



Analysis of Economic Growth and Economic Diversification in Uzbekistan

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DOI: 10.5281/zenodo.17404856

Submission Date: 29 Aug. 2025 | Published Date: 21 Oct. 2025

Abstract

This study examines the distinctive features of Uzbekistan's economic development with a focus on diversification trends. The analysis employs the Gini index to evaluate sectoral diversification and its positive correlation with the country's economic growth measured by GDP per capita. In addition, the research provides a comparative assessment of several methodological approaches, including the Gini index, Herfindahl–Hirschman Index (HHI), Variance Coefficient (VARCOEF), Max–Min method, and Logarithmic Variance Index (VARLOG). The findings demonstrate the relative strengths and limitations of each indicator for measuring economic diversification, while highlighting their applicability to transition economies. The study contributes to the broader discussion on sustainable growth strategies by offering empirical evidence from Uzbekistan, with implications for policymakers seeking to enhance structural resilience and long-term competitiveness.

Keywords: *Economic growth, Economic diversification, Diversification level, Uzbekistan.*

INTRODUCTION

Economic diversification is a critical determinant of sustainable growth, particularly in resource-dependent and transition economies. Uzbekistan, with its unique economic trajectory since independence, offers an illustrative case for analyzing the relationship between structural diversification and economic performance. While initial stages of development were characterized by reliance on extractive industries and agriculture, recent reforms have aimed to expand industrial and service sectors. This paper addresses the following research question: *To what extent does economic diversification contribute to economic growth in Uzbekistan, and how can it be effectively measured?* The collapse of the former Soviet Union in the years of independence 1991-1995 led to an economic and social crisis because the economy of Uzbekistan was mainly based on the production of primary resources and raw materials and was closely linked to the economies of other states within the union. As shown in the table below, after this collapse, Uzbekistan took 10 years to reach the level of GDP it had in 1991, when it gained independence. It was not until 2001 that GDP, in basic terms, reached 102.7 per cent of its 1991 level (column 4 of Table 1). It is known from economic literature that economic growth is fully reflected by the GDP per capita indicator. Accordingly, the period of restoration of the GDP per capita level to its 1991 level is critical, and this indicator was achieved in our country only by 2005. This indicator was 102.7 per cent of the 1991 indicator in basic terms (column 10 of Table 1). Thus, the periods between 1991-1995 and 1996-2004 mentioned in the above paragraph were periods of restoration for the Uzbek economy. During this period, measures were taken to sell raw materials to foreign partners at prices set by the state, which contradicted the principles of a free market economy. This approach aimed to achieve efficiency in selling them based on world market prices, incentivise local producers, and meet the local market's demand for goods and services.

METHODS

The analysis relies on statistical data from the State Committee of the Republic of Uzbekistan on Statistics, World Bank Development Indicators, and IMF reports covering the period 1991–2024.

Methodological Approach: Gini index – applied to measure inequality in sectoral output distribution; Herfindahl–Hirschman Index (HHI) – used to quantify sectoral concentration; Variance Coefficient (VARCOEF) – measures fluctuations in diversification levels; Max–Min Method – evaluates the range of sectoral contributions to GDP; Logarithmic Variance Index (VARLOG) – provides sensitivity to small-scale sectoral variations. The indicators were computed annually and analyzed in relation to GDP per capita growth to test the correlation between diversification and economic development.

