

# Evaluation Factors of Industrial Production in the Region

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**Abstract.** This article evaluates the processes of development of industrial production in the region and determines the factors affecting them, reveals the priority factors and sources of competitiveness of industrial enterprises, evaluates the regional characteristics of industrial development, and analyzes all influencing factors in the development of industry. This allows us to evaluate industrial production and development in the region, identify the factors that affect it. In the evaluation, process grouped the most important factors influencing the development of industrial production in determining the priory directions of industry, developed classification of industrial production factors in the region based on research and analysis. Also identified the level of formation of industrial production experience in the region, factors limiting the regional industrial production capacity, external environment analysis as well as availability of resources, other sources and opportunities. Attention is paid to the issues of ensuring the development of the regional industry, its macroeconomic growth and raising the standard of living of the population, expanding the export potential, creating an added value chain, and assessing the industrial production using complex quantitative econometric models. Because with the help of complex numerical econometric models evaluates the development of the industry, determines the priority sectors of the industry and studies their mutual influence.

## 1 Introduction

In the regions of Uzbekistan, attention is being paid to increasing the contribution of industry to the gross regional product, exports, and added value, effective use of investment and labor factors, expansion of industry and interregional cooperation, development of small industrial regions and clusters, increasing the competitiveness of industrial enterprises, and effective management of industrial policy within the framework of priorities. In this regard, the uncertainty of the economic situation in country is giving priority to do research on methodological approaches ensuring the balanced development of regions based on the negative effects of climate and environmental changes, the impact of internal and external factors, increasing competitiveness and rational use of existing potential [1-4]. It is known,

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that development of industry leads to the sustainable development of the economy of any country [5]. The production of new technologies and innovative products has led to fundamental changes in industry. As a result, of development of industry, first of all, created workplaces and added value, met the needs of the population in goods [6, 7]. The level of industrial production in the development of economy of any country plays an important role in determining its political position and social stability in the world [8, 9]. Effective use of existing natural and economic potential of region in development of industry requires the development of a long-term strategy aimed at reducing the impact of negative factors on socio-economic development and expanding the scope of scientific research on its consistent implementation [10-12]. In the “Strategy of actions in five priority directions of development of the Republic of Uzbekistan in 2017-2021” given in appendix 1 to the Decree of the President of the Republic of Uzbekistan of February 7, 2017 No. UP-4947 (<https://lex.uz/docs/3107042>) [13] set functions such as “to continue of the policy of stimulating the localization of production and, above all, to substitute imports of consumer goods and components, the expansion of intersectoral industrial cooperation” [13].

The evaluation of the processes associated with the depreciation of fixed assets in industrial production, introduction of new ones, mainly due to serious financial difficulties, will pave the way for the rapid development of the industry in future. Among the regions of our country, the Republic of Karakalpakstan is distinguished by its rich mineral resources, limited land and water resources, the problems of the Aral Sea of international importance [14]. Therefore, the issues of effective use of existing natural resources in region, increasing the share of innovative developments, identifying factors influencing the priority development of new, promising industries are crucial.

## **2 Materials and Methods**

Industry is the source and pillar of national economic development. In order not to cause a number of problems in the development of industrial production, such as high consumption of energy and raw materials, decrease of resources, environmental pollution the factors affecting industrial production should have been evaluated the factors affecting industrial production, those will help to overcome the problems listed above [15, 16].

Increasing the competitiveness of industrial enterprises is the most important issue in the development of industry in the region. When evaluating the development of the regional industry, innovative technologies, diversification of the industrial structure, and the processes of supporting business processes in the field are carried out with the help of econometric models, it will be easy to determine which branch of the industry is developing and develop a strategy for the development of the industry based on this result. Therefore, it is very important to make reliable forecasts of market trends for the development of the industry. Analysis and synthesis, statistical grouping and comparative analysis, abstract-logical thinking methods were utilized in the research.

## **3 Results**

Since “industrial production potential” is a complex concept as an economic category, its constituents also consist of many elements. In particular, A.O. Larionov described in his research a system of indicators representing the industrial potential [18].

He focused on the factors that determine the comparative advantage of the region and lead the development of the region’s industry [18].

