ASSESSING THE ROLE OF INNOVATIONS IN DIVERSIFYING THE GROSS DOMESTIC PRODUCT IN UZBEKISTAN

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Annotatsiya. *Ushbu maqola O‘zbekistonda innovatsiyalarning yalpi ichki mahsulotni (YaIM) diversifikatsiyalashdagi rolini baholashga bag‘ishlangan. Maqolada innovatsion faoliyatning iqtisodiy o‘sish va sektorlararo muvozanatni ta’minlashdagi ahamiyati ilmiy asoslangan holda tahlil qilingan. Tadqiqot davomida diversifikatsiya darajasi va innovatsion ko‘rsatkichlar o‘rtasidagi bog‘liqlikni aniqlash uchun statistik va iqtisodiy modellar qo‘llanilgan.*

Maqola oxirida, innovatsion faoliyatni qo‘llab-quvvatlash uchun strategik yo‘nalishlar taklif etilgan. Xususan, davlat tomonidan innovatsiyalarni rag‘batlantirish mexanizmlarini takomillashtirish, ilm-fan va ishlab chiqarish o‘rtasidagi hamkorlikni kuchaytirish, shuningdek, xalqaro tajribadan foydalanish bo‘yicha amaliy tavsiyalar berilgan.

Kalit so’zlar: *diversifikatsiya, innovatsiya, patentlar, eksport, pandemiya.*

Аннотация*. Данная статья посвящена оценке роли инноваций в диверсификации валового внутреннего продукта (ВВП) Узбекистана. В статье научно проанализирована важность инновационной деятельности для обеспечения экономического роста и межсекторного баланса. В ходе исследования применялись статистические и экономические модели для выявления взаимосвязи между уровнем диверсификации и инновационными показателями.*

В конце статьи предложены стратегические направления для поддержки инновационной деятельности. В частности, даны рекомендации по совершенствованию механизмов стимулирования инноваций со стороны государства, укреплению сотрудничества между наукой и производством, а также использованию международного опыта.

Ключевые слова: *диверсификация, инновации, патенты, экспорт, пандемия.*

Abstract*. This article is dedicated to evaluating the role of innovations in the diversification of Gross Domestic Product (GDP) in Uzbekistan. The article scientifically analyzes the importance of innovative activities in ensuring economic growth and inter-sectoral balance. During the research, statistical and economic models were applied to identify the relationship between the degree of diversification and innovation indicators.*

At the end of the article, strategic directions for supporting innovative activities are proposed. In particular, recommendations are provided on improving mechanisms for promoting innovations by the government, strengthening collaboration between science and industry, and utilizing international experience.

Keywords: *diversification, innovation, patents, export, pandemic.*

Introduction

The economic reforms and structural changes implemented in the Republic of Uzbekistan in recent years have made diversification of GDP one of the state's priority goals. In particular, measures are being undertaken to enhance the competitiveness of the economy by reducing dependence on raw material exports, developing high-tech sectors of industry, expanding the service sector, and introducing innovations.

Innovations are one of the key mechanisms of economic diversification, serving to expand the economy and ensure its sustainability through the creation of new technologies, products and services, and the improvement of production processes. Therefore, analyzing innovations as the main driver of economic development and assessing their impact on the diversification process within GDP structure is an urgent scientific and practical issue.

This article analyzes the role of innovations in diversifying GDP in the economy of Uzbekistan. The study examines the current state of the diversification process and its main drivers, particularly opportunities and challenges in the development of innovations. Statistical and economic methods are also used to identify the relationship between innovations and diversification and economic growth. The main objective of the article is to assess the contribution of innovations to economic diversification and to develop practical recommendations for improving this process in the future.

Literature Review

Innovations and their role in economic development have been the focus of many researchers and economic policymakers. In particular, theoretical and applied research on the role of innovations in economic diversification has been conducted in several key directions. Below is an analysis of scholarly investigations carried out on this topic.

Innovations are considered an important driving force of economic growth. In J. Schumpeter's theory of economic development, innovations are assessed as the primary factor reorganizing the economy on the basis of the concept of "creative destruction." According to Schumpeter, innovations increase economic growth rates and ensure the development of new sectors. The significance of this theory for Uzbekistan is further heightened in the process of freeing the economy from dependence on raw material exports.

