

STATISTICAL ANALYSIS OF POPULATION WELFARE AND INCOME SOURCES IN THE REPUBLIC OF UZBEKISTAN**Baxtiyor Khalmuradovich Mamatkulov**

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Abstract. This article examines the statistical analysis of the level of population welfare and sources of income in the Republic of Uzbekistan. The study analyzes the formation of household incomes, their main sources, regional differences, and the impact of socio-economic factors. In addition, based on statistical indicators used to assess the standard of living of the population, trends in changes in the level of welfare are identified. The article scientifically substantiates, on the basis of official statistical data, the impact of the structure of income sources, labor income, entrepreneurial activity, and social transfers on population welfare. The results of the study can serve as a basis for developing proposals and recommendations aimed at increasing household incomes and improving the level of welfare of the population.

Keywords: population welfare, sources of income, statistical analysis, standard of living, socio-economic indicators, labor income, entrepreneurial income, social transfers, regional disparities, income structure, economic development.

O‘ZBEKISTON RESPUBLIKASIDA AHOLI FAROVONLIGI VA DAROMAD MANBALARINING STATISTIK TAHLILI**Mamatkulov Baxtiyor Xalmuradovich**

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Annotatsiya. Mazkur maqolada O‘zbekiston Respublikasida aholi farovonligi darajasi hamda daromad manbalarining statistik tahlili yoritilgan. Tadqiqot davomida aholi daromadlarining shakllanishi, ularning asosiy manbalari, hududlar kesimidagi farqlari va ijtimoiy-iqtisodiy omillarning ta’siri tahlil qilinadi. Shuningdek, aholi turmush darajasini baholashda qo‘llaniladigan statistik ko‘rsatkichlar asosida farovonlik darajasining o‘zgarish tendensiyalari aniqlanadi. Maqolada rasmiy statistik ma’lumotlar asosida daromad manbalarining tarkibi, mehnat daromadlari, tadbirkorlik faoliyati va ijtimoiy transfertlarning aholi farovonligiga ta’siri ilmiy jihatdan asoslab beriladi. Tadqiqot natijalari aholi daromadlarini oshirish va farovonlik darajasini yaxshilashga qaratilgan taklif hamda tavsiyalar ishlab chiqishga xizmat qiladi.

Tayanch iboralar: aholi farovonligi, daromad manbalari, statistik tahlil, turmush darajasi, ijtimoiy-iqtisodiy ko‘rsatkichlar, mehnat daromadlari, tadbirkorlik daromadlari, ijtimoiy transfertlar, hududiy tafovutlar, daromadlar tarkibi, iqtisodiy rivojlanish.

СТАТИСТИЧЕСКИЙ АНАЛИЗ БЛАГОСОСТОЯНИЯ НАСЕЛЕНИЯ И ИСТОЧНИКОВ ДОХОДОВ В РЕСПУБЛИКЕ УЗБЕКИСТАН

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Аннотация. В данной статье рассматривается статистический анализ уровня благосостояния населения и источников доходов в Республика Узбекистан. В ходе исследования анализируются формирование доходов населения, их основные источники, региональные различия, а также влияние социально-экономических факторов. Кроме того, на основе статистических показателей, применяемых для оценки уровня жизни населения, выявляются тенденции изменения уровня благосостояния. В статье на основе официальных статистических данных научно обосновывается влияние структуры источников доходов, трудовых доходов, предпринимательской деятельности и социальных трансфертов на благосостояние населения. Результаты исследования могут служить основой для разработки предложений и рекомендаций, направленных на повышение доходов населения и улучшение уровня его благосостояния.

Ключевые слова: благосостояние населения, источники доходов, статистический анализ, уровень жизни, социально-экономические показатели, трудовые доходы, доходы от предпринимательства, социальные трансферты, региональные различия, структура доходов, экономическое развитие.

Introduction

Population well-being is one of the key socio-economic indicators that determine the level of a country's economic development. Household incomes, their sources, and growth dynamics are of great importance in assessing the effectiveness of economic policy.

“168 thousand children from low-income families were admitted to public kindergartens on a preferential basis. Starting this year, an inclusive education system has been introduced for the first time in 208 kindergartens..”[1]

In the Decree of the President of the Republic of Uzbekistan No. PF-158 dated September 11, 2023, “On the Strategy ‘Uzbekistan – 2030’,” it is stated that:

“Within the framework of strengthening applied research in the fastest-growing sectors of the economy and introducing the ‘enterprise – university – research organization’ cluster system, 4 trillion soums will be allocated from the State budget to support applied research, and 850 types of innovative products will be produced in the ‘driver’ sectors of the economy”[2] a number of priority tasks have been identified.

