ECONOMETRIC ANALYSIS OF THE RELATIONSHIP BETWEEN TAX BURDEN AND POVERTY IN UZBEKISTAN

Khaydarov Alisher Akram ugli
Phd student of Tashkent state university of economics
https://doi.org/10.5281/zenodo.19220527

Abstract. *This article analyzes the possibilities of using tax mechanisms to reduce poverty in Uzbekistan. Within the framework of the study, the main tax mechanisms influencing poverty reduction are examined, including increasing the real incomes of the population, redistributing income inequality, indirectly influencing prices through consumption taxes, stimulating employment, reducing regional economic disparities, financing social transfers, and reducing the shadow economy. The results of the study show that although certain tax mechanisms are applied in practice, tax instruments aimed at reducing income inequality and increasing the real incomes of the population are not used sufficiently. Based on these findings, scientific proposals and recommendations have been developed to improve tax mechanisms aimed at reducing poverty.*

Keywords: *poverty, tax policy, tax mechanisms, income inequality, self-employment, social transfers, social tax, shadow economy, tax incentives.*

INTRODUCTION

In recent years, the modernization of the tax system and the reduction of poverty have become one of the key priorities of state policy in Uzbekistan. This, in turn, increases the scientific and practical relevance of studying this issue. These priorities are also reflected in the Constitution of the country and are recognized as important factors for ensuring economic stability and improving public welfare. In particular, Article 63 of the Constitution stipulates that taxes and duties should be established based on the principles of fairness, while Article 43 states that the state must take systematic measures to reduce poverty. According to the results of 2025, the poverty rate in the republic decreased to 5.8 percent. In his Address to the Oliy Majlis, President Shavkat Mirziyoyev noted that the task set in the “Uzbekistan–2030” Strategy to reduce poverty by two times by the end of 2026 had already been achieved in 2025. In this regard, new strategic goals for the period up to 2030 have been defined, including increasing the share of tax revenues in GDP to 17.3 percent and eliminating absolute poverty based on the minimum consumption expenditure standard.

LITERATURE REVIEW

Taxes are one of the key economic instruments used by the state to regulate economic processes, stimulate economic growth, and ensure social stability. The role of the tax system in reducing poverty has been widely studied by many economists. In particular, J. Stiglitz emphasizes that a fair tax system not only combats poverty but also improves the quality of economic growth. J. Mirrlees, in his theory of optimal taxation, argues that the state can reduce poverty through income redistribution, but this process should not weaken incentives to work. Empirical studies by A. Anjarvi also show that in some cases an increase in the tax burden is associated with higher levels of poverty. Overall, these studies confirm that tax policy has a significant impact on poverty levels and income inequality.

METHODOLOGY

In this study, various scientific research methods were employed to examine the possibilities of using tax mechanisms to reduce poverty. In particular, methods such as analysis and synthesis, induction and deduction, comparative and statistical approaches, as well as econometric analysis were utilized. These methods made it possible to comprehensively assess the impact of tax policy on poverty levels and to formulate scientific conclusions based on the research findings.

DISCUSSION OF ANALYSIS AND RESULTS

When analyzing the effectiveness of income tax mechanisms in reducing poverty in Uzbekistan, particular attention is given to the principles of horizontal and vertical equity in taxation. Horizontal equity implies that all economically active individuals should be included in the tax system and that equal income should be taxed equally. Vertical equity, on the other hand, assumes the application of higher tax rates to higher incomes and relatively lower tax rates to lower incomes. Ensuring social fairness in taxation requires first achieving horizontal equity and then vertical equity. The following diagram (see Figure 1) analyzes the extent to which the economically active population in Uzbekistan is covered by income taxation. The graph shows a significant gap between the number of economically active people and the number of income tax payers. In 2012, this difference amounted to about 9.3 million people, while in 2016–2020 it widened further and approached 10 million. This indicates that a considerable share of the economically active population was either not included in the tax system or was engaged in informal activities. Starting from 2021, as informal employment gradually declined, the number of people not paying income tax decreased to 8.7 million by the end of 2024. As a result, by the end of 2024, about 58.1 percent of the economically active population were not income tax payers. However, it would be inaccurate to assume that all of these 8.7 million individuals are outside the tax system. Since 2020, the self-employment institution has been introduced, allowing some citizens to earn income independently without being formally employed by enterprises or organizations. Therefore, to better understand the situation, the composition of the economically active population in 2024 is further analyzed by different forms of employment.

