INTERNATIONAL MULTI DISCIPLINARY JOURNAL FOR RESEARCH & DEVELOPMENT
eISSN 2394-6334 Impact factor: 8.854 Volume 13, issue 06 (2026)

IMPACT OF LOCAL GOVERNMENT SPENDING ON POVERTY REDUCTION

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Abstract. This study investigates the impact of local budget expenditures on the growth of Gross Regional Product (GRP) using an econometric modeling approach. By analyzing historical data and constructing both trend models and nonlinear empirical models, the research provides a comprehensive assessment of the relationship between public spending and regional economic performance. Key findings highlight that changes in local budget expenditures significantly influence GRP dynamics, with fourth-degree regression models offering the most accurate forecasts. The model predicts a 1.2275-fold increase in GRP in 2024 and a 2.7871-fold increase by 2028, compared to 2023 levels, based on current pricing benchmarks. These results offer valuable insights for policymakers to optimize budget allocations for sustainable regional development.

Keywords. Gross Regional Product, local budget expenditures, econometric model, trend analysis, regional development forecasting.

INTRODUCTION

The economic development of regions is significantly influenced by local budget expenditures. Specifically, local government spending has a considerable impact on the regional gross domestic product (GRP), which is the key indicator of regional economic activity. Understanding the relationship between local budget expenditures and GRP is crucial in developing an effective financial policy that supports sustainable growth. In particular, continuing administrative reforms, optimizing the number of civil servants, and properly directing local budgets have become a priority task. [1]

This research aims to use econometric modeling techniques to forecast the impact of local budget expenditures on GRP growth. Based on data from the Kashkadarya region covering the years 2007-2022 [2], the study analyzes how budget expenditures have influenced GRP growth. Econometric models, including two-variable regression equations and trend analysis, are used to quantitatively assess the relationship between local expenditures and regional economic outcomes [3].

The aim of the research is to clearly understand the impact of budget allocations on economic outcomes [4] and provide important insights that may be useful for local government agencies in making effective decisions. Using statistical tools such as correlation analysis and regression modeling helps in obtaining accurate results for forecasting regional economic growth and assists in shaping future financial strategies.

ANALYSIS AND RESULTS.

In the research, gross regional product (GRP) was selected from the range of economic indicators that clearly reflect the socio-economic development of regions [6]. Additionally, studying, analyzing, and evaluating the impact of local budget expenditures on its changes was deemed appropriate.

TABLE 1. Statistical Indicators of Kashkadarya Region for 2007-2022 [2]

	Gross regional product at current prices	**Total local budget expenditures**		

	Y	X	Lny	lnx2
2007	3196,5	286,1	8,069812	5,656303
2008	3482,6	415,2	8,155534	6,028771
2009	3731,9	554,8	8,224682	6,318569
2010	4865,1	708	8,489842	6,562374
2011	5879,5	843	8,679222	6,737008
2012	7538,1	1091	8,927726	6,995094
2013	8828,1	1286,5	9,085695	7,159677
2014	10209,2	1553,4	9,231045	7,348179
2015	12880,1	1722,2	9,463439	7,451329
2016	14896,9	1895	9,608908	7,547185
2017	22633,4	1937	10,02718	7,569051
2018	28412,2	2995	10,25457	8,004633
2019	44152	3784	10,69539	8,238511
2020	46032	2469	10,73709	7,811406
2021	60954	2722	11,01787	7,909159
2022	88123	3920	11,38649	8,273847

For this purpose, the following factors were selected and defined:

Gross Regional Product at Current Prices (billion soums) - Y;

Total Local Budget Expenditures (billion soums) - X;

The impact of the factor influencing the change in the gross regional product was calculated using the correlation matrix in EViews12 software (Table 2).

To construct and analyze an econometric model that expresses the impact of local budget revenues on the gross regional product, we will use the method of least squares

TABLE 2. Econometric model parameters constructed to study the impact of local budget expenditures on the change in gross regional product.

Dependent variable: Y Method: Least squares Sample: 2007 2022 Included observations: 16				
Variable	Coefficient	Std.Error	t-Statistic	Prob.
X C	1.287652 0 199224	0.125138 0.909221	10.28983 0.219115	0.0000 0.8297
R-squared	0.768853	Mean dependent var		22863.41
Adjusted R-squared	0.752342	S. D. dependent var		24801.16
S.E. of regression	12342.36	Akaike info criterion		21.79593
Sum squared resid	2.13E+09	Schwarz criterion		21.89250
Log likelihood	-172.3674	Hannan-Quinn criter.		21.80088
F-statistic	46.56740	Durbin-Watson stat		0.532154
Prob (F-statistic)	0.000008			

Based on the results obtained in EViews12 software from Table 3, the following empirical model was derived:

$$LnY_t = \underset{0,2191}{0,1992} + \underset{10,2898}{1,2877 lnx} + \varepsilon_1 \quad \text{or} \quad Y_t = \underset{0,2191}{1,2204} * \underset{10,2898}{x^{1,2877}} + \varepsilon_1 \quad (9)$$

Using the data from Table 1, a bivariate nonlinear empirical model was constructed, and based on the dynamics of the influencing factors' changes, trend models were developed for medium-term forecasts (2024-2028). The graphs of each factor were illustrated, and trend models were created to project future developments.