RESULTS

Table 1: Economic development indicators of Uzbekistan in 1991-2024¹

Year	GDP (billion soums)		GDP increase (decrease), %		Average annual resident population		For 1 person GDP, in 2024 estimates		
	Current prices	In 2024 prices	1991-year 100 %	Compared to the previous year, %	Million people	Growth rate, %		million soums	1991-year 100 %
						Compared to the previous year %	1991-year 100 %		
1	2	3	4	5	6	7	8	9	10
1991	0,0615	329258,91	100	99,5	20,90	-	100	15,75	100,0
1996	559,1	273235,30	83,0	101,7	23,10	101,8	110,5	11,83	75,1
2001	4925,3	338209,84	102,7	104,2	24,81	101,3	118,7	13,63	86,5
2005	15923,4	421187,38	127,9	107,0	26,02	101,2	124,5	16,19	102,7
2010	78936,6	633840,33	192,5	108,5	28,00	101,7	134,0	22,64	143,7
2011	103232,6	681537,70	207,0	107,5	29,12	104,0	139,3	23,40	148,5
2012	127590,2	729943,54	221,7	107,1	29,56	101,5	141,4	24,70	156,8
2013	153311,3	783204,23	237,9	107,3	29,99	101,5	143,5	26,11	165,8
2014	186829,5	837040,43	254,2	106,9	30,49	101,7	145,9	27,45	174,2
2015	221350,9	897464,48	272,6	107,2	31,02	101,7	148,4	28,93	183,6
2016	255421,9	950703,43	288,7	105,9	31,58	101,8	151,1	30,11	191,1
2017	356453,8	992489,45	301,4	104,4	32,12	101,7	153,7	30,90	196,1
2018	473652,8	1047312,97	318,1	105,5	32,66	101,7	156,3	32,07	203,6
2019	594659,6	1109958,65	337,1	106,0	33,26	101,8	159,1	33,38	211,9
2020	668038	1132108,81	343,8	102,0	33,91	102,0	162,2	33,39	211,9
2021	820536,6	1215923,00	369,3	107,4	34,56	101,9	165,4	35,18	223,3
2022	995573,1	1284851,45	390,2	105,7	35,27	102,1	168,8	36,43	231,2
2023	1204485,4	1365797,09	414,8	106,3	36,02	102,1	172,4	37,91	240,7
2024	1454573,9	1454573,90	441,8	106,5	36,80	102,2	176,1	39,53	250,9

From 1996 to 2004, emphasis was placed on the widespread application of the principles of a free market economy to our economy. Consequently, the increase in production volume due to the stimulation of the activities of small businesses, improvement of the competitive environment in economic sectors, modernisation and diversification of the structure of regional economic sectors, and increased foreign investment led to an average economic growth rate of four per cent during this period (column 5 of the table).

The next stage of development of the country's economy covers the years 2005-2016, and at this stage, priority was given to such strategic goals as processing agricultural products, increasing the efficiency of industrial production, re-equipping the processing industry with modern equipment and technologies by attracting investments in the food and agro-industrial complex, increasing the quality and price competitiveness of local products, enriching the nomenclature of products prepared for local and foreign markets, and organizing the production of export-oriented products. As a result of the economic reforms implemented, stable indicators of economic growth were achieved in the country, and the average annual GDP growth rate during the analysed period exceeded 7.5 per cent.

A correlation analysis of GINI, HHI, variation coefficient (VARCOEF), and other diversification indicators calculated by the share of economic sectors in GDP was carried out.

From this matrix of correlation coefficients, it is evident that all indices measuring the level of diversification within the structure of economic sectors exhibit a high correlation with one another. Therefore, we decided to continue our analysis based on the Gini index, which is a widely understood and recognised measure because the results of the analysis and economic conclusions will be the same, even with the help of other indices.

¹ Developed by the author based on data from the National Statistics Committee of the Republic of Uzbekistan.

From 2017 onwards, Uzbekistan entered a new stage of reforms aimed at accelerating integration into the global economy and strengthening institutional frameworks for sustainable growth. During this period, large-scale liberalization measures were introduced, including currency convertibility, simplification of customs and tax procedures, and the creation of favorable conditions for private investment. Special attention was paid to diversifying industrial output by supporting modern manufacturing industries, expanding the digital economy, and strengthening infrastructure. These transformations stimulated the inflow of foreign capital and contributed to the expansion of export geography, particularly in non-commodity sectors. As a result, between 2017 and 2023, the country maintained an average GDP growth rate of around 5.5–6 per cent, despite global economic turbulence caused by the COVID-19 pandemic and disruptions in international trade.

