Econometric Assessment of the Impact of Industry on Economic Growth in Republic of Uzbekistan

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Abstract

This article highlights the impact of industrial production on economic growth. In particular, the impact of industry on economic growth was quantitatively evaluated based on econometric modeling, the share of industrial gross added value in the gross domestic product (GDP) and its dynamics were analyzed. Also, scientific proposals were developed on the basis of the development of industrial sectors to ensure economic growth, increase the efficiency of branch enterprises, expand production and increase their share in exports.

Keywords: GDP, industrial sector, industrial products, analysis, econometric model, economic growth, efficiency, income.

Introduction
Today's economic development and geopolitical changes have led to structural changes in the economy of many countries. The structural change of the economy will be primarily related to the country's natural, geographical location, social origin, and imperial development of the economy. However, the experience of some countries shows that today it is possible to reach a new stage of economic development even without such factors. For example, China, Taiwan, Singapore and European countries can be cited.
In general, many studies are conducted on economic development and sustainable growth. Because economic development leads to economic freedom. That is, it not only meets domestic demand, but also increases the country's export potential. It also creates additional jobs.
The industrial sector of the economy is important in this. It is known that the creation of net added value and high-tech products is mainly carried out in an industrial way. It is for this reason that accelerating the level of industrialization of the country and its further development requires additional scientific research of this industry. In particular, it is necessary to evaluate the quantitative impact of factors related to industrial development, to develop promising strategies by analyzing industrial production processes based on statistical, mathematical, and econometric methods. All these represent the relevance of this research topic.

Literature Review
Industry is one of the main branches of the national product production of our country. The industry is fundamentally different from other sectors and sectors with its added value creation, its role in meeting the needs of the population, and its high level of production capabilities. Industry is the main and leading branch of material production, and its development leads to the development of the national economy at a steady pace [1].

The development of the country's economic system depends on its production, labor potential, effective location of production forces, the standard of living of the population, and the effectiveness of local government bodies. World experience and practice also show that the problems related to the effective use of the raw material base and labor potential of each region can be solved only through medium and long-term programs and prospective plans [2].

The system of factors plays a major role in economic growth. However, it should not be concluded that the combined effect of all factors is equal to the sum of the level of influence of each of them. The system of factors is not a simple arithmetical sum of them, but it is also necessary to take into account internal connections and mutual influence of structural elements [3].

Today, economic-mathematical models are widely used to study and evaluate various economic phenomena and processes. When creating such models, the most important factors that represent the phenomena under study are determined and those that are not important for solving the problem are excluded [4]. From this point of view, in order to ensure the development of the industrial network and economic growth, it is necessary to form optimal models of socio-economic development of the country aimed at forecasting the development trends of production complexes, implementing targeted structural changes in real sectors, increasing the competitiveness of products and choosing the priority directions of development [5]. Also, it is required to increase the efficiency of the resources used in the industrial network, to foresee the risks arising in the solution of existing problems, and to develop scientifically based measures and solutions. In addition, it is appropriate to use economic-mathematical and econometric models in the development of strategies for the development of industries, to comprehensively analyze the sustainable growth of industrial sectors and to achieve global competitiveness, as well as to evaluate the quantitative connection of factors related to the production process.

The use of economic-mathematical methods and econometric models for the study and analysis of economic processes in the creation of the optimal model of the development of the industrial network, especially in the conditions of current uncertainty and risk, allows to avoid the negative consequences that can be expected [6].

From the same directions, it is widely used in the countries of the Asian region, such as the People's Republic of China, South Korea, Japan, Singapore, from European countries such as England, France, Germany, Italy, Spain, Denmark, Norway, Sweden, Switzerland, as well as in the USA, Canada, Australia and other countries. and research is conducted in this regard. Also, in countries such as England, France, Germany, the USA, based on the development of the field of information and communication technologies (ICT), new models of direct access to the global market and innovative business models of global competitiveness have been developed and are being put into practice [7].

