

METHODOLOGICAL AND PRACTICAL ASPECTS OF ECONOMETRIC ANALYSIS OF INDICATORS OF ECONOMIC DEVELOPMENT OF REGIONS

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Abstract. The study examines the methodological and practical aspects of applying econometric analysis to assess indicators of regional economic development. In the context of growing socio-economic disparities between territories, the use of advanced quantitative tools becomes essential for identifying key determinants, measuring development imbalances, and forecasting future trends. The paper outlines a comprehensive methodological framework that integrates descriptive statistics, regression modeling, and time-series analysis to evaluate regional economic performance. Special attention is paid to issues of multicollinearity, heteroskedasticity, and endogeneity, which often complicate empirical estimation. On the practical side, the research provides case-based evidence demonstrating how econometric methods can inform regional policy-making, resource allocation, and long-term strategic planning. By combining theoretical rigor with empirical application, the study contributes to the development of robust analytical instruments that enhance the accuracy of economic diagnostics and support balanced regional growth.

Key words: econometric analysis, regional development, economic indicators, methodological framework, economic indicators, method.

1.Introduction

Today, the issues of studying the economic problems of the regions, finding untapped resources and their effective use are more urgent than ever. In the Strategy of New Uzbekistan for 2022-2026, the Strategy of Actions - Development Strategy, based on the principle of "... expanding the scope for modernization and diversification of the regional economy, reducing disparities in the levels of socio-economic development of regions through the accelerated development of districts and cities with a relatively low level of development, primarily by increasing their industrial and export potential." [1]

It studies topical issues specific to the socio-economic development of regions, environmental and economic problems, the financial and credit system and its role in the innovative development of regions, effective mechanisms for inter-regional economic relations, and the development of regional strategies for economic development.

2.Literature review

Barabash D. dedicated to the implementation of econometric analysis of regions in the CIS countries based on economic indicators. A. [2], L. E. Basovsky, E. N. Basovskaya [3], V. V. Klimuk, E. V. Klimuk [4], E. V. Korchagina [5], L. V. Latypova [6], V. V. Smirnov [7], T. V. There are many scientific works of Usakova and others.

For example, Professor T. V. According to Uskova, "stability implies the performance of functions by the system in the conditions of internal changes of parameters and destabilizing effects of the external environment" [8]. In his opinion, the methodology for assessing the stability of the regional system is based on economic, social and environmental indicators. The evaluation is done using the Euclidean distance method, followed by the calculation of the complex stability index.

Foreign scientists T. Poston and I. Stewart describes in detail the nature of the behavior of complex systems. They explain that changes in the development of systems are accompanied by a loss of stability, which can be detected by the methods of catastrophe theory. According to T. Poston and I. Stewart, a sign of this loss can be a "flag" of disaster - an unnaturally large spread of indicators reflecting the functioning of the system [10]. In their opinion, an approach based on assessing the spread of economic growth of regions and countries is used to identify "turning points" in the development of economic systems in the diagnosis of the economic crisis of 1998 [2].

In our country, methodological aspects of econometric analysis of economic development indicators of regions, including modeling the socio-economic development of regions, comprehensive development of regions, territorial placement and management of productive forces, and improving the methodological foundations of increasing the competitiveness of the country's regions, are widely covered in the scientific research of Uzbek economists S.S. Gulomov [10], A.M. Sodikov [11], A.M. Qodirov, Sh.H. Nazarov [15], B. Ruzmetov [12], Sh.B. Imomov [13], P.Z. Khashimov, F.T. Egamberdiev, A.A. Kayumov [14], Yuldashev N. K., [16], I.O. Yakubov [17] and others.

However, most of the above-mentioned scientific studies have not studied the methodological aspects of econometric analysis of regional economic development indicators using modern analytical programs such as R-studio and Python. The fact that the problem studied in this article has not been given sufficient attention and its controversial nature requires a new scientific approach to the issue.