The correlation analysis further confirms that the diversification process is closely linked with macroeconomic stability. The strong positive correlation between the Gini index of sectoral diversification and GDP per capita growth suggests that economies with more balanced structures are better positioned to achieve stable growth. This finding is consistent with international literature emphasizing the role of diversification in mitigating external shocks, reducing dependence on commodity exports, and enhancing resilience in transition economies. Moreover, the high degree of correlation among all diversification indicators (HHI, VARCOEF, VARLOG, and Max–Min) validates the robustness of the results and underscores that the choice of a specific index does not significantly alter the conclusions. Nevertheless, the Gini index is retained as the primary analytical tool, since it provides clear interpretability and comparability with other empirical studies.

In general, the evidence from Uzbekistan's case study demonstrates that the success of reforms cannot be assessed solely by macroeconomic indicators such as GDP growth. Rather, structural shifts—particularly the reduction of sectoral concentration, the expansion of value-added industries, and the gradual shift from raw material exports toward higher-technology production—play a decisive role in ensuring long-term economic resilience. Thus, diversification is not only an outcome of reforms but also a critical driver of sustainable development, which should remain a strategic priority for future economic policy.

Table 2: Structure of Uzbekistan's GDP (in billion soums) by type of economic activity in 2010-2024 (%)²

No.	Types of economic activities ³	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1	Agriculture, forestry and fishing	27.15	26.56	29.66	28.73	27.58	28.4	29.29	28.37	24.18	23.1	22.12	21.68	21.65	20.53	19.52
2	Mining and quarrying	4.52	3.83	3.46	3.52	3.11	2.78	2.77	2.63	3.43	3.87	3.99	3.4	3.36	3.14	2.89
3	Manufacturing	10.47	10.24	10.16	11.04	11.73	12.53	12.9	13.63	14.24	16.14	18.67	19.21	19.31	19.26	19.58
4	Electricity, gas, steam and air conditioning supply	2,2	1,82	1,54	1,42	1,25	1,47	1,5	1,5	1,28	1,2	1,58	1,7	1,61	1,59	1,49
5	Water supply; sewage system, waste collection and disposal	0,08	0,09	0,09	0,09	0,1	0,11	0,13	0,15	0,15	0,18	0,16	0,13	0,16	0,15	0,14
6	Construction	5,01	4,79	4,62	4,84	5,21	5,4	5,21	5,23	6,89	7,94	8,21	7,61	7,83	7,44	7,14
7	Wholesale and retail trade; repair of motor vehicles and motorcycles	7,45	7,55	6,82	6,86	6,9	7,04	6,87	6,48	6,24	5,88	5,67	6,06	5,92	6,05	6,36
8	Transportation and storage	7,76	7,6	7,57	7,43	7,77	7,3	6,92	6,81	5,95	5,46	4,75	5,01	4,9	4,73	5,03
9	Accommodation and catering services	0,54	0,6	0,57	0,59	0,66	0,65	0,65	0,7	4,31	4,19	3,78	4,12	4,64	5,18	5,88
10	Information and communication	2,11	2,02	1,9	1,56	1,76	1,71	1,7	2,01	1,88	1,62	1,65	1,78	1,9	2,09	2,51
11	Financial and insurance activities	2,07	2	2,13	2,14	2,36	2,25	2,33	2,81	2,49	2,31	2,65	3,13	3,02	3,51	3,72
12	Real estate transactions	7,02	7,65	7,71	7,55	7,58	7,21	7,23	7,32	6,21	5,68	5,29	5,17	4,94	4,81	4,76
13	Professional, scientific and technical	0,74	0,7	0,69	0,74	0,71	0,71	0,76	0,77	0,75	0,87	0,98	1,09	1,05	1,08	1,06

² Developed by the author based on data from the State Statistics Committee of the Republic of Uzbekistan.