In today's environment, small and medium-sized enterprises (SMEs) that start with a global strategy can move quickly to take advantage of cross-border activities [8]. Globalization creates opportunities not only for income growth, but also for knowledge exchange and empowerment. After all, the place and potential of each country in the world community is determined by its level of socio-economic development [9]. This can be achieved by introducing specific mechanisms of socio-economic development. It is important that these mechanisms are

primarily focused on meeting the needs of economic sectors, especially industry, for material, technical and capital resources, effective implementation of inter-sectoral structural restructuring, as well as rational investment policy.

Research Methodology

Official statistical data, statistical observation, comparative analysis, synthesis, logical thinking, statistical table and graph, comparative analysis, grouping, statistical analysis, mathematical and econometric modeling methods were widely used in the implementation of this research. Official statistical data of the Statistical Agency under the President of the Republic of Uzbekistan were obtained for statistical analysis.

Analysis and Results

According to the analysis, the gross domestic product (GDP) of our country in 2023 will be 1066569,0 billion. amounted to 888341,7 billion soums in 2022. was soum. Then the GDP in 2023 (compared to 2022) had a growth rate of 106.0 percent.

Table 1 Gross domestic product and its composition in the Republic of Uzbekistan in 2022-2023 [11]

	Volume, billion soum		Growth rates, in %	
	2022	**2023**	**2022**	**2023**
GDP	888341,7	1066569,0	105,7	106,0
Gross Value Added Industries	828054,2	1008423,1	106,2	105,9
Agriculture, forestry and fishing	208452,9	245222,5	103,6	104,1
Industry (including construction)	276227,0	325378,4	105,5	106,1
Construction	55522,7	62554,2	106,6	106,4
Services	343374,3	437822,2	108,5	106,8

In 2023, 94.5 percent of the GDP was contributed by the gross added values of the industries. That is, gross added value of GDP sectors is 1008423,1 bln. amounted to 245222,5 billion soums for the contribution of agriculture, forestry and fisheries. 325378,4 bln. soums to the contribution of the industry (including construction) and 437822,2 bln. soums contributed to the services sector.

In other words, the gross added value of the sectors of GDP was 94.5 percent, of which the contribution of agriculture, forestry and fisheries was 24.3 percent, the contribution of industry (including construction) was 32.3 percent, and the contribution of the service sector was 43.4 percent. reached.

In 2023, the volume of GDP in our country will be 1066569,0 billion. amounted to 6.0% compared to 2022. The share of the sectors in this growth is as follows: the share of agriculture, forestry and fisheries is 1.0 percent, the share of the industrial sector is 1.5 percent, the share of the construction sector is 0.4 percent, the share of trade, living and catering services is 0.7 percent, transportation and storage, the share of information and communication services was 0.8 percent, the share of other service sectors was 1.1 percent, and the share of net taxes on products was 0.5 percent (Figure 1).
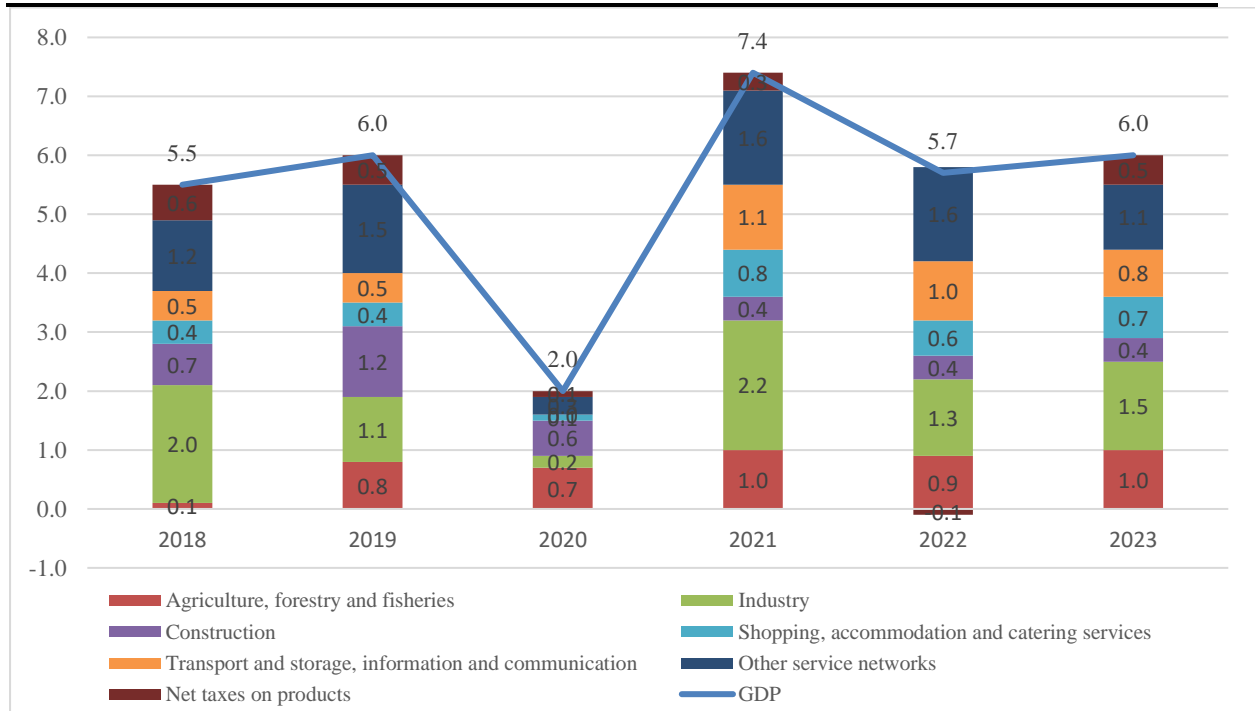
Figure 1. Contribution of industries to GDP growth in 2018-2023 (in % of total) [11]