In the process of diversification, innovations are one of the key factors, playing an important role in the production of new goods, modernization of technologies, and enhancement of competitiveness. International economic research highlights the importance of diversification in achieving sustainable economic development (Hausmann and Hidalgo, 2010). These studies emphasize that an increase in the degree of diversification is directly linked to the development of innovations.

In the Republic of Uzbekistan, reforms aimed at diversifying the economy are being implemented through the development of new industrial sectors, expansion of the services sector, and promotion of technological innovations. In particular, a number of measures for the development of innovative activity have been adopted within the framework of the "Innovative Development Strategy." Assessing the practical outcomes of this policy is important for determining the contribution of innovations to the diversification process within the GDP structure.

Empirical research on studying the relationship between innovations and diversification shows that economies with higher levels of innovation exhibit greater GDP diversification. For example, the experience of Asia-Pacific region countries demonstrates that promoting innovations

leads to broadening the export structure and development of industrial sectors. Conducting a similar analysis in Uzbekistan, taking local conditions into account, is of significant scientific and practical importance.

The literature identifies technological gaps, low human capital, and financial constraints as the main challenges encountered in the process of developing innovations. At the same time, the necessity of developing a national innovation system for the successful implementation of economic diversification is specifically emphasized.

The above literature review shows that for the Uzbek economy, the processes of developing innovations and diversifying the economy through them are inextricably interrelated. It is necessary to conduct research in this direction and develop practical recommendations by assessing statistical indicators related to diversification.

Methodology

This study applies a comprehensive scientific-methodological approach to assess the impact of innovations on diversification processes within the GDP structure of Uzbekistan. The research methodology is based on a combination of theoretical, empirical, and statistical methods. The main methods used in the study are presented below:

- Relationship between innovations and diversification: To identify the interrelationship between innovations and diversification within the GDP structure, a theoretical analysis is carried out based on Schumpeter's theory of innovative development and the Hausmann and Hidalgo diversification indices.

- Characteristics of the Uzbek economy: To assess the role of innovation and diversification processes in the economy of Uzbekistan, local economic and innovation policy documents, strategies, and reforms are reviewed.

Data Collection: Key statistical data on innovative activity and economic diversification in Uzbekistan are collected. These data are sourced from the State Statistics Committee, the World Bank, the International Monetary Fund, and other international organizations.

Results and Analysis

The statistical data on the Gross Domestic Product (GDP) growth rate reflects the economic development trends of the Republic of Uzbekistan over the period 2017–2023. An analysis of these data is provided below.

During 2017–2019, the GDP growth rate increased annually. In particular, the growth rate reached 106.8% in 2019. This period demonstrates that economic reforms and modernization policies had a positive impact on the country's economy.

Pandemic Impact: In 2020, the GDP growth rate declined to 101.6%. This is associated with the COVID-19 pandemic and its negative impact on the global economy. During this period, many countries experienced economic restrictions and crises.