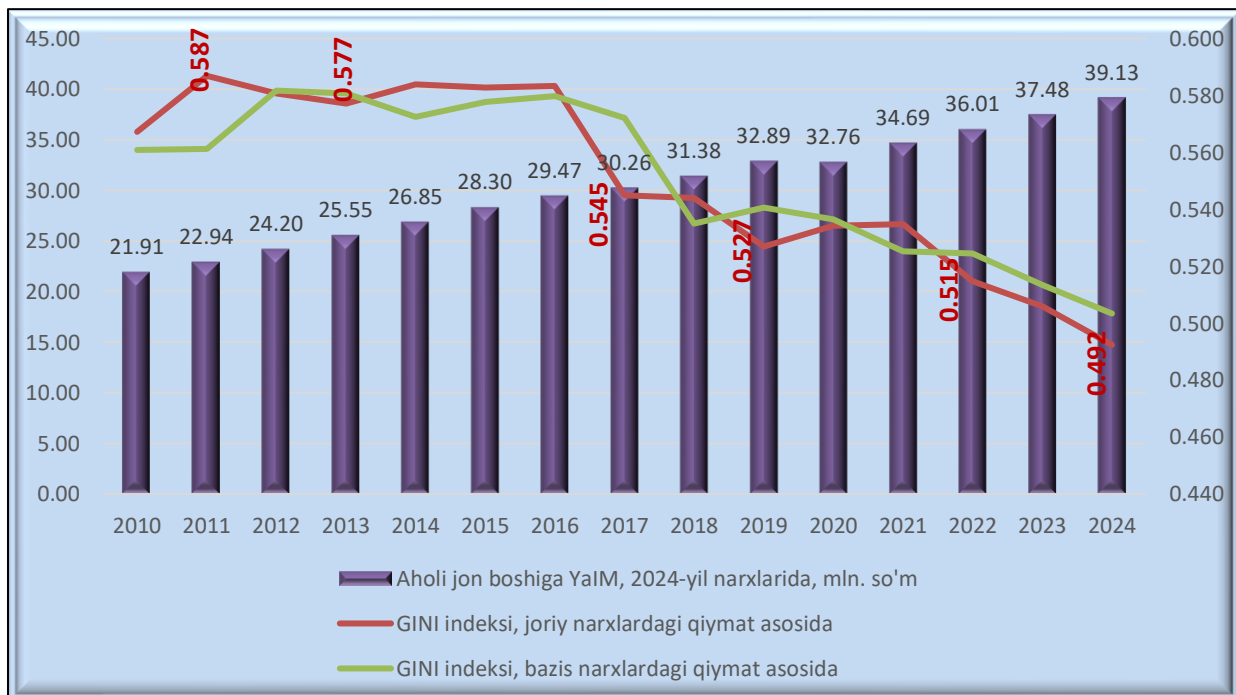
³ Classifier of types of economic activity of the Republic of Uzbekistan (IFUT-2).

	activities															
14	Provide management activities and support services	1.13	1.16	1.15	1.17	1.25	1.24	1.28	1.26	1.12	1.08	0.95	1.08	1.12	1.15	1.13
15	Public administration and defense; compulsory social security	1.97	2.14	2.24	2.49	2.84	2.79	2.82	3.06	2.65	3.2	3.32	3.2	3.68	4.22	4.92
16	Education	5.94	6.25	6	6.02	6.13	5.96	5.89	5.81	4.82	4.49	4.79	5.07	5.21	5.3	5.19
17	Healthcare and social services	2.1	2.34	2.25	2.24	2.34	2.28	2.31	2.27	1.95	1.85	2.48	2.68	2.39	2.29	2.34
18	Art, entertainment and recreation	0.16	0.17	0.16	0.17	0.19	0.19	0.2	0.21	0.46	0.42	0.36	0.46	0.44	0.46	0.5
19	Providing other types of services	1.4	1.37	1.25	1.24	1.26	1.28	1.33	1.32	1.21	1.08	1.01	1	1.02	0.95	1.02
	GDP volume, billion soums (at constant prices, annual)	65838.9	84876.7	110564.6	136899.9	163849.7	200316.3	234481.8	266648.4	76269.8	105766.1	103956.2	121712.7	169779.8	1058383	1283346