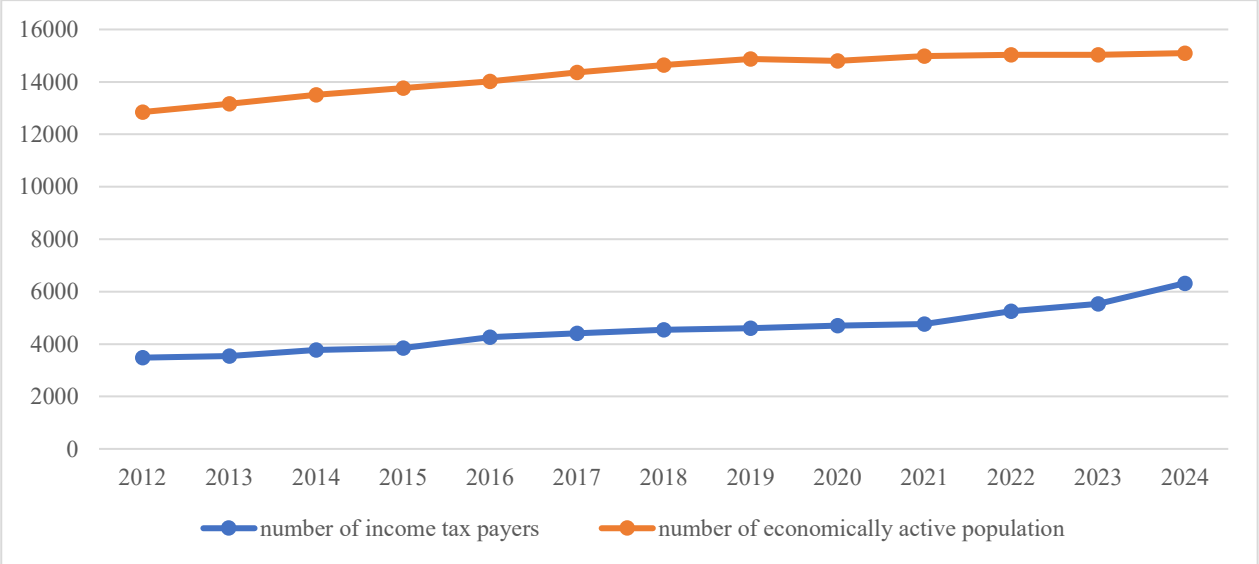


Figure 1. The number of economically active population and personal income tax payers in Uzbekistan in 2012–2024.

In the next stage of the study, the impact of the tax burden paid by the population on the poverty level was analyzed using econometric methods. Time-series data were used in the analysis.

In the model, the poverty rate (Y) was selected as the dependent variable, while the share of personal income tax in GDP (X1), the share of indirect taxes in GDP (X2), and the share of property tax on individuals in GDP (X3) were chosen as independent variables. These indicators represent the main components of the population's tax burden. The following hypotheses were formulated in the analysis:

H_0 – taxes do not have a significant impact on the poverty level;

H_1 – at least one type of tax affects the poverty level.

Before constructing the model, we verified all the important econometric assumptions and confirmed that the selected models satisfy these requirements. Therefore, we proceed to estimate the indicators by conducting a regression analysis using the Ordinary Least Squares (OLS) method. The analysis of the model covers data for a 22-year period. The number of observations is statistically sufficient for conducting regression analysis. According to the results of the regression analysis, the model is statistically significant (Prob > F = 0.0000 < 0.05) and demonstrates a high level of explanatory power (R^2 = 0.8012). According to the analysis of individual variables, the coefficient for the share of personal income tax in GDP is β = 3.244. This variable is statistically significant (t = 2.42; p = 0.026 < 0.05), and its 95% confidence interval ranges from 0.4406 to 6.0479, which does not include zero.The coefficient for the share of indirect taxes in GDP is 1.8188 and is also statistically significant (t = 5.05; p = 0.000 < 0.05). The 95% confidence interval for this variable ranges from 1.0651 to 2.5725, which likewise does not include zero. The intercept of the model is –5.5539 and is statistically significant as well (t = –2.51; p = 0.021 < 0.05). Its 95% confidence interval ranges from –10.1772 to –0.9305, which also excludes zero.

