EURASIAN JOURNAL OF MATHEMATICAL THEORY AND COMPUTER SCIENCES
Innovative Academy Research Support Center
IF = 7.906 www.in-academy.uz

FACTORS AFFECTING POVERTY REDUCTION IN ANDIJAN REGION

Z.A.Musaeva
Tashkent State Economic University, professor Department of Applied Mathematics PhD.
E-mail: ziyodaallayarovna@gmail.com
https://doi.org/10.5281/zenodo.15448010

ARTICLE INFO

Received: 12nd May 2025
Accepted: 16th May 2025
Online: 17th May 2025

KEYWORDS

Economic growth, poverty, monetary incomes of the population, sustainable development of society, employment.

ABSTRACT

For several decades, the economically unfavorable state of the country was associated with the difficulties of the transition period. We are so clinging to the conviction that happiness can be achieved not through material well-being, but through spiritual maturity, as a result of which both the state and society found themselves in a maelstrom of problems. Finally, they realized the truth: without elementary living conditions, a person will not achieve not so much happiness, but even just calmness. For many years, the problem of poverty in the country was considered a closed topic. Instead of the prescribed term, they used the concepts of "poor", "in need of protection."

Introduction

Economic development in itself does not lead to a uniform increase in the well-being of the population and a reduction in inequality. Based on the above considerations, it is worth noting that although these concepts are closely related, policies aimed at solving only one of the problems may exacerbate the others. Thus, the concepts of poverty, inequality and economic development are closely related and influence each other. The impact of economic growth on poverty and inequality can be both negative and positive. In particular, economic growth leads to uneven development of some sectors of the economy, as well as to a deepening of the country's dependence on some sources of economic growth, which, in turn, leads to increased inequality.

Increasing dependence on sources of economic growth increases inequality due to factors such as the complementarity of capital and skilled labor, skills associated with technological change, and the increasing share of capital in total income. At the same time, public policy should be aimed at increasing competition and reducing the level of corruption, which, in turn, will lead to a reduction in inequality. On the other hand, economic growth leads to increased employment and opportunities for business development, and an increase in resources for redistribution within the country. All this helps reduce inequality and poverty in general.

Analysis of thematic literature

The problem of poverty has always been a subject of social and philosophical reflection. The study of factors influencing poverty reduction has been studied by many foreign

scientists. In particular: from foreign scientists R. Adams, Lynn, H. Bhanumurti, H. Mitra, Arndt James, N. from specialist scientists from the CIS countries. V. Kovalenko, O. V. Garatshuk, V. I. Kusenko, I. Ansoff, A.L. Gaponenko and others conducted theoretical studies. Of the Uzbek economists R.Alimov, Kh.Makhmudov, K.P.Uzakov, M.H.Abulkoshimov, T.M.Akhmedov, R.R.Hasanov, G.A.Alimova, I.S.Abdullayevs conducted research on issues of socio-economic development, development of the Republic of Uzbekistan and its territories, reducing poverty in families and increasing employment.

J. Dostri and A. Berg in their studies show that a reduction in inequality affects the duration of economic growth, in which a 10% decrease in inequality, taken as a decrease in the Gini coefficient from 40% to 37%, increases the expected duration of growth. 50% proven. In general, income redistribution has a positive effect on economic growth. Lower levels of inequality are directly associated with faster and more sustainable economic growth.

Research methodology

During scientific research, methods of scientific abstraction, analysis and synthesis were effectively used. In the course of studying the topic, along with general economic methods, special approaches to data systematization were used, such as comparison, generalization of theoretical and practical materials, and system analysis.

Analysis and results

Today, even by studying the low-income population and the factors that influence it, it will be possible to reduce poverty in the country. Let us consider the low-income population in the Andijan region through an econometric analysis of the low-income population and the factors influencing it. To do this, we compiled multivariate econometric models, assessed them according to various criteria and checked whether they correspond to the processes under study.In this multifactor econometric model, the resulting factor was the low-income population, people. (Y), while the influencing factors were the income of the population, thousand rubles (X1), the number of pensioners, people. (X2), the number of beneficiaries (X3) and the value of the consumer basket received, thousand (X4). Since the units of measurement of the factors included in the multifactor econometric model are different, we take the logarithm of them and reduce them to a single unit of measurement. First, we will conduct descriptive statistics on the low-income population and the factors influencing it in Andijan region (Table 1).