Matrix of correlation coefficients of indices expressing the degree of diversification of industries ⁴

	GINI	HHI	VARCOEF	Max-Min	VARLOG
GINI	1				
HHI	0,846	1			
VARCOEF	0.931	0.953	1		
Max-Min	0.877	0.955	0.967	1	
VARLOG	0.726	0.611	0.643	0.621	1

If we focus on the analysis of the level of diversification of the country's economic sectors, calculated based on the GINI index, the economic reforms implemented before 2016 and starting in 2017 led to a high level of diversification of the structure of economic sectors starting in 2017 (Figure 1).



Note: Starting in 2018, data have been revised to account for the non-observed economy, in accordance with the MHT-2008 methodology.

Figure 1. The relationship between the level of diversification of sectors of the Uzbek economy (based on the GINI index) and GDP per capita⁵.

⁴ Author's hose based on statistical data analysis.

From the literature review, it is known that the degree of diversification of the structure of the regional economy is directly related to the GDP per capita (GDP).

As is known, the GINI index is usually used to determine the degree of income inequality among the population. If the GINI index, which can take values between 0 and 1, takes a value close to one, it means that the vast majority of income belongs to a limited number of the same individuals, and it means that the inequality is high. Conversely, if the GINI index takes a value close to zero, it means that income is distributed as evenly as possible among the population, and in such a situation the level of inequality is low.

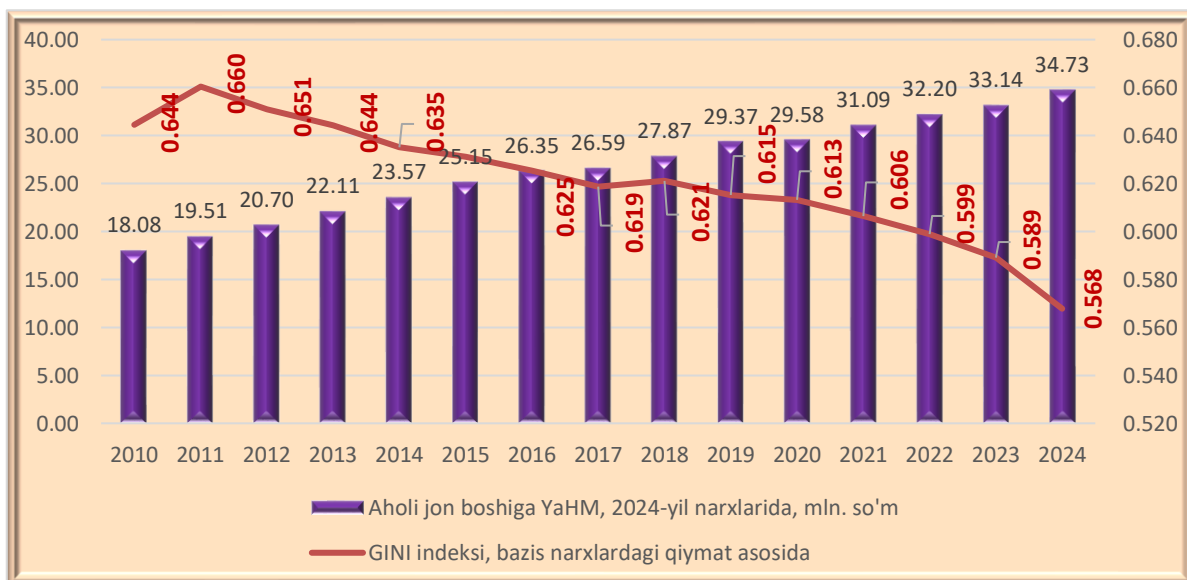
Therefore, the level of diversification of the structure of economic sectors is considered high if the GINI index value is small. Conversely, if the Gini index takes a high value, then in this case it means that the economy of the region is specialized (concentrated) in the same sectors and industries.