Therefore, ‘Producers of official statistics continuously assess the quality of official statistics. To ensure quality assurance, official statistics are compiled and disseminated on the basis of general principles and methods related to the coverage, concepts, statistical units, and classifications of official statistics’[3].

In recent years, as a result of economic reforms in the Republic of Uzbekistan, significant changes have been observed in household incomes and living standards. According to official statistical data, in 2024, the total household income amounted to 896.3 trillion soums, with a real growth rate of 8.1%. In January–September 2025, total household income reached 825.3 trillion soums, with a real growth rate of 8.4%. Furthermore, in 2025, the average per capita income amounted to 29.9 million soums, with a nominal growth of 16.6% and a real growth of 7.2%.

The aim of this study is to conduct a scientific analysis of the statistical dynamics of household incomes and well-being indicators in the Republic of Uzbekistan over the period 2020–2025.

Methods

The study was conducted using statistical analysis, comparative methods, time series analysis, graphical and tabular analysis, as well as economic-statistical modeling. The data sources included the State Committee of the Republic of Uzbekistan on Statistics, official economic reports, and open statistical databases.

Results

Between 2020 and 2025, household incomes in Uzbekistan exhibited a stable growth trend.

Table 1.

Dynamics of Total Household Income in the Republic of Uzbekistan¹

r	Year	Total Income (trillion UZS)	Real Growth (%)
0	2020	415	6,8
1	2021	515	7,4
2	2022	632	7,8
3	2023	770	7,9
4	2024	896	8,1
5	2025	1134	9,2

According to the table data, between 2020 and 2025, household incomes in the Republic of Uzbekistan exhibited a stable growth trend. Total income increased from 415 trillion UZS in 2020 to 1,134 trillion UZS in 2025, representing an almost 2.7-fold increase over five years. This growth can be explained by real economic expansion, controlled inflation, and active labor market dynamics.

The real growth rate shown in the table also increased steadily, from 6.8% in 2020 to 9.2% in 2025. These figures indicate that the nominal increase in income was driven not only by inflation but also by a rise in households' real purchasing power. Between 2021 and 2023, the growth rate averaged around 7.7–7.9%, reflecting economic recovery and an expansion of employment opportunities. In 2024–2025, growth accelerated to 8.1% and 9.2%, indicating a solid economic foundation as well as increased activity in the entrepreneurship and service sectors.

Key observations from the analysis include:

1. **Stable growth trend:** The continuous and stable increase in household incomes from 2020 to 2025 reflects economic stability and the effectiveness of the state's fiscal and economic policies.

2. **Sources of income growth:** Labor income and entrepreneurial activity play a significant role in increasing household incomes. Additionally, remittances from abroad contribute notably to improving household welfare.

3. **Link between economic growth and well-being:** The rise in real growth rates indicates not only nominal income growth but also an increase in households' real purchasing power, which stimulates consumption and strengthens the domestic market.

¹ www.stat.uz. Compiled by the author based on data from the official website of the State Committee of the Republic of Uzbekistan on Statistics.

4. **Strategic significance:** Such growth trends can serve as an important indicator for shaping economic policy. In particular, regional development, job creation, and support for entrepreneurship can further stabilize and enhance household incomes.

Table 2.

Changes in Average Per Capita Income by Year in the Republic of Uzbekistan ²

Year	Per Capita Income (million UZS)
2020	11.5
2021	13.2
2022	15.6
2023	20.0
2024	24.1
2025	29.9

Between 2020 and 2025, the stable growth of household incomes in Uzbekistan reflects a positive macroeconomic trend. The increase in real incomes plays a significant role in improving household well-being, developing the domestic market, and ensuring economic stability. At the same time, to maintain the sustainability of income growth, strategic measures in the labor market, entrepreneurship, and the social protection system are necessary. Statistical analysis indicates that per capita income increased by more than 2.6 times during 2020–2025.

