

EFFICIENT USE OF INDUSTRIAL PRODUCTION CAPACITIES

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Abstract: This article analyzes the issue of the effective use of industrial production potential. Regression models of the volume of industrial production in the Samarkand region have been developed through the performance indicators of factors in the industrial sector, and proposals and recommendations have been given on models.

Key words: industry, efficiency, production, regression model, potential.

INTRODUCTION

Today, issues of improving regional economic policy, effective and rational use of the rich economic potential of the regions are becoming increasingly important in our country. This increases the relevance of scientific research on the effective use of manufacturing industries. Since "industrial production potential" is a complex concept as an economic category, its components also consist of many elements. In particular, in the studies of A. O. Larionov, a system of indicators of industrial potential is presented [1].

An important factor in increasing the production capacity of industry and its branches is the issue of effective investment in the industry.

The effective use of investments, in addition to labor productivity, material and technical and efficient use of local raw materials, is directly related to the direction of investments, the correct organization of their intersectoral economic distribution. Currently, investments are made taking into account the return on investment. This in some cases limits the ability of the production process to operate at full capacity due to the unprofitability of excess funds or the inability to determine the level of risk associated with investment [2].

Overcoming this problem, of course, requires a deep study of the processes of investment and utilization, a comprehensive analysis of the factors influencing it, determining the intersectoral distribution and direction of investments (justifying that a specific sectoral focus of investments can be more profitable than other sectors) and improving investment policy requires.

Along with investments aimed at the efficient use of production capacities in industries, the role of the existing state of the infrastructure serving these industries is invaluable.

Infrastructure is considered as an "*auxiliary economic tool*" that creates conditions for the functioning of industries that produce material goods and services [3].

"Infrastructure is a system of general conditions for production, a set of technical, technological, organizational, economic, information, social and other interconnected systems that serve the structure of the economy and the efficiency of living standards" [4].

RESEARCH METHODOLOGY AND RESULTS

In general, the instrument that has the greatest impact on the economic development of production potential is the productivity (COP) of production factors.

In particular, if the main factors of industrial production are capital, labor resources and fixed assets, then their productivity (efficiency) is calculated as follows.

$$KS = \sum Q / \sum K \quad (1)$$

$$MU = \sum Q / \sum M \quad (2)$$

$$AVS = \sum Q / \sum AV \quad (3)$$

Here KS - efficiency of investments in the industry;

MU - labor productivity;

AVS - efficiency of fixed assets;

Q - total industrial output;

M - the average annual number of labor resources employed in the total industry;

AV - the average annual cost of fixed assets used in total industry.

In 2020, the effectiveness of investments in the industrial sector of the Samarkand region amounted to 3.11 billion soums, i.e. 1 billion soums of investments accounted for 3.11 billion soums of industrial production. The effectiveness of this factor is approximately 2.9 times higher than the average efficiency for 2010-2020. In 2020, and the efficiency of fixed assets in industry is 3.38 billion soums, the efficiency of this factor is approximately 1.8 times higher than the average efficiency for 2010-2020 has decreased by half. However, in 2020, labor productivity in the industrial sector of the region amounted to 105.63 billion soums, and labor productivity in industry in 2020 increased by almost 2.2 times compared to the average for 2010-2020 (table 1).

Table 1

Factors in the industry Trends in efficiency indicators [5]

indicators	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Capital efficiency (billion soums)	7,96	7,77	8,29	7,86	13,10	11,08	7,14	12,13	7,48	12,23	3,11
Labor productivity (billion soums / thousand people)	13,92	16,78	21,21	24,89	31,12	37,36	44,51	53,92	77,65	93,84	105,63
Efficiency of fixed assets (billion soums)	3,89	4,33	4,93	5,07	5,70	5,92	6,24	9,97	10,85	6,62	3,38

Considering that the above factors are the key drivers of industrial production, the impact of these factors on the productivity of industrial production can be expressed using a Cobb-Douglas-type model (4) and a multivariate regression model (5).

$$Q_1 = A \cdot KS^\alpha \cdot MU^\beta \cdot AVS^\gamma \quad (4)$$

$$Q_2 = A + \alpha KS + \beta MU + \gamma AVS \quad (5)$$

Here $Q_{1,2}$ - the volume of industrial production;

KS - efficiency of investments in industry;

MU - labor productivity in industry;

AVS - efficiency of fixed assets in industry;

A, α, β, γ - unknown parameters of the model.

Using the data in Table 1, the Cobb-Douglas and multivariate regression models are constructed and the structured models are evaluated.

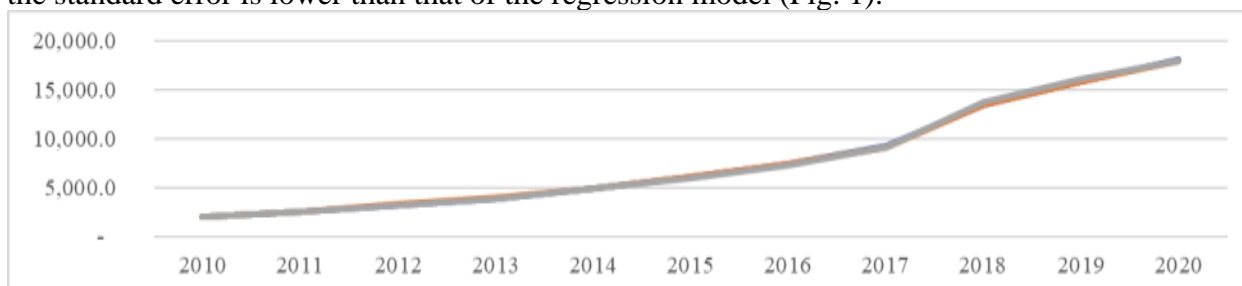
$$Q_1 = 115,357 \cdot KS^{-0,01532} \cdot MU^{1,07133} \cdot AVS^{0,060877}$$

$$(R^2 = 0,99; F = 6234,63; S = 0,017)$$

$$Q_2 = -448,075 - 31,742KS \cdot 173,595MU \cdot 66,126AVS$$

$$(R^2 = 0,99; F = 21032,301; S = 70,401)$$

The volume of industrial production is calculated according to structured models, and the results of the analysis showed that the Cobb-Douglas model is close to the actual figure, i.e. the standard error is lower than that of the regression model (Fig. 1).



Real values

Model values (Q1)

Model values (Q2)

Figure 1. Dynamics of actual and model values of industrial production

Based on the results of econometric modeling of the impact of factor productivity on the industrial output of the region, it was found that the highest impact factor is labor productivity, and the negative impact factor is the efficiency of investments in this industry.

The negative impact of the efficiency of investment in industry on the volume of industrial production can be explained as follows.

In recent years, there has been a sharp increase in investment in the regional industry. In particular, in 2020, 5820.4 billion soums of investments were directed to the industry. This figure is 4.5 times higher than in 2019 and 23.04 times higher than in 2010. However, the volume of industrial production in 2020 increased 1.1 times compared to 2019 and 8.9 times compared to 2010. This shows that from 2010 to 2020, investment performance has declined sharply.

CONCLUSION

1. Based on this study, for the further development of the industrial sector, in particular the industrial sector of the Samarkand region and increasing its economic potential, the following is proposed:
2. Creation of favorable conditions for mutually beneficial relations between enterprises producing industrial products and transport companies that supply and sell raw materials to these enterprises;
3. Ensuring the competitiveness and diversification of domestic industrial products, developing promising strategies and mechanisms for the further development of industries through the efficient use of available natural and economic resources;
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