INTERNATIONAL JOURNAL OF POLITICAL SCIENCES AND ECONOMICS
Impact Factor (research bib) - 9,78
https://ijmri.de/index.php/ijpse , German international journals company
ISSN 2751-9708

FORECASTING DIRECTIONS OF O‘ZTRANSGAZ JSC'S ACTIVITIES FOR THE PERIOD 2024–2027

Sindorov Davlatbek Abdumajid ugli
Tashkent State University of Economics
Assistant Lecturer, Department of Econometrics
ORCID: 0009-0003-3299-824X
E-mail: sindorovdavlat4@gmail.com
Phone: +998 99 440-60-09
Murodov Sardor Nurali ugli
Tashkent State University of Economics
Assistant Lecturer, Department of Econometrics
ORCID: 0009-0001-1938-5567
E-mail: 8898sardormurodov@gmail.com
Phone: +998 94 868-38-28
Otaboyeva Dildora Ilhomboy kizi
Tashkent State University of Economics
Assistant Lecturer, Department of Econometrics
E-mail: otaboyevadildora0819@gmail.com
Phone: +998 94 256-45-66
Sarvar Mamasoliyev Fayzullo ugli
Tashkent State University of Economics
Assistant Lecturer, Department of Econometrics
ORCID: 0009-0003-1905-5108
E-mail: s.mamasoliyev@tsue.uz
Phone: +998 99 976-40-30

Abstract: This article analyzes the activities of “Uztransgaz” JSC during the period of 2015–2023 based on a multivariate regression-correlation analysis. Despite a decline in the volume of natural gas supply during this period, the company succeeded in increasing its gross revenue by 1.8 times. This outcome is associated with modernization, infrastructure renewal, and the implementation of an effective remuneration system. The study mathematically models the impact of production volume, average wages, and incentive expenditures on revenue. Based on the regression equation and correlation analysis, the main factors influencing revenue were identified, and forecasting was carried out in three stages. In particular, the strengthening of wages and incentives under the mobilization process emerged as a key factor in stable revenue growth.

Keywords: multivariate regression analysis, correlation analysis, natural gas supply, economic efficiency, average wages, incentive expenditures, revenue forecast, strategic processes, “Uztransgaz” JSC.

INTERNATIONAL JOURNAL OF POLITICAL SCIENCES AND ECONOMICS
Impact Factor (research bib) - 9,78
https://ijmri.de/index.php/ijpse , German international journals company
ISSN 2751-9708

"Uztransgaz" JSC holds a strategic position among the enterprises responsible for supplying natural gas to the population in Uzbekistan. In particular, as a result of the measures aimed at improving the company's operations in 2023, the following positive outcomes were achieved:[1]

- As a result of modernization measures implemented at the "Sheykhoncha" gas distribution station, which was commissioned by the company in 2018, an additional pipeline was constructed for the "Aksa Enerji" power plant. With this addition, the total number of such pipelines reached three, improving the natural gas supply for nearly 30,000 households and 17 industrial enterprises in Bukhara city and its districts.
- The commissioning of 31 kilometers of the "Termiz-2" main gas pipeline, constructed in parallel to the "Temiz" main pipeline (with a total planned length of 46.5 km), improved the natural gas supply for six regions of Surkhandarya, namely: the city of Termiz, and the districts of Termiz, Angor, Jarkurgan, Qiziriq, and Sherobod. Additionally, this initiative is expected to enhance natural gas supply for over 62,000 households during the 2024–2025 autumn-winter season.
- A new gas pipeline constructed by "Uztransgaz" JSC — the "Olimkent Avto Reys" gas distribution station (GDS) — connected 5,640 households and 147 wholesale consumers from the neighborhoods of "Sultonobod," "S. Tegizboev," "S. Rahimov," "Qo'rg'oncha," "Birlik," and "Mustaqillik" in Oqqorgon district. As a result, the gas transmission distance in the area was reduced by 16 km, and gas pressure was successfully doubled.
- In order to improve natural gas supply indicators for the population of the Ferghana Valley (Andijan, Namangan, and Ferghana regions), six new wells were drilled in 2023, increasing daily natural gas production from 9,000 m³ to 12,000 m³.[2]