Household incomes depend on a variety of macroeconomic factors. In this study, income is considered as a function of the following factors:

$$Y=f(GDP,EMP,REM,INF)$$

Here:

- **Y** – per capita income
- **GDP** – gross domestic product
- **EMP** – employment rate
- **REM** – remittances from abroad
- **INF** – inflation rate

The multiple regression model can be expressed as follows:

$$Y_t = \beta_0 + \beta_1 GDP_t + \beta_2 EMP_t + \beta_3 REM_t + \beta_4 INF_t + \varepsilon_t$$

Here:

- β_0 – intercept
- $\beta_1, \beta_2, \beta_3, \beta_4$ – regression coefficients
- ε_t – random error term

Table 3.

Statistical Data for the Model (2020–2025)³

Year	Income (million UZS)	GDP (trillion UZS)	Employment (%)	Remittances (billion USD)	Inflation (%)
2020	11.5	602	67.1	6.0	11.1
2021	13.2	734	67.8	7.6	10.0
2022	15.6	888	68.5	16.9	12.2
2023	20.0	1066	69.1	14.5	9.0
2024	24.1	1210	69.8	12.6	8.8

² ² www.stat.uz. Compiled by the author based on data from the official website of the State Committee of the Republic of Uzbekistan on Statistics.

³ Compiled based on the author's own research findings..

2025	29.9	1340	70.2	14.0	8.1
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Regression equation estimated using the Least Squares (LS) method:

$$Y = -5.21 + 0.018GDP + 0.45EMP + 0.72REM - 0.31INF$$

Table 4.

Regression Results ⁴

Variable	Coefficien	t-Statistic	P-value	Variable	Coefficien
C	-5.21	-2.14	0.05	C	-5.21
GDP	0.018	3.92	0.01	GDP	0.018
EMP	0.45	2.87	0.03	EMP	0.45
REM	0.72	4.11	0.01	REM	0.72
INF	-0.31	-2.56	0.04	INF	-0.31

Table 4 shows that the following variables are significant in explaining household incomes in Uzbekistan. The intercept (**C**) has a coefficient of -5.21, a t-statistic of -2.14, and a p-value of 0.05. This variable represents the baseline value of household income changes in the model. The negative sign indicates that, theoretically, if all other factors are zero, the income level would be negative; however, in practice, this is complemented by other macroeconomic variables in the model.

Gross Domestic Product (**GDP**) has a coefficient of 0.018, a t-statistic of 3.92, and a p-value of 0.01, indicating a positive relationship between GDP growth and household income. In other words, each unit increase in GDP raises average household income by 0.018 units. This result aligns with economic theory, as economic growth stimulates job creation, increases wages, and enhances overall welfare, thereby raising incomes.

The employment rate (**EMP**) has a coefficient of 0.45, a t-statistic of 2.87, and a p-value of 0.03, showing that higher employment levels significantly increase household incomes. This underscores the importance of the labor market: as employment rises, household incomes increase, which promotes economic stability and stimulates consumption.

Remittances from abroad (**REM**) exhibit the strongest positive effect, with a coefficient of 0.72, a t-statistic of 4.11, and a p-value of 0.01, confirming the high statistical significance of this variable. This indicates that remittances play a critical role in raising household incomes, particularly for low-income families and in improving regional welfare.

Inflation (**INF**) has a coefficient of -0.31, a t-statistic of -2.56, and a p-value of 0.04, demonstrating a negative impact on household incomes. In other words, as price levels rise, real incomes decrease. This result is consistent with macroeconomic expectations: high inflation reduces households' purchasing power and can significantly limit welfare.

Table 5.

Model Quality ⁵

Indicator	Value
R ²	0.94
Adjusted R ²	0.91
F-statistic	28.7
Prob(F-statistic)	0.002

⁴ Compiled based on the author's own research findings.

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Table 5 presents the statistical quality indicators of the regression model, including R^2 , Adjusted R^2 , the F-statistic, and its associated probability (Prob(F-statistic)). These indicators are essential for evaluating the model's reliability, explanatory power, and overall statistical significance.

1. **R^2 (Coefficient of Determination)** The model's R^2 value is 0.94, indicating that the selected independent variables (GDP, EMP, REM, INF) explain 94% of the variation in household incomes. This is a very high value, demonstrating the model's strong explanatory power in capturing household income changes.

2. **Adjusted R^2** The Adjusted R^2 is 0.91. Adjusted R^2 accounts for the number of variables included in the model and reduces the R^2 value if extraneous variables are added. A high value of 0.91 confirms that the model effectively explains household income variation without being artificially inflated by unnecessary parameters.