From the figure above, it can be seen that in 2011, when the GDP per capita (in 2024 estimates) was 22.94 million soums, the index indicating the level of diversification of the structure of the sectors of the economy of Uzbekistan was $GINI_{2011}=0.587$, while in 2017 and 2024, when the GDP per capita (in 2024 estimates) was 30.26 and 39.13 million soums (3,161.7 US dollars), respectively, the level of diversification was $GINI_{2017}=0.545$ and $GINI_{2024}=0.492$. Thus, the level of diversification of the structure of the sectors of the economy of Uzbekistan is improving in 2017 compared to 2011 and in 2024 compared to 2017.

It should be noted that when calculating the level of diversification in individual regions, it is natural that the result obtained at the republican level will be lower, that is, the GINI index will be relatively higher. This is because each administrative-territorial unit has its own level of specialisation, which results in a lower level of diversification within the regional economy's structure.

In particular, when analysing the indicators of the Bukhara region, it was found that the GRP per capita in 2011 (in 2024 estimates) was 19.51 million soums, while the level of diversification of the regional economy was a coefficient of $GINI_{2011}=0.66$, which is slightly different from the republican level and indicates a relatively low level of diversification (Figure 2).

The fact that the indices representing the diversification gap of economic sectors, when the share of regional GRP per capita in 2017 and 2024 (in 2024 estimates) was 26.59 and 34.73 million soums, respectively, is the coefficient $GINI=0.619$ and $GINI=0.568$, indicates that in Bukhara region, as well as in other regions of Uzbekistan, the level of specialization in inefficient sectors is decreasing, and diversification processes of economic sectors are being observed.



Note: Starting from 2018, data has been revised in accordance with the MHT-2008 methodology, taking into account the non-observed economy.

Figure 2. The relationship between the level of diversification of economic sectors of the Bukhara region (based on the GINI index) and GRP per capita⁶

⁵ Developed by the author based on data from the National Statistics Committee of the Republic of Uzbekistan.

⁶ Developed by the author based on data from the State Statistics Committee of the Republic of Uzbekistan.

In the period after 2017, we can see that the processes of diversification of economic sectors have accelerated both in the case of regions and at the national level. Therefore, both in terms of the content of the ongoing economic reforms and in terms of the results of diversification of the structure of economic sectors, it would be appropriate to recognise the period after 2017 as the fourth stage of economic development of the regions of our country.

The most important reform at this stage was the devaluation of the exchange rate, which led to the liberalisation of economic processes in the activities of economic entities, the modernisation of productive forces, the improvement of the level of global competitiveness, the widespread attraction of foreign investment in strategic sectors, and the creation of free economic zones in the relevant regions.

However, as a result of the coronavirus pandemic that occurred in 2020 and caused various degrees of fluctuations in the economies of countries around the world, disruptions in the activities of most enterprises and organisations and a slowdown in external and interregional trade and economic activities of regions were observed. This pandemic situation and the social, economic and political crises that negatively affected the activities of similar economic sectors forced economists, politicians, and, in addition, every segment of the population to realise how important the level of diversification of the structure of the sectors of the economy of each region is. Even developed countries that have passed the diversification stage of economic development and are in a phase of effective specialization, to meet domestic demands and needs in the above-mentioned shocks, it became clear that such a policy aimed at diversification will not be as high in terms of economic efficiency as in the case of specialization, but will need to revive all sectors and areas of the economy.

