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Improvement of the System of Integral Indicators for Assessing the Level of Competitiveness in the Sustainable Development of the Tashkent Region

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Abstract: In order to ensure the sustainable development of regions, a comprehensive assessment of their competitiveness is of great scientific and practical importance. In existing assessment approaches, regions are mainly characterized on the basis of individual economic indicators such as gross regional product, industrial production or investment volume, and the structural quality, economic flexibility and sustainable development potential of the region are not sufficiently taken into account. The purpose of this study is to improve the system of integrated indicators for assessing the level of competitiveness in the sustainable development of the Tashkent region and to assess the state of economic development of the region based on a multi-criteria approach. The study used systematic analysis, comparative analysis, economic and statistical methods, min-max normalization, weighting and aggregation methods. As a result, a system of integrated indicators was proposed that allows for a comprehensive assessment of regional competitiveness based on economic efficiency, investment activity, service development, population welfare, business environment and structural balance blocks. This methodology allows for identifying the strengths and weaknesses of regions, conducting inter-regional comparative analyses and developing regional development strategies.

Keywords: regional competitiveness, sustainable development, integral index, regional economy, Tashkent region, economic performance, investment activity, development of services, business environment, structural balance.

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1. Introduction

Ensuring sustainable development of regions and effective use of their economic potential is one of the priority areas of modern economic policy. In the context of globalization, economic integration, increased interregional competition for investments, and structural transformation of economic activity, the issue of objective assessment of the competitiveness of regions is gaining relevance. In particular, the effectiveness of decisions taken to increase the investment attractiveness of regions, diversify the production and services sectors, effectively use domestic economic resources, and reduce interregional development disparities directly depends on the perfection of the assessment methodology (Martin, 2003). [1][2]

M. Porter's concept of competitive advantage plays an important role in the formation of the theory of regional competitiveness. The author substantiated that the economic success of regions and countries is determined not by natural resources, but by the quality of production factors, innovations, an effective institutional environment, and the

development of clusters (Porter, 1990). P. Krugman, in his theory of new economic geography, scientifically explained the impact of territorial concentration of economic activity, market capacity, and agglomeration effects on regional development (Krugman, 1991). Regional and national competitiveness indices developed by the OECD, the World Economic Forum and the European Commission recognize economic efficiency, innovation, infrastructure, human capital and the business environment as the main determinants of competitiveness.[3][4]

However, many assessment methodologies used in practice are based on assessing the economic development of regions mainly through individual statistical indicators or macroeconomic indicators. This approach does not allow for a comprehensive assessment of the economic structure of the region, the level of development of the service sector, the business environment and structural balance. In particular, for the regions of developing countries, the full use of international indices creates a number of limitations related to the composition and availability of statistical data (Bristow, 2005).[5][6]

In Uzbekistan, too, the integrated development of regions, increasing their investment attractiveness and improving the qualitative indicators of economic growth are one of the priorities of state policy. In particular, the Decree of the "President of the Republic of Uzbekistan "On the Strategy "Uzbekistan - 2030" sets out important tasks to increase the competitiveness of regions, accelerate the structural transformation of the economy, develop the service sector, and ensure balanced interregional development. The effective implementation of these tasks requires the development of scientifically based methodologies that allow for a comprehensive assessment of the current state of the regions (President of the Republic of Uzbekistan, 2023).[7][8]

Tashkent region is one of the regions of the republic with high industrial, investment, and logistics potential. However, assessing the economic potential of the region solely through gross regional product or industrial production does not fully reflect its competitiveness. An interrelated assessment of the region's service economy, business environment, investment activity, population well-being, and structural balance of the economy makes it possible to identify priority areas of regional development. In this regard, assessing regional competitiveness based on a system of integrated indicators is a relevant issue from a scientific and practical point of view (Camagni, 2002).[9]

The purpose of this study is to improve the system of integrated indicators for assessing the level of competitiveness in the sustainable development of the Tashkent region and develop a methodological approach that allows for a multi-criteria assessment of the state of economic development of the region. The results of the study are of practical importance in strategic planning of regional development, conducting interregional comparative analyses, determining priority areas of economic policy, and making management decisions to ensure the sustainable development of regions.[10]

2. Materials and Methods

The study used systematic analysis, comparative analysis, economic and statistical methods, statistical grouping, min-max normalization, weighting and aggregation methods (OECD, European Union and Joint Research Centre, 2008). Regional competitiveness was assessed using an integral index based on indicators of economic efficiency, investment activity, service development, population well-being, business environment and structural balance. The calculations used official statistical data of the National Statistics Committee of the Republic of Uzbekistan for 2025. The results were summarized in tables and graphs, and a comparative analysis was carried out between regions.[11].

