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Links between low-income population factors across Fergana and Namangan provinces

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Abstract: The article comments on factors affecting poverty reduction in Fergana and Namangan Provinces: Economic Development, Employment and unemployment rate dependence, income inequality, and the reasons for the origin of poverty. The main emphasis is on the dependence of factors affecting poverty reduction, and explained that poverty reduction is influenced by subjective and objective processes.

Key words: Economic growth, poverty, monetary incomes of the population, sustainable development of society, employment

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.

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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

The links between low-income population factors in Fergana and Namangan regions are given in the table below (table 1).

Table 1.
Correlation matrix of links between factors

Fergana County

	LNY	LNX1	LNX2	LNX3	LNX4
LNY	1.00000				
LNX1	-0.83142	1.00000			
LNX2	0.75186	0.50639	1.00000		
LNX3	0.51967	0.43752	0.55954	1.00000	
LNX4	0.81132	0.67844	0.61843	0.64848	1.00000

Namangan County

	LNY	LNX1	LNX2	LNX3	LNX4
LNY	1.00000				
LNX1	-0.91600	1.00000			
LNX2	0.77339	0.62941	1.00000		
LNX3	0.56196	0.47175	0.66593	1.00000	
LNX4	0.89133	0.57947	0.62907	0.41726	1.00000

Source: calculated on the basis of data from the statistical departments of the regions

From the data of Table 1 it can be seen that the values of the private and even correlation coefficients between factors affecting the low-income population in the Fergana and Namangan regions have almost one effect. This, on the one hand, indicates that there is no significant difference between the economic situation in these regions, the income of the population. Using the coefficients VIF (Variance Inflation Factors - multicollinearity effect), we check the presence of multicollenearity between the influencing factors (Table 2).

Table 2
Measurement of the effect of multicolleniarity between factors affecting the indicator of low-income population in Fergana and Namangan regions

Fergana County

Variable	CoefficientVariance	Centered VIF
LNX1	0.074136	4.197690
LNX2	0.367481	8.320056
LNX3	0.271405	5.634670
LNX4	0.297967	2.114461
C	35.80876	NA

Namangan County

Variable	CoefficientVariance	Centered VIF
LNX1	0.010375	2.698354
LNX2	0.118493	3.623813
LNX3	0.020720	2.903833
LNX4	0.053118	7.968051
C	10.00140	NA

Source: calculated on the basis of data from the statistical departments of the regions

We test the stationary of the studied temporal series according to the Fergana and Namangan regions on the basis of the diki-Fuler test (Table 3).

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Table 3.

Dickey-Fuller testNull Hypothesis: LNY has a unit root Exogenous: Constant Lag Length: 2 (Automatic - based on SIC, maxlag=4)

			Фарғона вилояти		Наманган вилояти	
			t-Statistic	Prob.*	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-2.973726	0.0407	-2.843670	0.0449
Test critical values:	1% level		-3.808546		-3.831511	
	5% level		-3.020686		-3.029970	
	10% level		-2.650413		-2.655194	

*MacKinnon (1996) one-sided p-values.

The probability of the Dicky-Fuler test calculated from the cited Table 3 is also in Fergana and Namangan provinces (prob.) Being less than 0.05, the time series participating in the multifactorial econometric model, which is structured in terms of the low-income population and factors affecting it, are stationary. So, it turns out that in the regions of Fergana and Namangan there is no multicolleniarity between the factors that affect the time series stationary, which is included in the multi-factor econometric model. Based on the data from these two provinces, we will build a multi-factor econometric model according to the (1) model presented above. The results are shown in Table 4 below.

Table 4.

Multi-factor econometric model parameters calculated by Fergana and Namangan regions

	Фарғона вилояти		Наманган вилояти	
Multifactorial econometric model view	$\ln \hat{Y} = 4{,}0065 - 0{,}2343\ln X_1 + 0{,}0194\ln X_2 + + 0{,}0374\ln X_3 - 0{,}0029\ln X_4$		$\ln \hat{Y} = 7{,}8876 - 0{,}0457\ln X_1 + 0{,}4777\ln X_2 + + 0{,}6322\ln X_3 - 0{,}4808\ln X_4$	
Determination of the kiimati coefficient, R2	0,6914		0, 9230	
Fischer mezzanine kiimati, F	10.08469		53.94733	
Student mezzanine kiimati, t	C	0.669537	C	0.448460
	lnX1	-2.860481	lnX1	-2.387772
	lnX2	-3.032097	lnX2	4.392003
	lnX3	2.071853	lnX3	-2.186321
	lnX4	-2.005240	lnX4	2.494107
Durbin-Watson mezzanine kiimati DW	1,86		1,90	
Probability values of parameters, prob	C	0.5117	C	0.0226
	lnX1	0.0408	lnX1	0.0392
	lnX2	0.0747	lnX2	0.0821
	lnX3	0.0435	lnX3	0.0004
	lnX4	0.0959	lnX4	0.0514