3. Analysis and results

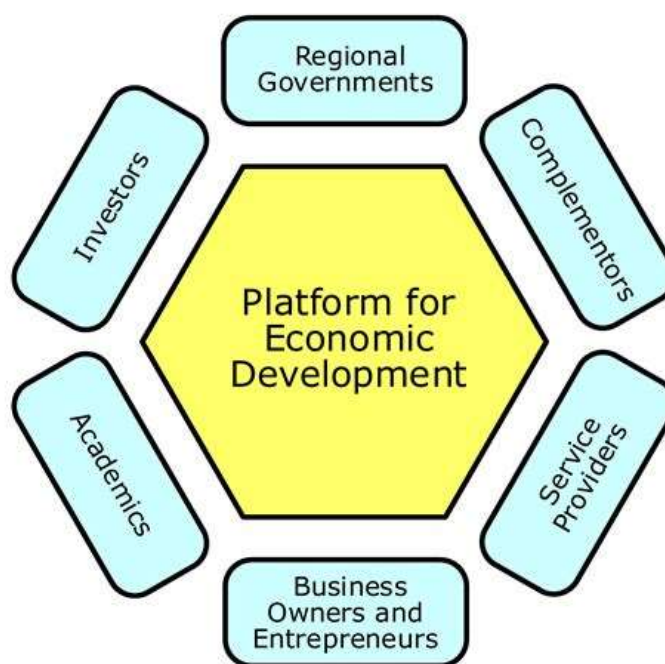
Regional development or the regional policy of the state should include the following goals: proportional socio-economic development of the country's regions while ensuring the territorial integrity and unity of the country; reducing territorial disparities in the standard of living and quality of life of people; creating equal opportunities for the country's population to exercise their socio-economic rights, regardless of the region in which they live, etc.

The resolution of our President "On the introduction of a rating assessment system for the socio-economic development of regions" allows us to develop work in this area at a new stage and solve existing problems.

The task of introducing a rating assessment system for the socio-economic development of regions is set, and the formation of the system is based on statistical indicators and questionnaires. In this regard, 8 main criteria are given separate attention and each direction is assessed.

First, ensuring sustainable and balanced economic development in the regions and the effectiveness of economic reforms. Due attention was paid to the balance of economic development in all regions, and this direction was identified as the main criteria.

Second, creating new jobs in the regions, reducing unemployment, and ensuring the efficiency of the labor market. In this regard, it is possible that the internal opportunities available in the regions are not being used sufficiently. The specific features of the regional economy, that is, the areas of specialization, have a different impact on the structure of the labor market in different places and the efficiency of this market. From this point of view, this process requires in-depth and systematic monitoring.[18]



[19]

Third, increasing access to social services in the regions and improving the quality of life of the population. The quality of life of the population represents the final result of reforms, that is, it is the main criterion of social well-being, and a deep analysis of the work in this area is one of the main requirements.

Fourth, creating the necessary conditions for the population and business in the regions, ensuring the stability and reliability of the production infrastructure. Ensuring the economic activity of the population in the regions and creating the necessary conditions for the entrepreneurial activity of business circles largely depends on the activity, initiative, efficiency of local authorities and their skills in working closely with the population. The stability of production is closely linked to the presence of good infrastructure. In turn, the creation of the necessary conditions for the population and business expands the possibilities for rational use of labor, capital, mineral raw materials and other resources available in the regions. This criterion also allows us to assess the conditions created for small business and private entrepreneurship of the population in the regions.

Fifth, increasing the level of competitiveness of the regions, further diversifying the economy. If the regions compete with other regions in the national market, in some sense, then in turn, in the regional and international markets, these regions combine their capabilities and competences, they now become a single economic force and compete at the international level.

Competitiveness also depends on the productive forces available in the regions, on the level of industrialization of the region. If the regions have a single economy, then the level of competitiveness is undermined. Diversification of the economy of the regions directly increases the level of competitiveness, and this criterion is given special importance.

Sixth, improving the quality of the business environment in the regions, constantly supporting and accelerating the development of entrepreneurship. There are wide opportunities for further development of public-private partnerships between business circles and local authorities in the regions, but due to insufficient attention to the organizational, legal, institutional and social aspects of the business environment in the regions, the entrepreneurial layer cannot effectively use its potential. In addition, it is expedient to approach the development of entrepreneurship from the perspective of large, medium and small entrepreneurship, as well as their integration. Entrepreneurship should become a powerful, constantly moving and dynamic socio-economic force. Therefore, based on this criterion, it becomes possible to provide a sufficiently systematic assessment of the business environment of the regions. [17]

