ANALYSIS OF FACTORS INFLUENCING THE DEVELOPMENT OF PROCESSING INDUSTRIES IN THE REGION

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https://doi.org/10.5281/zenodo.17409160

ARTICLE INFO

Received: 19th October 2025
Accepted: 20th October 2025
Online: 21st October 2025

KEYWORDS

industry; economy; industrial products, industrial enterprise; source of power; electricity consumption; potential development

ABSTRACT

The article discusses the importance of power supply in the development of industrial enterprises, its impact on the volume of production. The interdependence of indicators of electricity consumption in industry and among the population was studied, on the basis of these indicators, the influence of electricity supply on the indicators of the development of the industry was assessed. According to the results of the assessment, the advantage of an intensive approach to the development of industrial enterprises was stated.

Introduction

It is known that there are various methods of territorial development of economic sectors, and today, in the context of digitalization of the economy, the potential and innovative development of industrial enterprises is gaining popularity. The importance of potential development of industry can be explained by the fact that each sector of the economy develops primarily on the basis of the economic potential of the territory. It can also be said that voluntary action in the field occurs directly and indirectly under the influence of economic laws.

The role of industrial enterprises in improving the lifestyle of the population is great, and the main reason for this is the need for industrial products in employment, income of the population, and social life.

Today, there is a growth trend in the industrial sector in our country. One of the distinctive features of this sector is that the development factors directly belong to it. In particular, resource supply is one of the main factors in development. Electric energy resources are the most important resource of industrial production.

Electricity production in our country has increasing indicators from year to year. According to statistical data, the production of industrial products in the Republic of Uzbekistan amounted to 1888.9 billion soums in 2020, and by 2020 it amounted to 456056 billion soums. In Kashkadarya region, this indicator was 159.8 billion soums in 2000, and in 2020 it reached 18771.9 billion soums. Production in the region increased by 2.16 times in 2021 compared to 2001. The average growth rate over the past two decades was 103.9 percent.

The volume of electricity production has also increased in the Republic. According to statistical data, in 2010, 5837.7 million kWh of electricity was produced, and in 2021 - 18771.85 million kWh. Over the past 11 years, the volume of electricity production has increased by 3.22 times. In 2010, electricity consumption in industry amounted to 18117.68 million kWh in the Republic, while in 2021 this figure reached 18771.9 million kWh. Per capita electricity consumption was 1.8 thousand kWh in 2010, and in 2021 it reached 2 thousand kWh. Overall, per capita electricity consumption has changed very little over the last two decades.

From the above data, it can be seen that, along with the increase in industrial production, the volume of electricity production and its consumption also increased. Although at first glance there seems to be a strong connection here, from an econometric point of view this claim may not be justified. Therefore, we believe that there is a need to assess the relationship between these indicators.

To assess the impact of electricity production on the development of industrial enterprises, we examine the correlation density of industrial production by some indicators. To do this, we take the volume of industrial products as the resulting factor, and the volume of electricity production, electricity consumption per capita, and electricity consumption in industry as the influencing factors (Table 1). For comparability, we take 2010 as the base year and perform calculations based on the price index.

Table 1.

Information table of industrial production volume and factors influencing it in Kashkadarya region

Years	Industrial production volume (Y)	Electricity generation capacity (X1)	Electricity consumption per capita (X2)	Electricity consumption in industry (X3)
2001	2971,419	4982,2	1,9	18791,22
2002	3125,933	5081,8	2	19026,88
2003	3291,607	5183,4	1,9	18671,5
2004	3472,646	5287,2	1,9	18387,4
2005	3503,9	5392,4	1,8	17897,2
2006	3728,149	5448,9	1,8	18424,06
2007	4115,877	5556,9	1,9	18057,97
2008	4634,477	5668,2	1,8	18117,35
2009	5218,421	5780,1	1,8	18127,75
2010	4957,5	5837,7	1,8	18117,68
2011	4962,458	6143,1	1,8	18987,99
2012	4778,847	5902,4	1,8	19099,18
2013	4826,635	6026,782	1,8	19469,02
2014	5000,394	6706,31	1,8	20232,31
2015	5130,404	6310,87	1,8	20811,4
2016	5238,143	7344,266	1,8	21035,84

2017	5505,288	13013,99	1,9	22298,38
2018	5736,51	13860,17	1,9	15007,1
2019	5393,333	13052,27	1,9	16967,3
2020	5549,796	9770,744	2	18284,3
2021	6403,61	18771,85	2	18771,85

We check the correlation density of the factors based on their given values (Table 2).

Table 2.

Correlation coefficient values of industrial production volume and influencing factors in Kashkadarya region

	Y	*X1*	*X2*	*X3*
Y	1			
X1	0,734264	1		
X2	0,830907	0,508334	1	
X3	0,752698	-0,12086	-0,17645	1

According to the table, there is a weak positive correlation between the volume of electricity production and per capita electricity consumption and an inverse correlation between the volume of electricity consumption in industry. Also, per capita electricity consumption and the volume of electricity consumption in industry have an inverse and weak correlation density. The degree of dependence of the factors on the resulting factor is high, and the influencing factors are weakly correlated. Therefore, we can include them in one model. Using the application program, we will build an econometric model of the volume of industrial production in the Kashkadarya region (Table 3).

Table 3.

Calculation of parameters and main adequacy indicators of the econometric model of the volume of industrial production and its influencing factors in the Kashkadarya region

Parameters		**Adequacy indicators**					**Elasticity coefficients**
		t-statistic	p-value		MAPE	DW	
X1	0.249186	6.542328	0.0000	0,82	9,021	1,74438	0,4105
X2	-			***	***	***	-2.4108
	6029.377	-3.072488	0.0069				
X3	0.057121	3.680463	0.0054				0.2313
C	12885.99	3.176359	0.0055				2.7741

The modeling results show that a 1 percent increase in electricity production is accompanied by a 0.4 percent increase in industrial production in the Kashkadarya region, a 1 percent increase in electricity consumption per capita is accompanied by a 2.4 percent decrease in industrial production in the Kashkadarya region, and a 1 percent increase in electricity consumption in industry is accompanied by a 0.23 percent increase.

From this it can be concluded that increasing production volume due to increasing electricity consumption in the industrial sector does not correspond to the directions of development of the sector, that is, an increase in energy consumption is not considered an important factor for increasing the volume of product production. Perhaps, on the other hand, if we take into account the increase in the level of population consumption here, we will naturally see that this reasoning is appropriate.

We believe that it is advisable to intensively organize production processes in the development of industrial enterprises. It is necessary to provide enterprises with energy-saving devices and production equipment, localize supply, and monitor the cost of imported products..

List of used literature:

1. Panteleev V. et al. Optimization model of power supply system of industrial enterprise. 2018. IOP Conference Series Materials Science and Engineering 450(7):072011 DOI:10.1088/1757-899X/450/7/072011.

2. Khalabudaa Y. et al. Increase of Efficiency of Industrial Enterprises Activity on the Basis of Innovations of Various Types. Procedia Economics and Finance 16 (2014) 299-302.

3. Jaroslava K. et al. Optimal Financing of the Industrial Enterprise. Procedia Economics and Finance. Volume 23, 2015, Pages 953-958.

4. Emeljanov S.V. et al. Imitative Modelling of Industrial Enterprises in Management. IFAC Proceedings Volumes. Volume 11, Issue 1, 1978, P. 809-815.