The trend models for forecasting the volume of local budget expenditures affecting the growth of Gross Regional Product are shown in Figure 1. As you can see, the analysis of the results from the derived trend model shows that $R^2 = 0.9886$, $F_{calculated} = 3234$, and $t_{calculated} = 54.12$ (when α=0,05, $t_{table} = 2.1314$, $F_{table} = 2.4034$). The regression equation $y = 50.593t^3 - 720.91t^2 + 3914.3t - 1488.9$ was selected. Adequate regression equations were also derived within other trend models.

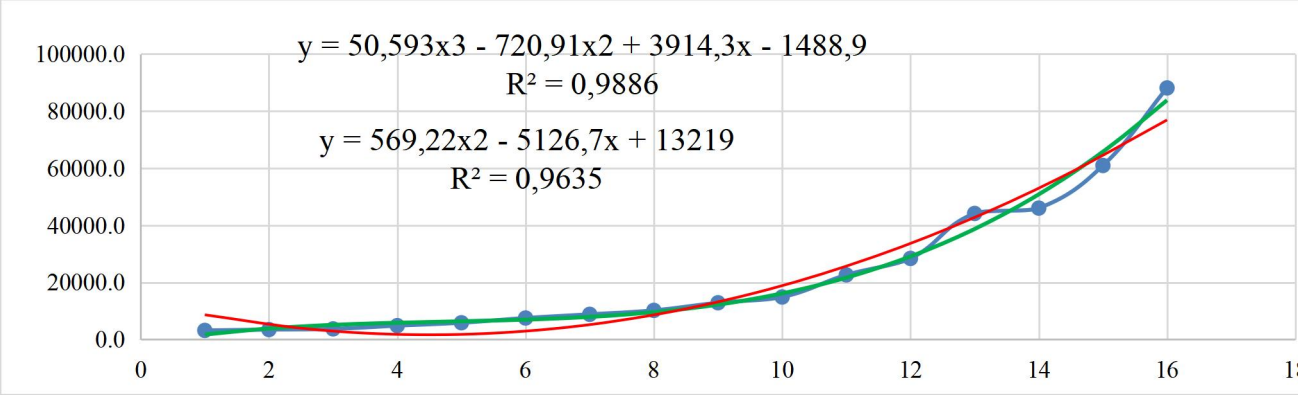

Figure 1. Trend model of Gross Regional Product volume of Kashkadarya region from 2007 to 2022

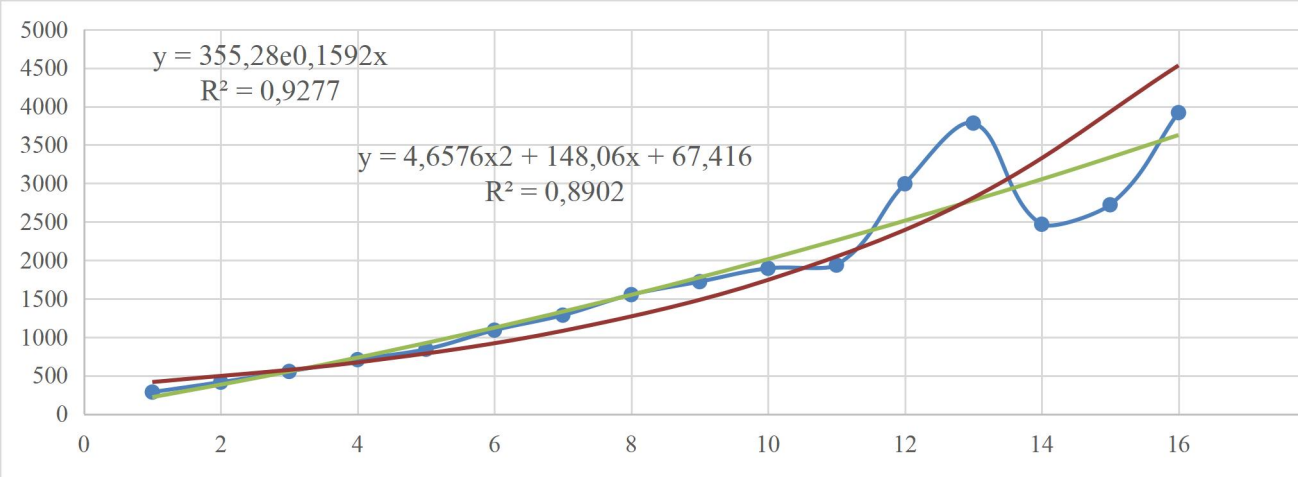

Figure 2. The trend model of local budget expenditures in Kashkadarya region for the years 2007-2022

The trend models constructed to forecast the change process of local budget expenditures affecting the changes in the Gross Regional Product are illustrated in Figure 2. As can be observed, the analysis of the results of the developed trend model indicates that when R^2=0.9277, $F_{calculated}$=3463, $t_{calculated}$=59.56 (if α=0,05 with $t_{critical}$=2.1314, $F_{critical}$=2.4034), the trend model in

the form of $y=355.28e^{0.1592t}$ was selected. Although adequate regression equations were obtained among other trend models, considering the changes in the volume of investments in fixed capital, a fourth-degree regression equation was ultimately chosen from the trend models.

CONCLUSION

The analysis of the constructed nonlinear two-factor empirical model, as well as the trend models and the forecasts obtained based on their results, can be seen in Table 7 below.

The analysis of Table 7 indicates that the forecast derived from the model constructed based on the influence of the total revenue sum is considered appropriate.[14] According to the forecast, the Gross Regional Product (based on 2023 prices) is expected to increase by 1.2275 times in 2024 compared to 2023 and by 2.7871 times in 2028.

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