Descriptive statistics by factors (Table 1).

	LNY		LNX1	LNX2	LNX3	LNX4
Mean	2.636746		7.409825	12.48082	10.14938	11.84640
Median	2.660260		7.833561	12.46824	10.11265	11.69146
Maximum	3.100795		9.663151	12.74843	10.68801	13.15445
Minimum	2.066863		4.711297	12.18200	9.738259	10.56207
Std. Dev.	0.327742		1.583780	0.143572	0.269684	0.828073
Skewness	-0.294644		-0.179155	0.085423	0.524896	0.041676
Kurtosis	1.798353		1.591335	2.684049	2.192454	1.767065
Jarque-Bera	1.716581		2.024693	0.123638	1.681102	1.463448

Probability	0.423886		0.363365	0.940053	0.431473	0.481079
Sum	60.64516		170.4260	287.0589	233.4356	272.4672
Sum Sq. Dev.	2.363127		55.18391	0.453487	1.600049	15.08552
Observations	23		23	23	23	23

From the data in Table 1 presented above, it is clear that the asymmetry coefficients of the factors lny and lnx1 included in the multifactor econometric model took on negative values and show that the “left point” of these factors is longer than the “right point”. The asymmetry coefficient of the remaining coefficients lnx2, lnx3 and lnx4 took on a positive value, and the “right point” on the graph of this factor had a longer “left point”. To select factors for a multifactor econometric model based on factors affecting the low-income population in the Andijan region, it is necessary to first analyze whether there are relationships between the factors. To do this, we conduct correlation analysis between factors. We calculate partial and even correlation coefficients between factors. The matrix of partial and even correlation coefficients between factors is presented in Table 2 below.

Matrix of partial and uniform correlation coefficients between factors (table 2).

	LNY	LNX1	LNX2	LNX3	LNX4
LNY	1.000000				
LNX1	-0.504356	1.000000			
	-2.676619	-----			
	0.0141	-----			
LNX2	0.708580	0.535417	1.000000		
	1.977332	1.965519	-----		
	0.0339	0.5471	-----		
LNX3	0.605024	0.485830	0.354072	1.000000	
	2.023023	1.318535	1.001389	-----	
	0.0418	0.7452	0.0000	-----	
LNX4	0.529534	0.380838	0.588655	0.680590	1.000000
	2.179689	1.070941	1.880384	2.722982	-----
	0.0408	0.8520	0.5244	0.0861	-----

From Table 2 presented above, it can be seen that partial correlation coefficients indicate the density of connections between the resulting factor (lnY) and the factors influencing it (lnXi). Thus, partial correlation coefficients indicate that there are various relationships between the resulting factor - the low-income population (lnY) and the influencing factors.

Therefore, the density of the relationship between the low-income population (lny) and the population income (lnx1) is -0.5043. This suggests that there is an average inverse correlation between the low income population (lny) and the population income (lnx1). The density of connection between the population with low incomes (lny) and the number of pensioners (lnx2) is 0.7086. This situation also indicates that there is a high correlation

between these two factors. Since there is also an average correlation between the low income population (lnY) and the number of beneficiaries (LnX3), that is, the partial correlation coefficient between them is 0.6050.

There is a medium correlation between the low income population (lny) and the value of the consumer basket (lnX4) as the partial correlation coefficient calculated is 0.5295.

In addition, even correlation coefficients between factors acting on shelf 2 are also indicated. Using these coefficients, multicollinearity between factors is determined. If the calculated value of the even correlation coefficient between the influencing factors (Xi, Xj) is greater than 0.7, then there is multicollinearity between the factors. From Table 2, where the matrix of partial and even correlation coefficients between factors is calculated, it is clear that the calculated value of the even correlation coefficient between factors affecting the low-income population of the Andijan region does not exceed 0.7. This, in turn, allows all selected factors to be included in a multifactor model.

