ASSESSMENT OF THE IMPACT OF OIL AND GAS PRODUCTION ON THE SUSTAINABLE DEVELOPMENT OF THE CONSTRUCTION SECTOR IN AZERBAIJAN

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The oil and gas industry, being the main source of energy in the world, is one of the most important factors influencing economic growth in the global economy. The sector accounts for more than 50% of global fuel consumption and hydrocarbons are expected to remain the main source of energy in 2035. Studies show that by 2035 natural gas will become the second largest source of fuel after oil. demand for fossil fuel reserves creates the conditions for continuous exploration and production of oil and gas around the world. According to the International Energy Agency, the expected investment needs in the oil and gas sector by 2040 to meet global energy needs will be US $700 billion per year [1, 2]. On the other hand, today the financial markets of the world have a turnover of billions of dollars from the production of more than 96 million barrels of oil per day, which has an economic impact on the regional markets of oil and gas exporting countries [2]. Since oil and gas are the main elements of the global energy system and form the basis of economic and social development, they also play a central role in sustainable development. In this regard, the Caspian Sea region, which is one of the oldest oil-producing regions in the world, is becoming an increasingly important source of global energy production. Azeri-Chirag-Guneshli, Shah Deniz gas condensate fields in the Caspian Sea, as well as Absheron, Umid, Babek, Nakhchivan, Zafar-Mashal, Shafak-Asiman, and so on. The fields have rich oil and gas reserves [3]. In order to increase oil and gas production at the exploited fields, build, repair and reconstruct stationary offshore platforms, open additional shafts for drilling wells, improve the technological system for collecting and transporting, building and repairing oil and gas pipelines, construction and repair of submarine cables and pipelines, etc., work for these purposes is carried out by the SOCAR Oil and Gas Construction Enterprise.

To assess the impact of the construction sector on oil and gas production in the oil and gas industry, statistical data of the SOCAR Oil and Gas Construction Enterprise for 2000-2020 can be used. The graph below shows the volumes of oil and gas production in the Republic of Azerbaijan for 1991-2021 [3].

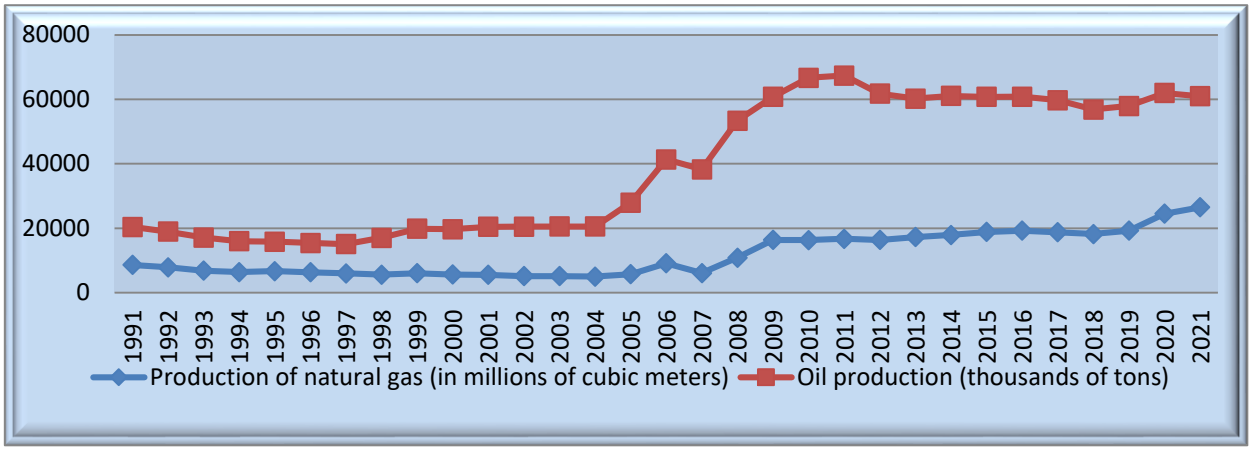

Figure 1. Dynamics of oil and gas production in the Republic of Azerbaijan
Source: Prepared by the author based on data [3].

As can be seen from the graph, the volume of oil and gas production in the first years of independence developed with a decreasing dynamics of oil and gas production. This period is characterized as a period of economic recession in Azerbaijan. After the signing of the Agreement of the Century in 1994, the Republic of Azerbaijan managed to prevent an economic downturn. Thanks to large oil contracts, the oil and gas industry in the Azerbaijani economy began to develop in 1995. As can be seen from the graph, the global financial crises in the global economy, as well as the COVID-19 pandemic, caused a drop in production in the oil and gas industry. Although oil production has declined since 2019, natural gas production has developed at an increasing pace. The growth of production in the oil and gas industry mainly regulated the development of construction in this industry.