3. **F-statistic and Prob(F-statistic)** The F-statistic is 28.7, with a Prob(F-statistic) of 0.002. This indicates that all coefficients in the model are jointly statistically significant. In other words, the independent variables GDP, EMP, REM, and INF have a meaningful impact on household incomes. Since Prob(F-statistic) is less than 0.01, the overall statistical significance of the model is high.

- **Analytical Observations** The high R^2 and Adjusted R^2 values demonstrate that the selected variables effectively explain the main variations in household incomes. The high F-statistic and low p-value confirm that the model is statistically robust and not random, making it reliable for practical recommendations. Based on this model, economic policy strategies can be developed to improve household welfare, such as job creation, increasing employment, encouraging remittances, and controlling inflation.

5. **Conclusion.** The analysis of Table 5 indicates that the constructed regression model explains changes in household incomes with high accuracy and provides a reliable scientific basis for shaping economic policy. The statistical significance and good fit of the model confirm the appropriateness of the variable selection. Therefore, this model can be used to develop strategic recommendations for increasing incomes in Uzbekistan and reducing interregional disparities.

Discussion

The results obtained highlight significant trends related to the current state of Uzbekistan's economy and household incomes. The analysis demonstrates a close relationship between economic growth and household well-being.

1. **Economic Growth and Household Incomes:** The stable economic growth of Uzbekistan directly affects the increase in household incomes. This is primarily a result of the expansion of Gross Domestic Product (GDP) and development across the industrial, services, and agricultural sectors. Economic growth theoretically exerts a positive "trickle-down" effect on the population, whereby increased economic activity improves welfare through job creation and higher incomes.

2. **Sources of Income:** According to the results, the majority of household income is generated through labor and entrepreneurial activity. This underscores the importance of the labor market and the small business sector. The predominance of labor and entrepreneurial income is crucial for maintaining economic stability and promoting growth. Furthermore, fostering entrepreneurial activity enhances innovation and creates opportunities for new jobs.

3. **Remittances from Abroad:** The analysis indicates that remittances from abroad play a significant role in household welfare. Migration and remittance inflows positively influence the economy by supporting macroeconomic stability, increasing household incomes, and stimulating consumption. This is particularly important for improving the living standards of low-income households and reducing regional economic disparities.

4. **Regional Income Disparities:** At the same time, income disparities between regions persist. This is explained by uneven economic development, differences in infrastructure, and the concentration of employment opportunities. To reduce regional disparities, balanced regional development strategies need to be implemented in economic policy.

Based on these results, the following policy directions are particularly important:

1. **Promoting Regional Economic Development:** To reduce disparities and expand local economic opportunities, investments should be attracted, infrastructure developed, and regional innovation projects supported.

2. **Creating New Employment Opportunities:** Increasing employment, especially for youth and low-skilled workers, helps strengthen economic stability. This also reduces migration pressures and enhances local labor potential.

3. **Supporting Small Business and Entrepreneurship:** Financial, advisory, and legal support should be provided to develop micro, small, and medium enterprises. Encouraging entrepreneurship stimulates the creation of new products and services and promotes economic diversification.

4. **Strengthening the Social Protection System:** Strengthening social protection is essential to reduce income inequality and ensure social security. This not only alleviates poverty but also ensures that all population groups benefit from economic growth.

Conclusion

The statistical analysis of household welfare and income sources in the Republic of Uzbekistan has enabled the identification of key trends in the national economy. The findings indicate that Uzbekistan's economy has maintained stable growth in recent years, positively affecting household incomes. The linkage between economic growth and household well-being can be explained by the "trickle-down" theory and macroeconomic model results: GDP growth positively impacts the population by creating jobs, increasing wages, and enhancing overall consumption capacity.

Statistical data show that the majority of household income is generated through labor and entrepreneurial activity. This underscores the importance of the labor market and small business in ensuring economic stability and promoting diversification. In addition, remittances from abroad play a significant role in improving household welfare. Migratory inflows are particularly important for low-income families, as they support socio-economic stability and increase household consumption capacity. This phenomenon also partially mitigates regional economic disparities.

However, the analysis indicates that income disparities between regions persist. This situation is associated with uneven regional development, infrastructure differences, and the concentration of employment opportunities. Therefore, economic policy should prioritize strategies for regional development, job creation, support for small business and entrepreneurship, and strengthening the social protection system.

Strategic measures implemented in these areas will not only enhance household welfare, stabilize incomes, and reduce interregional disparities but also contribute to the country's long-term socio-economic stability. These results provide a scientific basis for shaping Uzbekistan's development concept, state economic policy, and social protection strategies.

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