A condition is introduced that the calculated probability between factors does not exceed 0.05. For example, the partial correlation coefficient between the low-income population (lnY) and income (lnx1) is equal to, and. This suggests that there is an average relationship between the two factors under consideration, that the partial correlation coefficient is reliable, and that there is an inverse average relationship between the two factors with an accuracy of 95 percent.

Another way to ensure that there is no multicollinearity between influencing factors is to calculate VIF coefficients (variance inflation factors - the effect of multicollinearity). The VIFs calculated for each factor are listed in Table 3 below.

Measuring the effect of multicollaterality between influencing factors (Table 3).

Variable	CoefficientVariance	Centered VIF
LNX1	0.056964	6.354261
LNX2	1.039255	6.949688
LNX3	0.232244	5.479697
LNX4	0.298978	3.508582
C	0.641646	NA

The calculated multifactor econometric model shows that while the population's income (lnX1) increases on average by one percent, the number of low-income population (lnY) decreases by an average of 0.1409 percent. While the number of pensioners (lnx2) in Andijan region increases by an average of one percent, the number of low-income people (lnY) increases by an average of 0.5561 percent. An increase in the number of beneficiaries (LnX3) by an average of one percent leads to an increase in the number of poor people (lnY) by an average of 0.7367 percent. A decrease in the cost of the consumer basket (lnX4) by an average of one percent in a province leads to a decrease in the number of low-income people (lnY) by an average of 0.1785 percent.

Conclusions and offers

The feedback provided in the study ultimately contributes to assessing the well-being of the population and studying their living status. However, the level of poverty, which is now becoming a problem in the global economy, cannot be fully assessed using these above-

mentioned indicators. Because the given indicators are among the endogenous (influencing) factors directly involved in assessing the level of poverty. When assessing the level of poverty, first of all, it is necessary to provide for the calculation of indicators that directly characterize the situation of the low-income population.

The problem of eliminating poverty in our country is not only about providing financial assistance to the poor, but also about encouraging productive and quality work of the masses by providing space for market creativity to enterprising, talented and enterprising people. A promising direction for the Republic of Uzbekistan is the development of in-depth labor incentive mechanisms that promote the growth of investment in industry and contribute to the formation of "human capital". In this case, education should become a real factor in the long-term stable socio-economic development of the country, and therefore the well-being of citizens

Based on the results of the study, it should be noted that the traditional concept of poverty allows us to distinguish between absolute and relative poverty. In our opinion, indicators of absolute and relative poverty cannot objectively reflect the role of poverty as a decisive factor in world development. This is why the concept of "multidimensional poverty" is used in UN practice. Multidimensional poverty consists of limited access to health and education, drinking water and other services.

Based on the results of a multifactor forecast of changes in the existing poverty level in the Andijan region, it is expected that the poverty level in the region in 2027 will be 15.3 percent, decreasing by 3.8 percent compared to 2022. This result, of course, includes an increase in GDP per capita by 0.4% in 2027 compared to 105.1% in 2022, an increase in gross income per capita by 122.5% and by 1 sq. m. m. km. The population is 806.2 people.

References:

1. Остри Дж. Д., Берг А., Цангаридес К. Г. Перераспределение, неравенство и рост. Записка для обсуждения с персоналом МВФ. Вашингтон, округ Колумбия, 2014 г.; Остри Дж. Д., Берг А., Зеттельмейер Дж. Что делает рост устойчивым? Рабочий документ МВФ. Вашингтон, округ Колумбия, 2008 г.
2. Расулев А., Алимов Р., Курбанова Д. Развитие хлопкового комплекса - важное направление кластерной экономической политики в Узбекистане.// Общество и экономика.- 2005
3. Расулев А., Денисов Ю. Проблемы структурных изменений в экономике Узбекистана// МЭиМО.- 2000
4. www.stat.uz
5. www.kun.uz