3. Result and Discussion

3.1 Results

Assessment of regional competitiveness is one of the important scientific and practical directions of regional economics. In practice, regions are often characterized by separate indicators such as gross regional product, industrial volume or investments. However,

this approach does not fully reflect the sustainable development potential of the region, since competitiveness is determined not only by economic volume, but also by the development of the service sector, the well-being of the population, the business environment and the structural balance of the economy. According to the results of 2025, the growth of services in Uzbekistan was 114.7%, the growth of investments in fixed capital was 110.5%, and the growth of industry was 106.8%, which indicates the need to assess regional competitiveness based on a multi-criteria approach (National Statistics Committee of the Republic of Uzbekistan, 2026a; National Statistics Committee of the Republic of Uzbekistan, 2026d).[12]

Therefore, within the framework of this study, an integrated system of indicators for assessing the level of competitiveness in the sustainable development of the Tashkent region was improved. The essence of the proposed methodology is to assess regional competitiveness not as a set of separate statistical indicators, but as an integral index formed from a system of interconnected blocks. Such an approach allows us to determine, along with the current economic results of the region, its internal stability, flexibility and structural quality.

The system of integral indicators for assessing the level of competitiveness in the sustainable development of the Tashkent region has been improved, in which the indicators of economic efficiency, investment activity, service development, population well-being, business environment and structural balance in assessing regional competitiveness were brought into a single methodological system, and an algorithm for calculating the integral competitiveness index of the region was developed based on their standardization, weighting and aggregation.[13]

The need to introduce this innovation is explained, first of all, by the economic potential and multidisciplinary structure of the Tashkent region. In 2025, the regional GRP amounted to 180,177.4 billion soums, and GRP per capita was 57,480.2 thousand soums (National Statistics Committee of the Republic of Uzbekistan, 2026e). In 2025, industrial production in the region amounted to 170,294.1 billion soums, the volume of services amounted to 53,625.1 billion soums, and as of January 1, 2026, the permanent population reached 3,160.7 thousand people. It is not enough to characterize such a large economic region with only one indicator; it requires a multi-criteria assessment (National Statistics Committee of the Republic of Uzbekistan, 2026c; National Statistics Committee of the Republic of Uzbekistan, 2026b.)

Table 1. Blocks and indicators of integrated assessment of regional competitiveness

Block	Content	Indicators
Economic efficiency	Productive and overall economic strength of the region	Gross domestic product per capita, industrial output per capita
Investment activity	Expansion of the capital base and modernization potential	Investment in fixed capital per capita
Service development	Diversification and market flexibility	Volume of services per capita, share of services
Population well-being	Domestic demand and human capital base	Income per capita
Business environment	Flexible and inclusive economic activity	Share of small businesses in regional product
Structural balance	Balance between the real sector and services	Balance between shares of industry and services

The blocks proposed in Table 1 allow for a simultaneous assessment of regional competitiveness in terms of volume, structure and quality. Economic efficiency represents the production base of the region, investment activity represents the possibility of future modernization, service development represents economic diversification, population

well-being represents domestic demand and human capital potential, and the entrepreneurial environment represents flexible business activity. The structural balance block represents the ratio between the real sector and services as a criterion for sustainable development. This block approach is the author's development ((Lengyel, 2004; Kitson, Martin and Tyler, 2004).