According to the analysis, the contribution of sectors to GDP growth in 2018-2023, on average, was made by the industrial sector (1.38%), followed by other service sectors (1.22%), agriculture, forestry and fisheries (0.75 %), construction (0.62%), transportation and storage, information and communication (0.65%), trade, lodging and catering services (0.50%) and net taxes on products (0.32%) came.
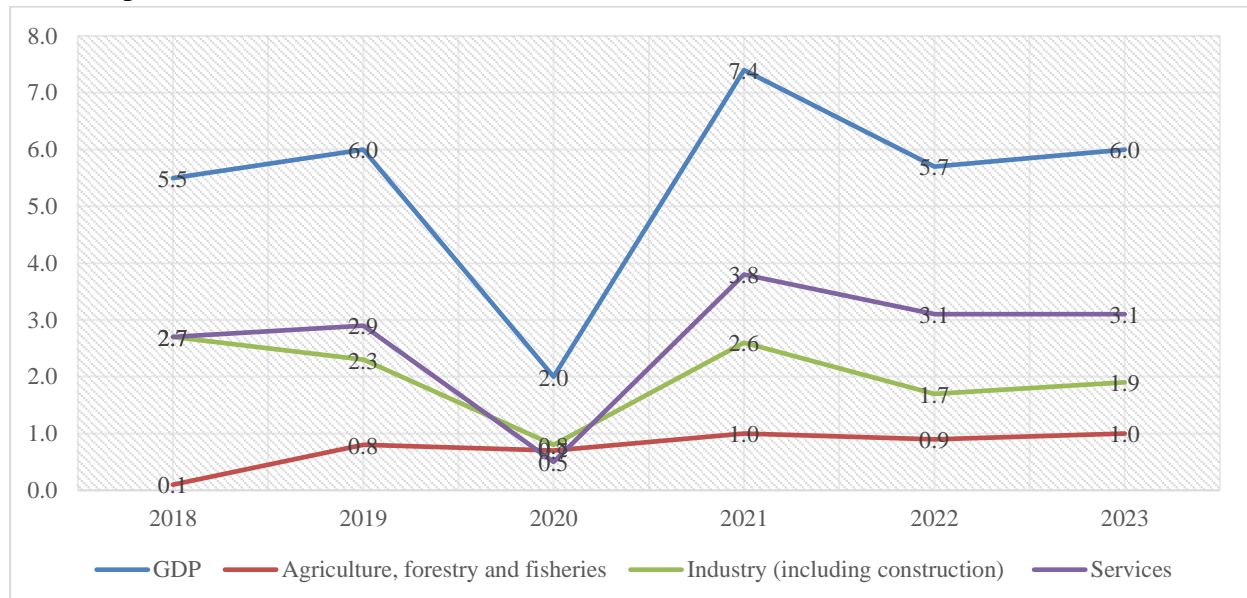