Table 1

Results of the OLS analysis of the relationship between the tax burden and the poverty rate

OLS				Number of obs = 22		
				F(2, 19) = 50.74		
				Prob > F = 0.0000		
				R-squared = 0.8012		
				Root MSE = 2.7028		
Variable	Coef.	Std. Err.	T	P>|t|	95% Conf.	Interval
Income_tax	3.244266**	1.339537	2.42	0.026	.4405833	6.047949
Indirect_tax	1.818794***	0.3600897	5.05	0.000	1.065118	2.572471
_cons	-5.553866**	2.208926	-2.51	0.021	-10.1772	– .9305315

*** p<0.01, ** p<0.05, * p<0.1

Based on the results of the econometric analysis, the linear regression model is expressed as follows: $Y=3.244X_1+1.819X_2 - 5.554$, where X_1 represents the share of personal income tax in GDP and X_2 represents the share of indirect taxes in GDP. According to the model results, a 1 percentage point increase in the share of personal income tax in GDP, holding other factors constant, leads to a 3.244 percentage point increase in the poverty rate. Similarly, a 1 percentage point increase in the share of indirect taxes in GDP increases the poverty rate by 1.819 percentage points.

CONCLUSION

The results of the econometric analysis indicate that taxes have a significant impact on the level of poverty. In particular, an increase in the share of personal income tax and indirect taxes in

GDP is associated with a decline in the relative income share of the poor, while simultaneously increasing the income share of higher-income groups. This suggests that the redistributive function of the current tax system is not sufficiently effective. In other words, the existing tax policy may, in some cases, exacerbate income inequality rather than reduce it. In particular, the high share of indirect taxes tends to impose a relatively heavier burden on low-income households, thereby reducing their real incomes and increasing the likelihood of higher poverty levels. Therefore, there is a need to improve the tax system by strengthening its social orientation, increasing its progressivity, and expanding mechanisms that protect low-income groups.

Based on the above, the following recommendations are proposed:

1. To strengthen the social protection function of the tax system and to mitigate the deterioration of households' financial conditions caused by unexpected large medical expenses, it is advisable to exempt from taxation the portion of taxpayers' income spent on medical services, provided that such expenses exceed 7.5 percent of total income, up to an amount equal to ten times the minimum wage.

2. It is advisable to introduce the deduction of expenses incurred by legal entities for providing charitable assistance to low-income households included in the social registry from the corporate income tax base, as well as to improve clause 7 of Article 317 of the Tax Code. In particular, this clause should specify that expenses related to charitable activities such as patronage support, assistance to elderly individuals in need of care, elderly persons living alone, and persons with disabilities; support to educational institutions; assistance to orphans and children deprived of parental care; financial support to **low-income households** included in the social registry; as well as donations made to the Public Fund for the Support of Children should be treated as exceptions.

3. It is advisable to introduce a mechanism for refunding the social tax paid by private educational centers in the form of a "cashback" to support those that provide free training to members of low-income households in foreign languages and modern professions, including programming, artificial intelligence, and robotics.

REFERENCES

1. Address of the President of the Republic of Uzbekistan, Shavkat Mirziyoyev, to the Oliy Majlis and the people of Uzbekistan. December 26, 2025. https://president.uz/oz/lists/view/8834
2. Mirrlees J.A. An Exploration in the Theory of Optimum Income Taxation. The Review of Economic Studies, Vol. 38, No. 2. (Apr., 1971), pp. 175-208.
3. Anjarwi, A. W. (2025). Tax burden and poverty in lower-middle-income countries: the moderating role of fiscal freedom. Development Studies Research, 12(1). https://doi.org/10.1080/21665095.2025.2466511
4. Ниязметов И. Солиққа тортиш механизмларини такомиллаштириш орқали солиқ тизими барқарорлигини таъминлаш. Иқт. фан. док.... дисс. автореф //Т.: БМА. – 2018. – Т. 70.
5. Xaydarov A. (2025). O'ZBEKISTON RESPUBLIKASIDA KAMBAG'ALLIKNI QISQARTIRISH BO'YICHA AMALGA OSHIRILGAN ISLOHOTLAR TAHLILI. Innovations in Science and Technologies. 2, 3 (May 2025), 248–260