Since the indicators in the proposed methodology are in different units of measurement, it is necessary to standardize them on a single scale. For this purpose, the min-max normalization method is used. Then, sub-indices are determined for each block, and finally, a general integral index is formed based on weights. The main advantage of such an approach is that it allows comparing regions on the basis of the same criteria, identifying strong and weak blocks, and formulating targeted regional policy (Freudenberg, 2003).[14]

Table 2. Recommended weights for integral index blocks

Block	Weight
Economic efficiency	0.25
Investment activity	0.15
Service development	0.20
Population well-being	0.15
Business environment	0.10
Structural balance	0.15

The weights shown in Table 2 are a methodological choice of the author. It gives a higher share to economic efficiency and service development, since regional competitiveness is determined not only by the output of production, but also by the expansion and flexibility of the economy through the services segment. At the same time, the blocks of investment, well-being, entrepreneurship and structural balance also have independent values.

For the practical application of the integral index, criteria for interpreting its value are also necessary. For this purpose, the index results are grouped according to the following interval criteria.

Table 3. Criteria for interpreting the integrated competitiveness index

Index range	Interpretation
0.800 – 1.000	Very high competitiveness
0.600 – 0.799	High competitiveness
0.400 – 0.599	Medium competitiveness
0.200 – 0.399	Low competitiveness
0.000 – 0.199	Very low competitiveness

These criteria allow for rapid grouping of regions, comparative analysis and identification of political priorities. In particular, in interregional rankings, these interval criteria are convenient for distinguishing between strong, medium and weak regions.

Based on the proposed methodology, calculations were made for the Tashkent region. According to the author's calculations, the economic performance subindex of the region was 0.253, the investment activity subindex was 0.325, the services development subindex was 0.085, the population welfare subindex was 0.173, the business environment subindex was 0.609, and the structural balance subindex was 0.456 (National Statistics Committee of the Republic of Uzbekistan, 2026f). The overall integral index was 0.281, ranking 5th among the regions. This result indicates that the economic and investment base in the Tashkent region is stronger, and the development of services is relatively slower. This interpretation is consistent with official data, which shows that the volume of services per capita in the region in 2025 will be 22.9 million soums, while the republican average is

around 27.5-27.7 million soums (National Statistics Committee of the Republic of Uzbekistan, 2026b).

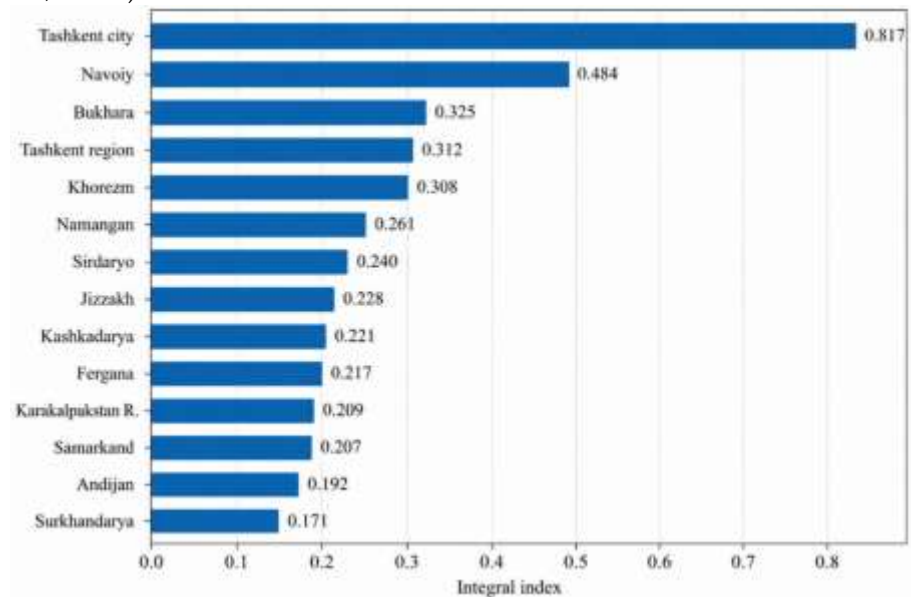


Figure 1. Integrated competitiveness ranking of regions

Figure 1 shows the ranking of regions based on the integral index. This picture increases the practical value of the methodology, as it allows comparing regions on the basis of the same criteria. The fact that Tashkent region is in 5th place shows that, although its economic base is strong, it is not the absolute leader in all blocks. This means that in order to increase the competitiveness of the region, it is necessary to pay special attention to the development of services and blocks of population welfare (National Statistics Committee of the Republic of Uzbekistan, 2026a).