1-rasm

"Economic performance indicators of O'ztransgaz JSC"[3]

Years	Total revenue of the enterprise, million UZS (y)	Goods (works, services), million m³ (x1)	Average salary, million UZS (x2)	Employee incentives, million UZS (x3)
2015	8359680.4	38344.4	1.5	186566.9
2016	10125910.7	39562.5	1.9	164895.2
2017	11005757.3	37450	2.3	168859.1
2018	15750540.5	38882.2	2.5	112743.7
2019	25392640.6	38660.1	4.5	120007.9
2020	24367330.5	30906.9	6.8	79746.7
2021	23644758.3	23644.8	7.4	94547.3
2022	20509751.5	22978.2	8.5	138588.9

[1] *"O'ztransgaz" JSC announced the results of its activities for 2023. January 24, 2024. [Online resource]. URL: https://kun.uz/kr/news/2024/01/24/oztransgaz-aj-2023-yildagi-faoliyati-yakunlarini-elon-qildi*
[2] *"O'ztransgaz" JSC announced the results of its activities for 2023. January 24, 2024. [Online resource]. URL: https://kun.uz/kr/news/2024/01/24/oztransgaz-aj-2023-yildagi-faoliyati-yakunlarini-elon-qildi*
[3] "O'ztransgaz" AJ ma'lumotlari asosida tuzilgan

INTERNATIONAL JOURNAL OF POLITICAL SCIENCES AND ECONOMICS
Impact Factor (research bib) - 9,78
https://ijmri.de/index.php/ijpse , German international journals company
ISSN 2751-9708

2023	15165150.1	2298.4	9.2	160615.7

According to the data provided by "O'ztransgaz" JSC, during the period from 2015 to 2023, the company supplied the country's population and real sector enterprises with a total of 292,727.5 million cubic meters of natural gas. Over the same period, the company's total revenue amounted to approximately 15,165.2 billion UZS. Notably, the volume of natural gas produced by the company decreased by 1.7 times or 41.8%, indicating a decline in the country's natural gas reserves.

At the same time, despite the downward trend in production volume, the company's gross revenue increased by 1.8 times, which signifies high economic efficiency. Additionally, during the study period, the average salary at the company rose from 1.5 million UZS to 9.2 million UZS, while employee incentive expenses decreased by 13.9% (Figure 1).

According to the company's management, the reduction in incentive expenses over the analyzed period was due to a shift towards uniform motivation through increased base salaries, instead of selective incentives. Over time, the company has been gradually transitioning to a model where only high-performing employees are rewarded, which reflects a focus on establishing an effective employee incentive mechanism.

In the coming years, it is necessary to define strategic development directions by developing forecast indicators based on employee productivity and economic efficiency trends. These projections must be calculated using the data shown in Figure 1, provided by the company. For this purpose, we have deemed it appropriate to conduct a multiple regression-correlation analysis. In forecasting, since the company's economic efficiency indicator is selected as the dependent variable, it is necessary to evaluate how changes in production volume (x1), average salary (x2), and employee incentive expenses (x3) affect the company's revenue (y). Furthermore, the internal correlation between these indicators must also be assessed.

To do this, we must first construct a multiple regression model. The regression equation for the multiple regression model is calculated using the following function:

$$f(y) = a_0 + a_1x_1 + a_2x_2 + a_3x_3 + \varepsilon$$

Here:

$a_0; a_1; a_2; a_3$– oefficients of the independent variables;

x_1, x_2, x_3 – independent variables (x_i), i.e., the factors influencing the dependent variable (y).

The values of the independent variables and the dependent indicator of the multiple regression function are presented in Figure 1. Based on these values, the vector coefficients of the independent variables of the function are determined using the following formula:

$$s = (x^Tx)^{-1}x^Ty$$

Based on the above formula, the matrix method is used to calculate the vector coefficients of the independent variables in the multiple regression model. In this case, matrices composed of the independent variables (x_i) and the dependent variable (y) are constructed accordingly, and the vector coefficients of the multiple regression model are calculated based on these corresponding matrices.