Table 4, from the multifactorial model of low-income population in Fergana province, it can be said that while population income (lnX1) increases by an average of one percent, the county's low-income population (lnY) decreases by an average of 0.2343 percent. While the number of pensioners in the province (lnX2) increases by an average of one percent, the number of underprivileged (lnY) increases by an average of 0.0194 percent. While the number of beneficiaries (lnX3) in the province increases by an average of one percent, the number of underprivileged (lnY) increases by an average of 0.0374 percent. At the same time, a decrease in the value of the consumer basket (lnX4) by an average of one percent leads to a decrease in the number of underprivileged (lnY) by an average of 0.0029 percent.

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At the same time in Table 4, the following can be noted from the multifactorial econometric model in terms of low-income population in Namangan region. While the county's population income (lnX1) increases by an average of one percent, the county's low-income population (lnY) decreases by an average of 0.0457 percent. While the number of pensioners in the province (lnX2) increases by an average of one percent, the number of underprivileged (lnY) increases by an average of 0.4777 percent. While the number of beneficiaries (lnX3) in the province increases by an average of one percent, the number of underprivileged (lnY) increases by an average of 0.6322 percent. At the same time, a decrease in the value of the consumer basket (lnX4) by an average of one percent leads to a decrease in the number of underprivileged (lnY) by an average of 0.4808 percent.

Judging the quality of the multi-factor econometric model calculated by both regions using a determination coefficient, the factors included in the model in the low-income population of the Fergana region can be explained by 69.14 percent, but in the Namangan region it can be seen that it explains 92.30 percent.

So, in the calculated multi-factor econometric model, it can be seen that there are a number of other opportunities in the Fergana region in reducing the number of low-income residents (attracting to small businesses, opening a personal enterprise, hiring and working, etc.).

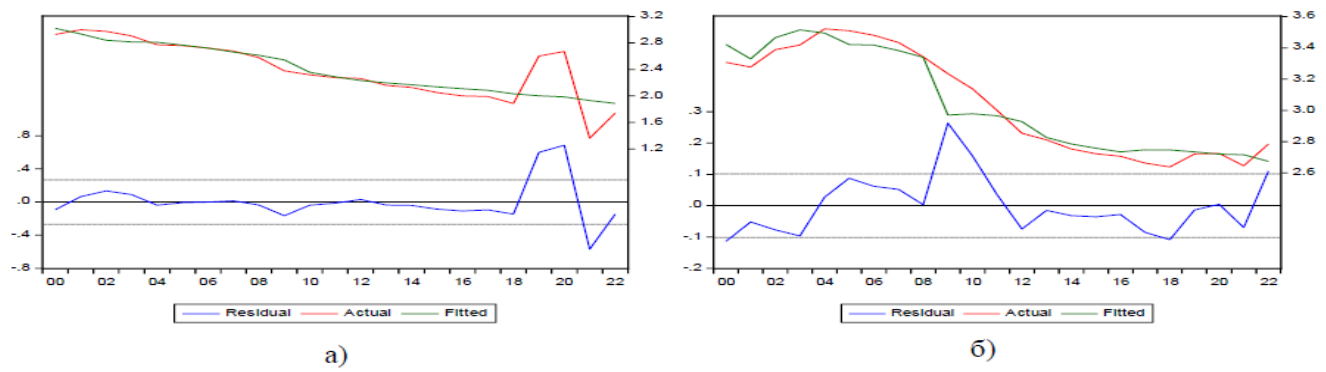
The adequacy of the multi-factor econometric models (matching the processes under study), compiled by farghona and Namangan provincial data on low-income populations, shows that the Fisher criterion has a tabular value of Fjadval=2.93. This value in the multifactorial econometric model, compiled by the low-income population of the Fergana region, is equal to Fhisob=10.0847. This value in the multifactorial econometric model, compiled by the low-income population of the Namangan region, is equal to Fhisob=53.94733. Hence, the multi-factor econometric model compiled in Namangan region by low-income population is more statistically significant than the model compiled in Fergana region.