A heat map was created to more visually represent the distribution of sub-indices by region.

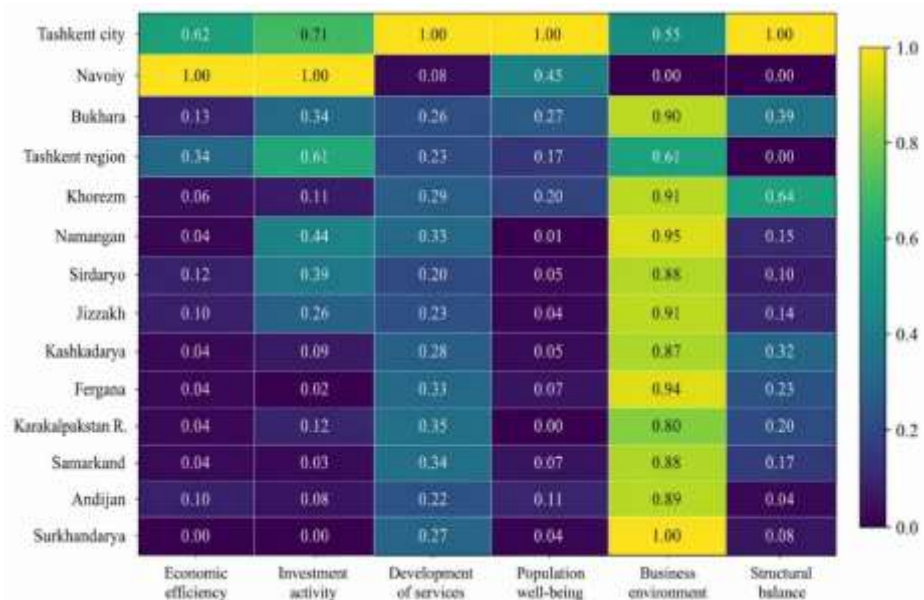


Figure 2. Heat map of sub-indices by region

Figure 2 shows all sub-indexes by region at once. The advantage of the heat map is that it allows you to quickly determine which region is strong or weak in which direction. The fact that Tashkent region has high results in some blocks and medium or low results in some blocks confirms the diagnostic potential of this methodology (National Statistics Committee of the Republic of Uzbekistan, 2026a).

The main advantage of the proposed integrated assessment system is that it assesses the region on a multi-criteria basis, compares indicators in different units on a single scale, links sustainable development components with competitiveness, and provides a convenient criterion for inter-regional ranking (United Nations Development Programme, 2024). This methodology can serve as a practical tool for strategic planning, monitoring, identifying weak blocks, and setting priority areas at the regional level (OECD, European Union and Joint Research Centre, 2008).

Based on the results, the following practical conclusions can be drawn for Tashkent region. First, the competitiveness of the region is formed due to a strong economic and investment base. Secondly, the development of services is a relatively weak block, and it is in this direction that there are reserves of internal growth. Thirdly, positive results on the business environment and structural balance indicate that the region has the potential for economic flexibility. Fourthly, the integral index justifies the need to focus regional policy not only on production volumes, but also on the structural quality and stability of the economy.

Thus, the proposed methodology for improving the system of integrated indicators for assessing the level of competitiveness in the sustainable development of the Tashkent region allows assessing regional competitiveness not as a set of separate statistical indicators, but as an integral expression of interrelated blocks of economic efficiency, investment activity, service development, population well-being, business environment and structural balance. This approach is of scientific importance as it creates a methodological basis for systematically identifying the strengths and weaknesses of the Tashkent region, setting regional priorities and developing further practical recommendations.[15]

3.2 Discussion

The results obtained show that relying solely on economic growth or production volumes in assessing regional competitiveness does not fully reflect the true level of development of the region. The formation of the integral index at 0.281 for the Tashkent region indicates that, despite the high economic potential of the region, proportionate results have not been achieved in all areas of development. This confirms the need for a comprehensive assessment of regional competitiveness (Kitson et al., 2004).[16]