Y(X)	154321520	=	$9a_0$	$272727,5a_1$	$44,6a_2$	$1226571,4a_3$	=	3758478	a_0
	4,546E+12		$272727,5a_0$	9,492E+09 a_1	1091594,7 a_2	3,728E+10 a_3		398,99028	a_1

INTERNATIONAL JOURNAL OF POLITICAL SCIENCES AND ECONOMICS
Impact Factor (research bib) - 9,78
https://ijmri.de/index.php/ijpse , German international journals company
ISSN 2751-9708

	865256554		44,6a_0	1091594,7a_1	295,54a_2	5701019,6a_3		2354957,6	a 2
	1,937E+13		1226571,4 a_0	3,728E+10 a_1	5701019,6 a_2	1,779E+11 a_3		-76,107689	a 3

Based on the calculation results, the function of the multiple regression model was determined as follows:

$$f(y) = 3758478{,}03 + 398{,}99x_1 + 2354957{,}63x_2 - 76{,}1x_3$$

Based on the multiple regression model function, the following conclusions were drawn:

- The economic efficiency of "O'ztransgaz" JSC's operations tends to decline by a coefficient of 3,758,478.03 if the influence of the selected independent variables is not considered.
- In the company's operations, a one-unit change in production volume increases the income by an additional coefficient of 398.99, positively impacting the economic efficiency of the company.
- The company has shifted to a practice of motivating all employees equally by increasing the average salary. As a result, the economic efficiency indicator has improved, with each unit increase in average salary corresponding to an increase of 2,354,957.63 in gross income.
- Employee incentive expenses currently in place have had a negative effect on the company's economic efficiency. For this reason, measures have been taken to improve the employee motivation system. According to the analysis, for every one-unit increase in incentive expenses, the economic efficiency indicator of the company decreased by a coefficient of -76.1.

Based on the developed multiple regression model, it can be concluded that shifting employee motivation practices to include all employees within the system will allow "O'ztransgaz" JSC to achieve significantly higher efficiency.

In the next stage, a multiple correlation analysis based on the developed hypothesis should be conducted. According to this hypothesis, a matrix consisting of the dependent variable (y) and the defined independent variables (xi) will be constructed (see Appendix 3). Using this matrix, the correlation coefficient—which reflects the internal relationship between the indicators—will be calculated using the following formula:

$$r_{xy} = \frac{\overline{x * y} - \bar{x} * \bar{y}}{s(x) * s(y)}$$

Based on the formula mentioned above, the internal relationship between the dependent indicator (y) and the specified independent variables (xi) is determined in accordance with the hypothesis. The relationship between the main outcome and the influencing factors is examined using the formula for the pairwise (simple) correlation coefficient.

Table 2.

Table 2. The Relationship Between the Company's Income and Factors (Correlation Coefficient)

	Total revenue of the enterprise, million UZS (y)	Goods (works, services), million m³ (x1)	Average salary, million UZS (x2)	Employee incentives, million UZS (x3)
Total revenue of the enterprise,	**1**			

INTERNATIONAL JOURNAL OF POLITICAL SCIENCES AND ECONOMICS
Impact Factor (research bib) - 9,78
https://ijmri.de/index.php/ijpse , German international journals company
ISSN 2751-9708

million UZS (y)				
Goods (works, services), million m³ (x1)	**-0,201156028**	**1**		
Average salary, million UZS (x2)	**0,627957024**	**-0,859375373**	**1**	
Employee incentives, million UZS (x3)	**-0,865092286**	**0,03014534**	**-0,421313396**	**1**

Based on the established hypothesis, the internal relationship between the defined independent variables (xi) was assessed through calculations, leading to the following conclusions:

- The correlation coefficient between the company's income and the volume of goods (works, services) is -0.201156028, indicating a weak inverse relationship. This suggests that as the volume of goods or services increases, income tends to slightly decrease. However, the change is not significant, and other influencing factors may be at play.
- The correlation coefficient between the company's income and average salary is 0.627957, indicating a moderate positive relationship. This means that as employee salaries increase, the company's total income also tends to grow.
- The correlation coefficient between company income and employee incentives is -0.865092286, indicating a strong inverse relationship. This shows that as incentive expenses increase, the company's income tends to decrease, or vice versa.
- The correlation coefficient between goods (works, services) and average salary is also -0.865092286, showing a strong inverse relationship. As salaries increase, the volume of goods or services tends to decrease, or vice versa.
- The correlation coefficient between goods (works, services) and employee incentives is 0.03014534, indicating almost no relationship. That is, the level of incentives does not significantly affect the volume of goods or services.
- The correlation coefficient between average salary and employee incentives is -0.421313396, showing a moderate inverse relationship. This suggests that as salaries increase, the amount of incentives tends to decrease.

Using the partial correlation coefficient formula, the partial correlation between goods (works, services) and the company's total income, excluding the effects of other variables (salary and incentives), is 0.968580343, indicating a very strong positive relationship. This means that the volume of goods directly and strongly impacts the company's income when other factors are held constant.

INTERNATIONAL JOURNAL OF POLITICAL SCIENCES AND ECONOMICS
Impact Factor (research bib) - 9,78
https://ijmri.de/index.php/ijpse , German international journals company
ISSN 2751-9708

Based on the results of the multivariate regression-correlation analysis conducted, forecast indicators were developed for the increase in the company's income due to improved employee performance motivation within the operations of "O'ztransgaz" JSC.

The first set of forecast indicators was calculated based on the assumption that the motivational strategies implemented in recent years would continue in the future. The inertial scenario forecast indicators were calculated using the following formula:

$$f(y) = 3758478{,}03 + 398{,}99x_1 + 2354957{,}63x_2 - 76{,}1x_3$$

Based on the calculations of the inertial scenario forecast indicators, it is projected that if the measures aimed at motivating employee productivity implemented in recent years by "O'ztransgaz" JSC continue to follow the same trends, the company's gross income by the year 2030 will increase 1.7 times compared to 2023 (Figure 3).

According to the calculations performed using the multiple regression model, the company's income by the year 2027 was estimated to increase by 2.47 times compared to 2023, with a high degree of probability (Figure 3).