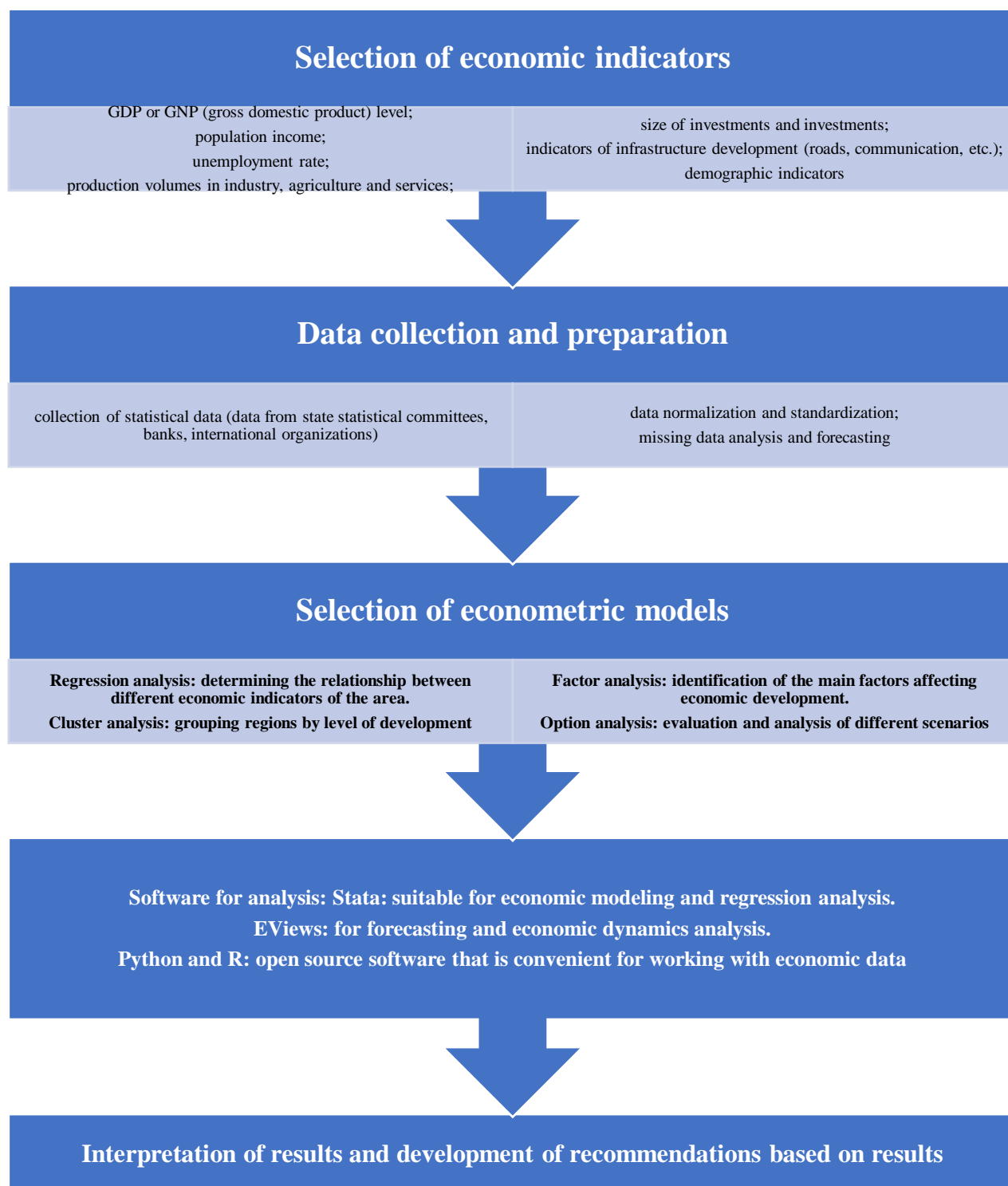


Fig. 1. The sequence of econometric analysis of indicators of economic development of regions

Econometric analysis of economic development indicators of regions is an important and complex process. These methods serve to assess economic inequalities between regions,

The above method allows us to conduct an econometric analysis of the economic development indicators of the regions of our country and draw scientific conclusions.