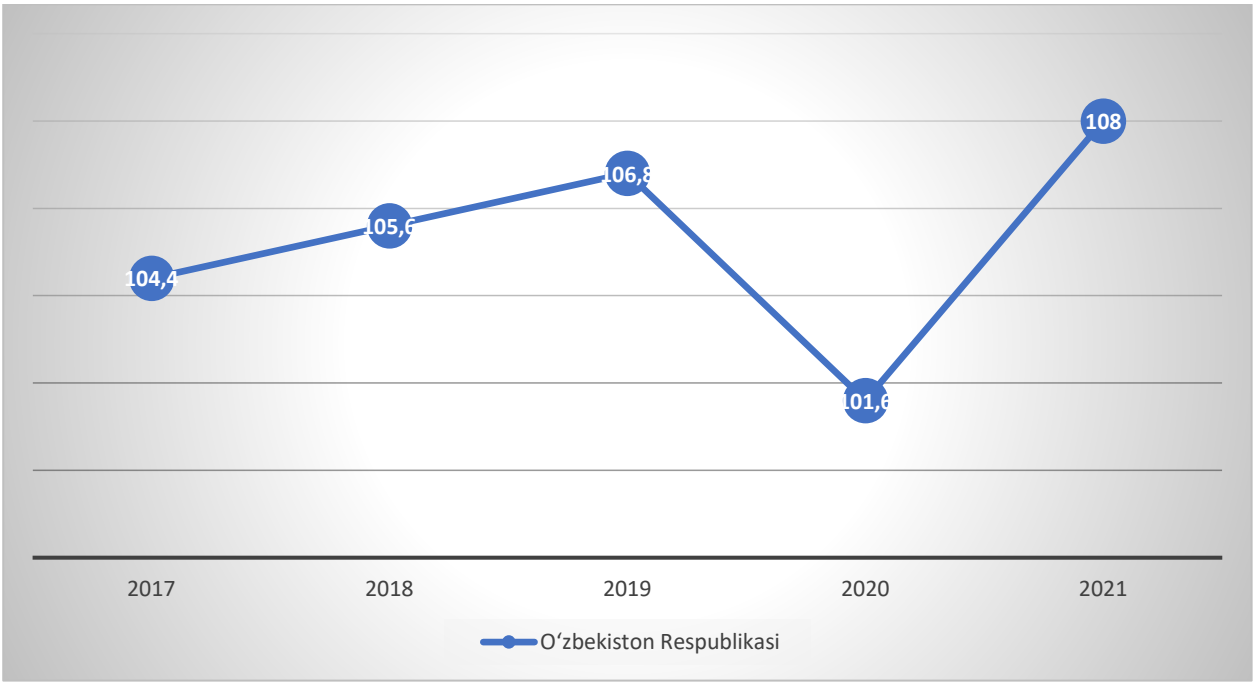

Figure 1. GDP Growth Rate (calculated by production method, annual)

In 2021, the GDP growth rate reached 108%, the highest figure in the last 7 years. This is the result of post-pandemic economic recovery, stimulation of domestic production, and intensified export activity.

In 2022, the GDP growth rate was 106%, and in 2023 it reached 106.3%. During this period, the growth rate was relatively stable. This indicates that a balanced development and diversification policy continued in the economy during this time.

2017–2019: The gradual increase in the growth rate is evidence of the effectiveness of reforms implemented for economic modernization. [1]

2021–2023: After recovery, the economy became relatively stable, indicating the consistent influence of internal and external factors on the economy. Investments directed toward infrastructure and production projects supported the GDP growth rate.

The increase in the share of diversified export products had a positive impact on GDP. From 2021 onward, measures aimed at liberalizing the economy and developing the private sector accelerated economic growth.

The GDP growth rate in Uzbekistan demonstrates an overall positive trend. Despite the crisis of 2020, the economic recovery rate was high, indicating the successful implementation of reforms.

The stabilization of the growth rate in 2023 is evidence that economic balance has been achieved. At the same time, long-term high growth rates must be maintained by supporting the innovative development of the economy.