These results are consistent with the concept of competitive advantage developed by M. Porter. Porter emphasizes that competitiveness is formed not only by the availability of production resources, but also by the business environment, the quality of production factors, innovations and economic efficiency. In this study, regional competitiveness was assessed not only by gross regional product or industrial volume, but also on the basis of an integrated system combining economic efficiency, investment activity, service development, population well-being, business environment and structural balance. This approach allows assessing the competitiveness of the region as a multi-criteria economic category.[17]

The results of the study are also consistent with P. Krugman's theory of new economic geography. According to this theory, economic development is determined not only by the territorial concentration of production, but also by the diversification of economic activity, market capacity and the flexibility of the territory. The relatively low formation of the services development subindex in the Tashkent region indicates that a high share of industry remains in the regional economy and the development potential of the services sector has not yet been fully utilized. This indicates that economic growth needs to be more structurally balanced.[18]

The high formation of the business environment subindex compared to other blocks indicates that there are relatively favorable conditions for doing business in the region. This result indicates that the economic reforms being implemented to support small business and private entrepreneurship are having a certain effect. At the same time, the results obtained on the development of services and the well-being of the population indicate that there are additional development reserves in these areas to further increase the overall competitiveness of the region (Delgado et al., 2016).[19]

In the methodology developed by the OECD for the formation of composite indices, the stages of indicator selection, standardization, weighting and aggregation are recognized as the main elements of an integrated assessment. This sequence was maintained in this study when assessing regional competitiveness, adapting it to the statistical information base and economic development characteristics of the regions of Uzbekistan. As a result, an integrated assessment system was developed that is consistent with international methodological approaches, but adapted for national practice.[20]

In addition, the results of the study are methodologically similar to the Regional Competitiveness Index (RCI) methodology developed by the European Commission (Annoni and Dijkstra, 2013). While the RCI assesses the competitiveness of regions through several pillars, in this study six main blocks were selected that are statistically available and of practical significance for the regions of Uzbekistan. This simplifies the application of the proposed methodology in practical calculations, and allows for a comprehensive assessment of the level of development of regions (Dijkstra et al., 2023).

A significant advantage of the proposed methodology is that it is not limited to forming a rating of regions, but also allows us to identify the factors determining this rating. For example, the fact that Tashkent region occupies 5th place with an integral index of 0.281 indicates that, despite the high economic potential of the region, there are additional development opportunities in the areas of service development and population welfare. Therefore, the methodology can serve as an analytical tool for directing resources to the most problematic areas when developing regional policy.

The practical significance of this study is that the developed integrated assessment system can be used in the development of strategic development programs at the regional and republican levels, in monitoring the socio-economic development of regions, and in making management decisions to reduce interregional disparities. At the same time, the methodology will be used in the future in other regions to assess the level of competitiveness of regions based on a single criterion (United Nations Development Programme, 2024).

There are also some limitations of the study. In particular, the weight coefficients in the integral index are formed based on the author's methodological choice, and their future determination using expert assessment, Analytical Hierarchy Process (AHP) or entropy method may further increase the reliability of the methodology. In addition, the inclusion of indicators such as innovative development, digital economy, environmental sustainability and institutional quality as separate blocks will further improve the integral assessment system.

4. Conclusion

In this study, the system of integrated indicators for assessing the level of competitiveness in the sustainable development of the Tashkent region was improved and a methodological approach was developed that allows for a comprehensive assessment of regional competitiveness based on indicators of economic efficiency, investment activity, service development, population well-being, business environment and structural balance. The proposed approach made it possible to assess the economic development of the region not through separate statistical indicators, but on the basis of an integrated system that takes into account their interdependence and impact.

The results of the study showed that, although the economic and investment potential of the Tashkent region is relatively high, there are additional development opportunities in the areas of service development and population well-being. This confirms the need to expand the service sector, develop high-value-added activities, direct investments to diversify the economy and develop human capital as one of the priority areas in increasing regional competitiveness.

The scientific significance of the proposed integrated assessment system is that it improves the methodological foundations of assessing regional competitiveness, allows identifying the strengths and weaknesses of regions, conducting interregional comparative analyses, and using it to develop development strategies. This methodology

can serve as a practical tool for monitoring regional development, improving the quality of strategic planning, and scientifically substantiating management decisions.