As is known, the New Uzbekistan Strategy provides for an increase in the regional economy by 1.4-1.6 times through the balanced development of regions, as well as the implementation of five-year regional programs developed in districts and cities across 14 regions, and the development and implementation of a program of practical measures for cities and districts with "non-conical" socio-economic development rating indicators.

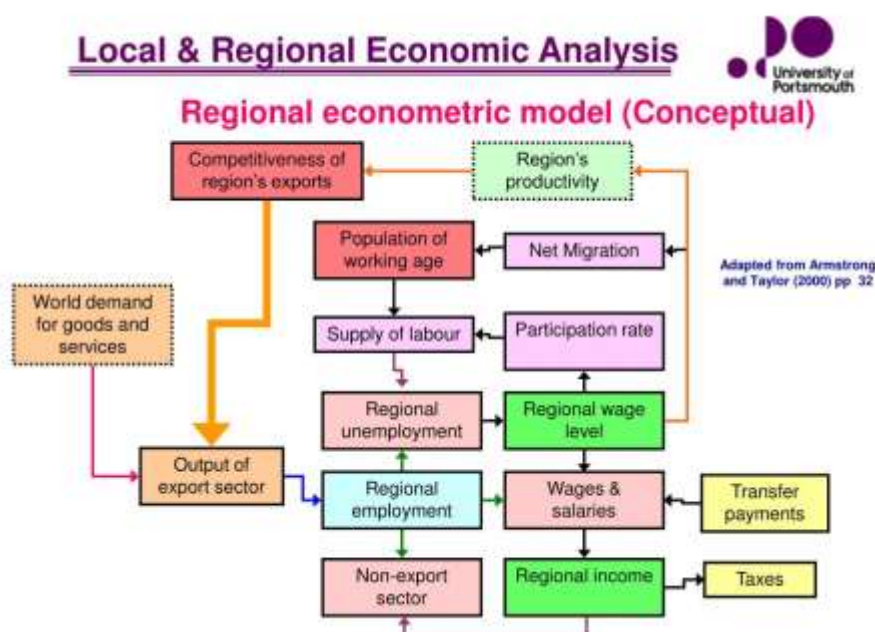


Fig.2. Regional economic analysis concept [20]

To improve the living conditions of the population in the regions, it is necessary to further improve the urbanization policy, mainly by taking measures to turn the cities of Samarkand and Namangan into "million-dollar cities" in the future, and to pay attention to the issues of constructing and commissioning the first few areas of the New Andijan city, which is planned for a population of 450 thousand. Bringing the urbanization level of the Kashkadarya region to 50 percent. Introducing the "Convenience of Cities" index, which assesses the convenience of living in cities. Improving the quality of digitalization, construction and design work in cities and developing them in accordance with the "Smart City" concept. Organizing the "INNO" innovative training and development technopark, established in Tashkent, in 4 regions. Adapting technologies for the production of innovative products that create high added value

in districts being transformed into innovative regions. Adaptation of scientific research conducted in higher educational institutions in the field of architecture and construction with practice. Technical regulation of the construction sector. Development and implementation of a program for radically improving the system for developing urban planning documents for settlements and providing them with urban planning documents. Development of a general scheme for population settlement. The Strategy of New Uzbekistan stipulates the construction of more than 19 million square meters of modern housing in cities instead of dilapidated houses based on renovation and housing programs, creating conditions for the relocation of more than 275 thousand families to new areas. In order to achieve these strategic goals, it will be necessary for each regional administration to identify exogenous and endogenous factors affecting economic development based on modern econometric analysis tools, and to implement the necessary measures to achieve strategic goals.

4. Conclusions

In conclusion, one of the multidimensional optimization methods for determining the peaks and troughs of the leading index is factor analysis, since it consists of a set of dynamic indicators. Periodization of complex indicators based on factor analysis is most often used in practice, since, firstly, the factor analysis method is sufficiently developed, and secondly, this method is implemented in modern statistical software packages (for example, Python, R-studio, SPSS 12.0, STADIA 6.0, etc.), which facilitates data processing. In order to achieve the goals of the economic development programs of each region, it is necessary for the regional administration (region, city, district) to take the necessary measures based on the identification of exogenous and endogenous factors affecting economic development based on modern econometric analysis tools.

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