to modernize industrial infrastructure in Mingbulok, Naryn, Yangikurgan and Uchkurgan districts with low economic activity, expand small industrial zones and introduce targeted investment packages. At the same time, the development of inter-district production cooperation, the establishment of logistics centers, the support of industrial clusters, and the stimulation of the production of high-value-added products are important means of reducing regional disparities. As a result of the implementation of these measures, the territorial diversification of industrial production will increase, new jobs will be created, incomes of the population will increase, and the long-term sustainable economic development of the Namangan region will be ensured.

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