Therefore, the restrictions resulting from the coronavirus pandemic that began in 2020 have also accelerated the process of utilising the internal potential of the economy to the fullest extent possible and diversifying the structure of economic sectors across regions.

It is worth noting that the GINI indices, which represent the level of diversification presented above, were calculated and analysed based on the structural indicators of our national economy, which consist of the following 19 sectors (-table).

The table above shows 19 types of economic activity based on the Classification of Economic Activities of the Republic of Uzbekistan (IFUT-2). It can be seen from the table that in the early years, the share of agriculture, which has a relatively low level of efficiency by international standards, in GDP was high. We can observe that the share of agriculture, which does not require high intelligence, and the mining industry based on natural resources decreased by 2024. The share of science-intensive industries in GDP is increasing, indicating a relatively diversified structure of economic sectors.

The Herfindahl-Hirschman index and other similar methods for calculating the level of diversification of economic sectors in the regions of our country also confirm the above results.

The conducted research has identified several features of the diversification of the structure of the sectors of the economy of Uzbekistan:

- in the initial stages of development, when diversifying the structure of the sectors of the economy, priority was given to the modernisation of primary sectors, improving the nomenclature of goods produced and services provided;
- as a result of reforms carried out to modernise economic sectors, export-oriented production relations developed;
- In the early years of independence, the regional economy began to specialise mainly in the production of raw materials, and later in the production of value-added products;
- In the implementation of structural reforms, priority was given to localisation programs for diversifying the composition of economic sectors;
- taking into account the specific characteristics of the regions, the specialisation of regions in various industrial areas was encouraged through the establishment of free economic zones;
- importance was attached to the diversification of economic sectors through the development of small and medium-sized businesses that can quickly adapt to sharp changes in unstable market relations, which is observed in any country embarking on the path of economic development, which in turn improved the competitive environment and had a significant positive impact on the quality of local products.
- Based on the conducted research and conclusions, it is advisable to focus on the following aspects in diversifying the structure of the regional economy:
- -considering that the diversification of economic sectors is directly related to per capita GDP (GDP) and population income, first of all, to establish effective use of opportunities to increase population income;
- identify the driving areas of socio-economic development of regions only when sufficient incomes of the population are provided to ensure a high level of diversification;
- modernise economic sectors; ensure efficient production through the widespread use of scientific achievements in production processes, improve the quality of products and expand their range; arm yourself with energy-efficient,

green economy-compliant equipment and technologies, reduce production costs based on the use of renewable energy sources, and achieve global competitiveness, etc.

Taking these proposals into account in the socio-economic development of regions will lead to an improvement in the level of diversification of the structure of the economy of our country, including each region, and will ensure the stability of economic development in the long term, further improving the global competitiveness indicators of the Uzbek economy.

Thus, the analysis of statistical indicators for Uzbekistan and its administrative-territorial units for 2010-2024 shows that there is a linear relationship between GRP per capita and the level of diversification of the structure of economic sectors. However, in the theoretical section of the dissertation, based on the analysis of scientific literature on the processes of diversification of economic sectors of the regions, a scientific hypothesis was substantiated, confirming the existence of a U-shaped relationship between population income and diversification processes. In such a situation, if a conclusion is drawn based on the results of the analysis carried out on the basis of this data for Uzbekistan, there is a possibility of making a scientific error. Therefore, in the next paragraph, it is appropriate to draw conclusions based on the results of the analysis of data on countries at different stages of development (developed, developing, etc.), and to make scientific conclusions and decisions on the future diversification processes of the economic sectors of Uzbekistan and its regions.

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CITATION

Nurova, G. (2025). Analysis of Economic Growth and Economic Diversification in Uzbekistan. In Global Journal of Research in Business Management (Vol. 5, Number 5, pp. 77–83). <https://doi.org/10.5281/zenodo.17404856>