[1] https://stat.uz/uz/rasmiy-statistika/national-accounts-2

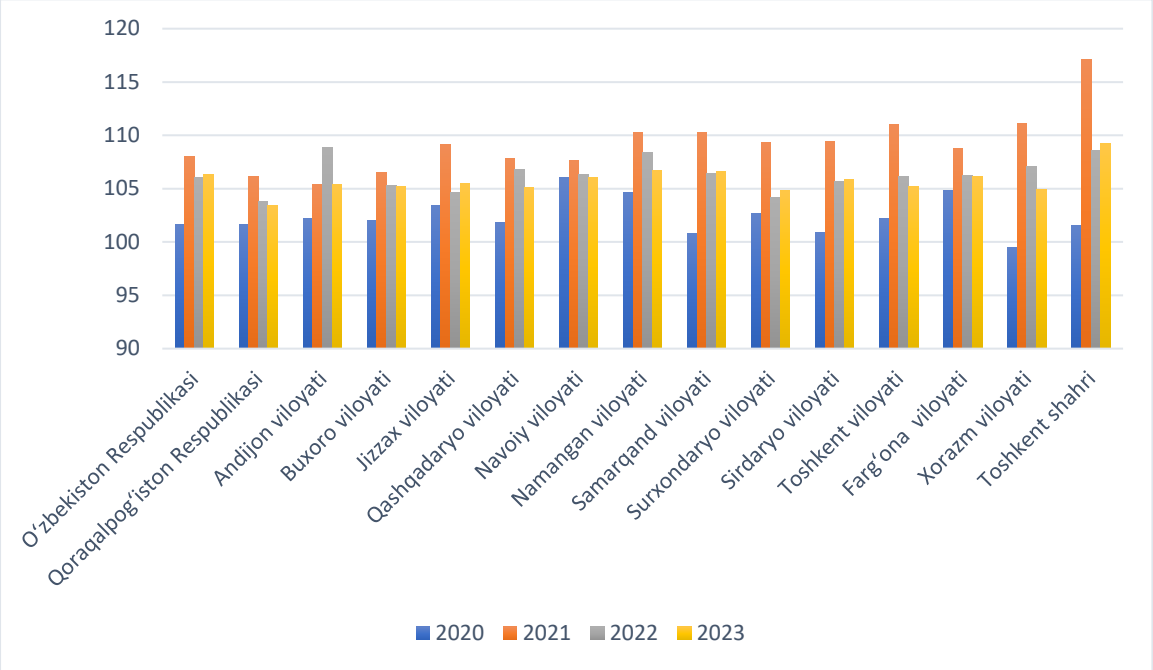

Figure 2. Growth Rates of Gross Regional Product (annual) — statistical analysis.

The dynamics of Gross Regional Product (GRP) growth rates for 2020–2023 reflect economic development processes across the regions of the Republic of Uzbekistan. These statistical data show economic disparities by region, development rates, and the results of economic policy.

In 2020, economic activity declined under the influence of the pandemic (101.6%), but in 2021 the GRP growth rate recovered to 108%. In 2022 and 2023, growth stabilized at 106% and 106.3% respectively. Significant disparities exist in the economic development rates of different regions, explained by regional resources, types of economic activity, and the specifics of local governance policies. A record figure of 117.1% was recorded in 2021. This reflects the region's developed infrastructure, active business environment, and high investment potential. The highest growth (109.2%) was maintained in 2023 as well.

Khorezm region recorded high growth of 111.1% in 2021, but this figure declined to 104.9% in 2023. This may have been influenced by variability in the region's agricultural and tourism potential. Namangan region: 110.3% in 2021 and 106.7% in 2023. Stable development of production volume and agriculture was observed in the region. Samarkand region recorded growth of 110.3% in 2021, and this figure was 106.6% in 2023. Development of agriculture and the service sector is observed in the region.

Relatively Low Growth Rates: Republic of Karakalpakstan — 103.4% in 2023; these low figures are associated with economic constraints and limited resources in the region. Bukhara region — 105.2% in 2023, reflecting lower growth compared to other regions. Surkhandarya region — growth rate of 104.8% in 2023, indicating limited economic growth opportunities in the region.[2]

The COVID-19 pandemic caused a decline in growth rates across all regions. Khorezm region had the lowest figure at 99.5%. Interregional disparities were restored after the pandemic. Tashkent city, and regions such as Namangan and Samarkand, led in growth. Slowdowns were observed in Karakalpakstan, Khorezm, and Surkhandarya regions. Development of industry, infrastructure, and tourism is needed in less developed regions.

[2] https://stat.uz/uz/rasmiy-statistika/national-accounts-2

Economic diversification — effectively utilizing the natural resources and economic potential of each region — enhances economic activity. These data serve as a basis for balancing the economic development strategy of the republic at the regional level.

Conclusion

Developing innovations in the economy of Uzbekistan and their effective application in diversifying GDP is one of the important factors for ensuring the country's economic stability and enhancing its global competitiveness. The research results revealed the following main conclusions.

Relationship between innovations and economic diversification. Developing innovative activity enables the creation of added value in various sectors. In particular, the development of high-tech manufacturing and the service sector promotes diversification of economic branches.

The implementation of innovation processes can serve to reduce regional economic disparities. At the same time, although the introduction of innovations has shown high results in leading regions such as Tashkent city, Samarkand, and Namangan, the development of innovative projects in other regions is also required in order to expand resource utilization opportunities.

It is necessary to strengthen investment and the training of qualified personnel for the introduction of innovations. Enhancing integration between science, education, and technological production will serve to further diversify the economy.

The innovative environment and supporting programs created by the state are providing important conditions for economic growth. At the same time, it is necessary to develop targeted strategies for directing innovations toward economic diversification.

Expanding cooperation between the public and private sectors for the development of innovations. Increasing investments allocated to research and technological projects to ensure regional development. Broadly engaging new technologies in production by developing the innovation ecosystem.

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