Based on the research and analysis, the classification characteristics of industrial production factors in the region were identified and grouped (Table 1).

**Table 1.** Classification of industrial production factors in the region

| Indicators   | A/P    | The essence of the factors   |
|--|--------|--|
| <b>1. Technical and economic factors</b>   |        |  |
| 1.1 The value of industrial fixed assets per capita  | Soom   | The level of fixed assets of industry in the region                          |
| 1.2 Depreciation rate of industrial fixed assets   | %      | Status of production resources   |
| 1.3 Fund return  | -      | Efficiency of use of fixed assets  |
| <b>2. Financial factors</b>  |        |  |
| 2.1 Fixed assets of industrial enterprises   | %      | Development rate of industry in the region                                   |
| 2.2 The level of investment to industrial enterprises  | Soom   | The level of working capital in industrial development                       |
| <b>3. Factors of employment</b>  |        |  |
| 3.1 The balance of managers and workers in industry  | %      | The level of dissatisfaction of workers in industry                          |
| <b>4. Infrastructural factors</b>  |        |  |
| 4.1 Density of public railways, km per 1000 km <sup>2</sup> area   |        | Density of transport infrastructure  |
| 4.2 Density of paved roads, 1000 km <sup>2</sup> of road area  | km     |  |
| 4.3 The level of optimal location of industrial enterprises  | ha     | Availability of raw materials for industrial production in region            |
| <b>5. Investment factors</b>   |        |  |
| 5.1 Volume of attracted investment to industry   | soom   | Increases the level of equipment and technology of industry                  |
| 5.2 The volume of domestic investment in industry  | %      | Efficiency level of internal capacity  |
| <b>6. Innovative factors</b>   |        |  |
| 6.1 The share of innovative technologies in industry   | %      | Introduction opportunities of innovative products by enterprises of industry |
| 6.2 The share of innovative products in total volume of industrial output                                      | %      | Innovative development rate of industry                                      |
| 6.3 Number of employees employed in research and development projects per thousand people employed in industry | person | The level of efficiency of science and innovation in industry                |

According to our research, trends and priorities in the development of industry in the region require the solution of the following tasks:

- development of production, social and market infrastructure in the region;
- it is appropriate to determine the priority directions of industrial development in the region based on the characteristics of districts and cities;
- it is essential to pay attention to the existing production factors in the regions, the traditional directions of economic activity and the prospects of introducing modern types;
- development of areas with mineral resources, mining reserves on the basis of new industrial technologies;
- formation and development of high-capacity types of industrial production in areas, which are rich in labor resources;
- increase the level of specialization of the region's industry based on the rational use of the comparative advantages of the country in domestic and foreign markets;
- creation of favorable conditions for the formation of "techno parks", growth points, small and free economic zones and the integration of regional industrial enterprises with international trade and industrial companies, etc.

In the development of industry in the region, first of all, it is necessary to increase the added value along with the quantitative indicators.

Today, the centralized regulation of industrial development by the state is carried out in the following areas:

- assistance in financing the activities of industrial enterprises of national importance;
- application of the principles of public-private partnership in the priority areas of industry;
- regulation through budget-tax, financial-credit, currency, insurance policies;
- setting government orders and prices;
- allocation of quotas in foreign currency for the purchase of raw materials and components, etc.

It is necessary to develop regional and interregional programs for the development of industry in the region.

It is expedient to determine the priorities of industrial development in Khorezm region based on the characteristics of districts and cities. In this case, it is necessary to pay attention to the existing production factors in the regions, the traditional directions of economic activity and the prospects of introducing modern types. In particular, Khazarasp, Tuproqkala districts for machine building, Bagat and Urganch districts for flour production, Urganch city for oil production, Gurlan, Bagat, Khanqa, Shavat, Kushkupir, Urganch districts for textile, Shavat, Urganch, Khiva, Khanka, Bagat districts for fruit and vegetable production, Urganch, Khazarasp, Shavat, Kushkupir, Bagat districts for meat products, Kushkupir, Bogot, Khazarasp, Yangiariq for the production of carpets, wool, blankets, woolen scarves, Khiva, Yangiariq, Kushkupir, Khanka districts for silk sewing, color painting, metal processing, wood it is necessary to specialize in processing, souvenirs, basketry, processing of mineral resources in the regions close to the Republic of Karakalpakstan, Navoi and Bukhara regions. (Table 2). In order to increase industrial competitiveness in Khorezm region, first of all, it is necessary to increase quantitative indicators. This is based on increasing the volume of industrial production. This requires the expansion of small business and entrepreneurship, given the characteristics of the region. An effective way to do this is to develop a small industrial zone. In this regard, it is appropriate to establish small industrial zones aimed at the implementation of projects for the use of construction material deposits in Karakalpakstan in Khazarasp, Bagat, Urganch, Yangibozor and Gurlan districts of the region, wool and leather processing in Kushkupir, Bagat, Khazarasp, Yangiariq districts, and deep processing of licorice in all districts.