In the EViews-12 software package, it is possible to determine the relationship between oil and gas production and the total income of the oil and gas sector, using statistical data on the total income of the SOCAR Oil and Gas Construction Enterprise for 1991-2021 [4, 5]. To do this, by expressing x_1-gas production as the causal factor, x_2-oil production and y-as the resulting factor, income of the SOCAR Oil and Gas Construction Enterprise, we will obtain the result of the regression analysis in the EViews-12 package as follows.

Table 1 - Result of regression analysis

Dependent Variable: Y
Method: Least Squares
Date: 10/29/22 Time: 08:23
Sample: 1991 2021
Included observations: 31

Variable	Coefficient	Std. Error	t-Statistic	Prob.
X2	0.001999	0.001152	1.735466	0.0137
X1	0.001423	0.001025	1.388293	0.0025
C	238.2647	22.07653	10.79267	0.0000

R-squared	0.832146	Mean dependent var	176.3626

Adjusted R-squared	0.692467	S.D. dependent var	59.41757
S.E. of regression	56.60388	Akaike info criterion	11.00180
Sum squared resid	89711.97	Schwarz criterion	11.14057
Log likelihood	-167.5279	Hannan-Quinn criter.	11.04703
F-statistic	4.528318	Durbin-Watson stat	2.198967
Prob(F-statistic)	0.000157		

Source: EViews application was developed by the author based on the software package.

Based on the result obtained using the Eviews application package, the regression equation will look like this:

$$\boldsymbol{Y = 0,00142x_1 + 0,001998x_2 + 238,2647,\ R^2 = 0,832} \quad \textbf{(1)}$$

(t) (1,39) (1,74) (10,79) DW=2,199

The coefficients of the independent and dependent variables, reflecting the outcome factor, are greater than their standard errors. This characterizes the statistical significance of the result obtained as the desired case [6, p. 318]. As can be seen from Table 1., there is a high correlation (0.7-0.9) between variables Y and X on the Chadok scale ($R_{yx} = \sqrt{0.692467} = 0.837$) [6].

According to the result of the Eviews-12 application program package, the coefficient of determination R^2=0.625 means that 69.25% of the corresponding regression equation is explained by the indicator of the dispersion result, and 30.75% by the influence of other factors not included. в model.

It is worth noting that the statistical significance of the results obtained according to the established model is related to the adequacy of the model and the justification of its statistical significance. The statistical significance of the multiple regression equation can be checked using the F-Fisher test. If you set the table value F in EXCEL according to the formula $\mathrm{Ftable}\ (\mathrm{a};\ \mathrm{m};\ \mathrm{n} - \mathrm{m} - 1) = \mathrm{F}(0.05; 2; 28) = 3.32$ When comparing Fisher's F-criterion with the value of Ftable (a;m;n-m-1), it is clear that $F_{\mathrm{criterion}} > \mathrm{Ftable}\ (4.52 > 3.32)$. This means that the regression equation as a whole is statistically significant and the constructed model (1) is adequate. To determine the adequacy of the model, along with the F-Fisher criterion, it is necessary to check the presence of autocorrelation between the indicators included in the model. To do this, we can determine this result using the criteria of the Darbon-Watson statistic. According to the package of application programs Eviews-12, since the Darbon-Watson statistic is DW=2199, the Darbon-Watson control points for observing one explanatory variable (m=3 and n=17) at the significance level α=0.05 will be as follows [6, p. 322]:

$$d_l = 1,083\ \ d_u = 1,343$$

If we analyze the Darbon-Watson crisis point calculation, we get the following result.

$$d_u = 1,343 \leq \mathrm{DW} = 2,199 < 4 - d_u = 2,657$$

The obtained result shows that autocorrelation does not exist. This means that the regression equation is generally statistically significant and the established model $\boldsymbol{Y = 0,00142x_1 + 0,001998x_2 + 238,2647}$ is generally adequate [6, 7].

As a result of the study for the above linear regression equation (1), it is possible to determine how much the result factor will change due to the cause factor by calculating the elasticity coefficient expressing the percentage change in the dependent variable as a result of a change in the independent variable by 1 [7, 8]. The elasticity coefficients calculated on the basis of these indicators, in accordance with the established model, will be as follows.

$$E_1 = \frac{\alpha \times \bar{x}}{\bar{y}} = \frac{11753{,}13 \times 0{,}00142}{276{,}3626} = 0{,}06039$$

$$E_2 = \frac{\alpha \times \bar{x}}{\bar{y}} = \frac{27432{,}\times 0{,}001998}{276{,}3626} = 0{,}198324$$

The result. As a result of the study, it was determined that a 1% increase in gas production of GNKAR in the Republic of Azerbaijan leads to a 0.06% increase in the total income of the Neftegaz Construction Company in the construction sector, and an increase in oil production by 1% leads to an increase in the total income of the Neftegaz Construction Company in to the construction sector at 0.198%. This indicates that the volume of production and consumption of oil and gas in the oil and gas industry plays an important role in the sustainable development of the oil and gas construction industry. As can be seen from the study, the increase in oil production leads to an increase in the total income of the National Gas Company by 3.3 times compared to the production of natural gas.

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