When examining the reliability of factors in multi-factor econometric models compiled by the low-income population according to data from Fergana and Namangan regions using the T-criterion of Styudent, it can be seen that factors in both provinces are significant. Because, the Stoudent t-criterion has a tabular value of. The calculated styling t-criterion values of the influencing factors of both provinces in Table 9 are larger than the table values.

It turns out that there is no autocorrelation in the resultant factor residues in the multifactorial econometric models compiled by the low-income population according to the data of the regions of Fergana and Namangan. Because, we can see that the value of the Darbin-Watson criterion calculated in both models is greater than the value of the table: the Darbin-Watson criterion has a table value of Dwjadval=1.79. Based on data from both provinces respectively, the calculated values of the Darbin-Watson criterion are Dwhisob=1.86 for Fergana province and Dwhisob=1.90 for Namangan Province respectively.

Factors included in the multifactorial econometric model can be seen to be significant at the probability 5 and 10 percent limits (Table 4).

The actual (Actual), calculated (Fitted) values and differences between them (Residual) of the multi-factor econometric model calculated by the low-income population in Fergana and Namangan regions are shown in Figure 1 below.



а) б)

Figure 1. Real (Actual), calculated (Fitted) values and differences between them (Residual) graph of the low-income population in the vilotyas of Fergana (A) and Namangan (b)

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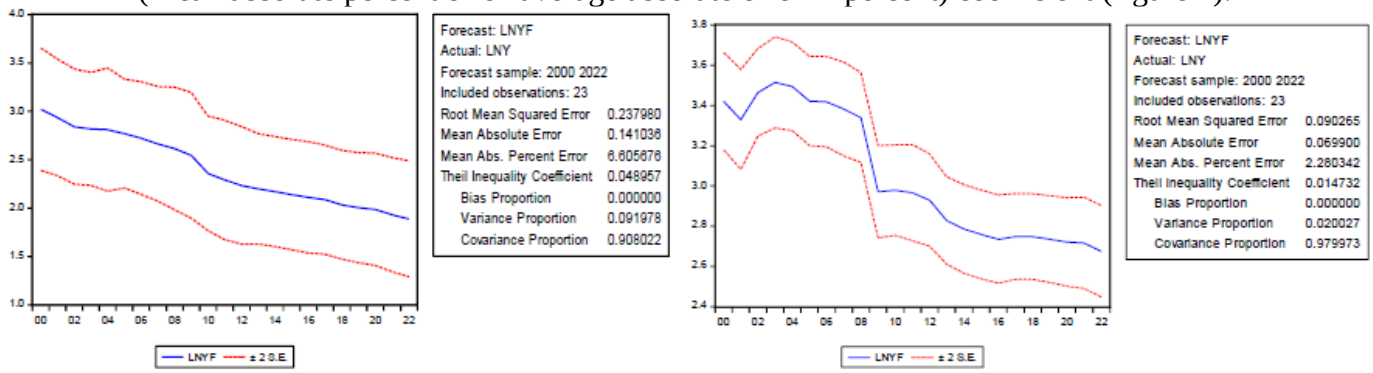
From Figure 1, it can be seen that the graphs of Fergana and Namangan regions according to the multi-factor econometric model, calculated by the number of low-income inhabitants, are located very close to the graphs of their real values, the differences between them are also not very large.

When forecasting the resulting indicator for future periods from multifactorial econometric models calculated by the low – income population in the regions of Fergana and Namangan, we calculate the Mare (Mean absolute percent error-average absolute error in percent) coefficient (figure 2).



а) б)

Figure 2. Indicators of the use of the multi-factor econometric model calculated in the vilotyas of Fergana (A) and Namangan (B) in the forecast

The average absolute error in percent of the forecast model for the Fergana region is MAPE = 6.6057, which means it is 6.6057 percent. The average absolute error in percent of the forecast model for Namangan region is MAPE = 2.2803, which means it is 2.2803 percent. Since the value of the Mare coefficient, calculated by both provinces, is less than 15.0 percent, it will be possible to use data-based multi-factor econometric models of the provinces in question to predict the resultant factor.

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.

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