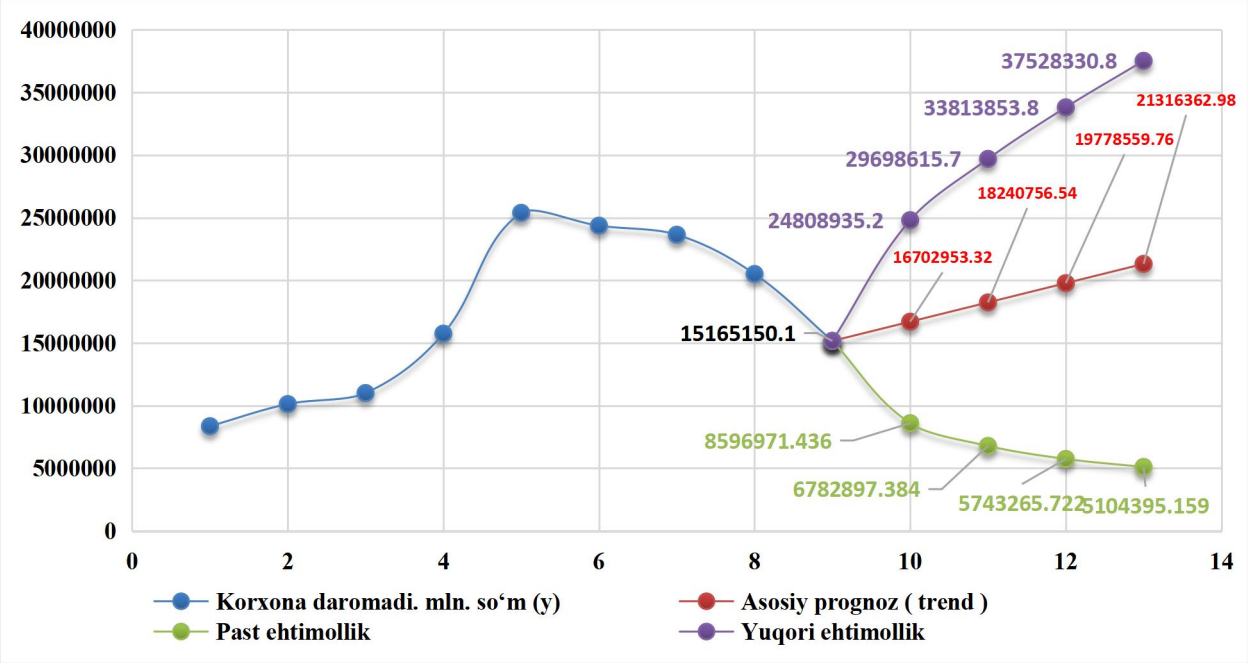

Figure 3. Forecast Indicators of Achieving Economic Efficiency Through Employee Productivity Motivation in the Activities of "O'ztransgaz" JSC for 2024–2027, in million UZS[4]

The third forecast indicators were calculated based on mobilization scenarios. In this case, priority was given to increasing the average salary, which has a positive effect on improving the company's economic efficiency through employee productivity motivation. The forecast indicators were determined using the following formula:

Based on calculations using the low probability model, it was found that in the coming years, there is a possibility to increase the company's revenue volume by 0.33 times by 2027 compared to 2023 due to the rise in average wages.

According to the multiple econometric regression model, the company's real revenues during 2023–2026 were significantly higher than the forecasted (trend) values. This situation indicates

[4] Muallif tomonidan hisoblangan

that the company's economic activities have been developing steadily, with increased production and service volumes, and that internal factors (such as effective management, incentive systems, workforce productivity, and rising demand) have yielded positive results.

In particular, in 2023, revenues increased by more than 10 billion UZS compared to the forecast, marking the peak of positive growth. Similarly, in 2024 and 2025, a positive difference was maintained, confirming the sustained growth of the company.

However, in 2027, a sharp decline was observed, with revenues falling over 6 billion UZS below the forecasted value. This indicates the emergence of possible external economic factors, internal financial issues, or a drop in demand.

Conclusion:

In general, the analysis shows that 2023–2026 was a period of growth for the company, while 2027 saw a negative shift. This highlights the need for risk assessment, strategic planning, and ensuring financial stability going forward.

The analysis of "O'ztransgaz" JSC's activities, conducted on the basis of a multiple regression-correlation model, identified the main factors affecting the company's economic efficiency. The results showed that despite a decrease in the volume of natural gas production over 2015–2023, the company's total revenues increased by 1.8 times. This is primarily attributed to infrastructure modernization, wage increases, and improvements in the compensation system.

According to the multiple regression analysis, both average wages and production volume have a positive impact on revenue, while incentive expenditures have a negative impact. Notably, revenue increased significantly with the rise in average wages, confirming the success of transitioning to a generalized incentive system and ensuring efficiency through fair compensation for labor.

Correlation analysis results also confirmed a significant relationship between these factors. Specifically, a moderate positive correlation was found between average wages and revenue, while a strong negative correlation was observed between incentive expenditures and revenue.

Based on these results, it can be concluded that in the future, strategic decision-making should focus on increasing labor productivity, fair wage system design, and further improvement of incentive mechanisms. This will contribute to the long-term economic stability of "O'ztransgaz" JSC and strengthen its role in the national energy system.

References:

1. G'ulomov S.S., Abdurahmonov Q.X., Xudoyberdiyev A.X. Macroeconomics. — Tashkent: "IQTISOD-MOLIYA", 2021.
2. Ahmadjonov A.A. Fundamentals of Regression and Correlation Analysis. — Tashkent: "Fan", 2017.
3. Tashkent State University of Economics. Practical Guide on Econometrics. — TSUE, 2021.
4. Presidential Decree of the Republic of Uzbekistan, No. PQ–4422, August 9, 2019, "On Measures for Reforming the Gas Pipeline System".
5. Khodjayev U. Theory and Practice of Statistics. — Tashkent: "Iqtisodiyot", 2019.