In future studies, enriching the integrated assessment system with indicators of innovative development, digital economy, environmental sustainability, and institutional quality, as well as determining weight coefficients based on econometric and expert assessment methods, will further increase the scientific reliability of the methodology.

REFERENCES

- [1] M. E. Porter, *The Competitive Advantage of Nations*. New York, NY, USA: Free Press, 1990.
- [2] P. Krugman, "Increasing returns and economic geography," *Journal of Political Economy*, vol. 99, no. 3, pp. 483–499, 1991.
- [3] R. Camagni, "On the concept of territorial competitiveness: Sound or misleading?" *Urban Studies*, vol. 39, no. 13, pp. 2395–2411, 2002.
- [4] M. Kitson, R. Martin, and P. Tyler, "Regional competitiveness: An elusive yet key concept?" *Regional Studies*, vol. 38, no. 9, pp. 991–999, 2004.
- [5] G. Bristow, "Everyone's a 'winner': Problematising the discourse of regional competitiveness," *Journal of Economic Geography*, vol. 5, no. 3, pp. 285–304, 2005.
- [6] R. L. Martin, *A Study on the Factors of Regional Competitiveness*. Cambridge, U.K.: University of Cambridge, 2003.
- [7] I. Lengyel, "The pyramid model: Enhancing regional competitiveness in Hungary," *Acta Oeconomica*, vol. 54, no. 3, pp. 323–342, 2004.
- [8] P. Annoni and L. Dijkstra, *EU Regional Competitiveness Index: RCI 2013*. Luxembourg: Publications Office of the European Union, 2013.
- [9] L. Dijkstra, E. Papadimitriou, B. Cabeza Martinez, L. De Dominicis, and M. Kovačić, *EU Regional Competitiveness Index 2.0: 2022 Edition*. Luxembourg: Publications Office of the European Union, 2023.
- [10] Organisation for Economic Co-operation and Development (OECD), European Union, and Joint Research Centre, *Handbook on Constructing Composite Indicators: Methodology and User Guide*. Paris, France: OECD Publishing, 2008.
- [11] M. Freudenberg, *Composite Indicators of Country Performance: A Critical Assessment*, OECD Science, Technology and Industry Working Papers, No. 2003/16. Paris, France: OECD Publishing, 2003.
- [12] M. Delgado, M. E. Porter, and S. Stern, "Defining clusters of related industries," *Journal of Economic Geography*, vol. 16, no. 1, pp. 1–38, 2016.
- [13] United Nations Development Programme, *Human Development Report 2023/2024: Breaking the Gridlock — Reimagining Cooperation in a Polarized World*. New York, NY, USA: UNDP, 2024.
- [14] President of the Republic of Uzbekistan, *Decree No. PF-158 of September 11, 2023 "On the Uzbekistan–2030 Strategy"*. Tashkent, Uzbekistan, 2023.
- [15] National Statistics Committee of the Republic of Uzbekistan, *Socio-Economic Situation of the Republic of Uzbekistan, January–December 2025*. Tashkent, Uzbekistan, 2026.
- [16] National Statistics Committee of the Republic of Uzbekistan, *Services in the Republic of Uzbekistan, January–December 2025*. Tashkent, Uzbekistan, 2026.
- [17] National Statistics Committee of the Republic of Uzbekistan, *Industrial Production in the Republic of Uzbekistan, January–December 2025*. Tashkent, Uzbekistan, 2026.
- [18] National Statistics Committee of the Republic of Uzbekistan, *Investments in Fixed Capital in the Republic of Uzbekistan, January–December 2025*. Tashkent, Uzbekistan, 2026.
- [19] National Statistics Committee of the Republic of Uzbekistan, *Gross Regional Product of the Regions of the Republic of Uzbekistan, 2025*. Tashkent, Uzbekistan, 2026.
- [20] National Statistics Committee of the Republic of Uzbekistan, *Total Income of the Population of the Republic of Uzbekistan, January–December 2025*. Tashkent, Uzbekistan, 2026.