Figure 2. Dynamics of the contribution of industries to GDP growth in 2018-2023 (in % of total) [11]

The contribution of industries to GDP growth can be quantitatively estimated based on econometric models. That is, the correlation-regression analyzes of the factors affecting the

rate of GDP growth (y), the contribution of agriculture, forestry and fisheries (x_1), the contribution of the industry (including construction) network (x_2) and the contribution of services (x_3) and their quantitative effects can be evaluated based on.

$$y = a_0 + a_1 x_1 + a_2 x_2 + a_3 x_3 + \varepsilon$$

here: a_0, a_1, a_2, a_3 – unknown parameters of the model, ε – a random accident.

The correlation between the resulting indicator and the factors affecting it is evaluated by creating a matrix of correlation coefficients.

Matrix of correlations

Variables	(1)	(2)	(3)	(4)
(1) Y	1.000			
(2) X1	0.233	1.000		
(3) X2	0.867	-0.243	1.000	
(4) X3	0.944	0.390	0.686	1.000

According to the results of the correlation analysis, it was found that there is a correct and average connection between y and x_1, x_2, x_3. Therefore, their mutual quantitative effect can be estimated through a multifactor regression model.

Linear Regression

Y	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
X1	1.221	0.185	6.62	.095	-1.123	3.566	*
X2	1.585	0.105	15.09	.042	0.25	2.92	**
X3	0.713	0.072	9.96	.064	-0.196	1.621	*
Constant	-0.39	0.192	-2.03	.291	-2.831	2.051	

Mean dependent var		5.320	SD dependent var			1.999
R-squared		0.989	Number of obs			5
F-test		877.523	Prob > F			0.025
Akaike crit. (AIC)		-11.379	Bayesian crit. (BIC)			-12.941

*** p<.01, ** p<.05, * p<.1*

$$y = 1,221 x_1 + 1,585 x_2 + 0,713 x_3 - 0,39$$

According to the results of the regression analysis, if the contribution of agriculture, forestry and fisheries (x_1), the contribution of the industry (including construction) network (x_2), and the contribution of services (x_3) change by 1 percent, the resulting factor GDP growth rate (y) can change by 1.221, 1.585, and 0.713 percent, respectively.

Conclusions

Based on this research, in order to ensure economic growth based on the development of industrial sectors, to expand the production of products that substitute for imported goods by increasing the efficiency of industry enterprises, to increase the volume of exports and to improve the living conditions of the population, it is appropriate to take into account the following:

- to increase the efficiency of network enterprises based on synergistic effect by organizing industrial clusters based on uniting industrial enterprises operating in the same direction;

- achieving reduction of non-production costs on the basis of optimal placement, taking into account the raw material base, convenient infrastructure, logistics and energy supplies in the organization of industrial enterprises;

- analyzing the activity of industrial enterprises according to the law of decreasing factor productivity and taking measures to maximize overall efficiency based on its elimination;

- not only to meet the demand of the domestic market, but also to expand the efficiency of scale based on the diversification of products, taking into account the export of foreign markets, and thereby ensure the sustainable development of enterprises;

- in competitive market conditions, it is necessary to ensure high profit by choosing the maximum production volume equal to marginal revenue and marginal cost.

In conclusion, the above analysis showed that the industry is the sector of the economy that has the highest impact on economic growth. Therefore, in the development of promising strategies for the further development of the industry, it is necessary to optimally place branch enterprises, strengthen the issues of financial support, expand the granting of privileges and preferences, increase the practice of subsidizing transport and organizational costs in modernization with modern technologies, and improve the infrastructure related to the activities of sonata enterprises. . As a result, through the rapid development of industry in the country, it is possible to achieve high economic growth and increase the well-being of the population.

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