**Table 2.** Prospective directions of territorial development of Khorezm region industry

| Name of cities and districts | Creating "Growth Points" | Development of similar industries | Implementation of interregional projects | Implementation of interregional projects |
|------------------------------|--------------------------|-----------------------------------|--|--|
| Urgench city                 | △                        | ▲                                 | ○  | □  |
| <i>districts:</i>            |                          |                                   |  |  |
| Khiva                        |                          | △                                 | ○  |  |
| Bagat                        | ▲                        | ▲                                 | ●  | □  |
| Gurlan                       |                          | △                                 | ●  | □  |
| Kushkupir                    |                          | △                                 | ○  | □  |
| Khazarasp                    | ▲                        | ▲                                 | ○  |  |
| Urgench                      |                          | △                                 | ●  | ■  |
| Khonqa                       |                          | ▲                                 | ●  |  |
| Shavat                       | △                        | ▲                                 |  | ■  |
| Yangiariq                    |                          | △                                 | ○  | □  |
| Yangibazar                   |                          | △                                 | ●  | ■  |

*Creating "Growth Points":*  
 ▲ – to the greatest extent  
 △ – to a lesser extent

*Implementation of interregional projects:*  
 ● - to the greatest extent  
 ○ – to a lesser extent

*Development of similar industries:*

- ▲ – to the greatest extent
- △ – to a lesser extent

*Implementation of interregional projects:*

- - to the greatest extent
- - to a lesser extent

Introduction of industrial development factors at the regional level involves the implementation of the following measures:

- granting privileges to industrial enterprises within the competence of local government bodies;
- encouraging entrepreneurs through the system of market infrastructure in the region (commercial banks, insurance, leasing companies, investment funds);
- supporting the entry of industrial enterprises into foreign markets, the use of economic mechanisms to further increase exports - loans, bonuses, grants and other methods;
- introduction of soft loans, tax deductions, etc. in order to attract private capital for the construction of industrial enterprises in economically vulnerable areas.

The identified factors include the effective use of administrative support and tools, including measures at the national level to organize, register and minimize administrative barriers to industrial enterprises and access to foreign markets, and to monitor industrial development.

In order to effectively use administrative support and tools at the regional level, the following measures should be taken:

- the use of foreign experience in the training of qualified specialists for industrial production;
- issuance of primary and secondary shares of industrial enterprises;
- use of vacant production areas;
- support the development of industrial production, using the existing industrial potential in areas with relatively low industrial production and the development of targeted programs that determine the prospects for industrial development in these areas;
- construction of industrial complexes based on modern technologies in areas with mineral resources and mining reserves.

Based on the analysis, criteria for assessing the factors of industrial development in the region were developed (Table 3).

**Table 3.** Criteria for assessing the factors of industrial development of the region

|    | <b>Name of indicators</b>  | <b>Degree</b>                           | <b>Ball scale</b> |
|----|--|---|-------------------|
| 1. | The area of location   | Convenient<br>Moderate<br>Uncomfortable | 3 2 1             |
| 2. | Strategy of the region - geographical location: the presence of large-scale domestic markets in the border areas of the region and beyond, access to world markets and the high seas (land, water, etc.).  | Convenient<br>Moderate<br>Uncomfortable | 3 2 1             |
| 3. | General description of the natural conditions, climate and economic potential of the region  | Convenient<br>Moderate<br>Uncomfortable | 3 2 1             |
| 4. | Level of mineral resources potential and availability of raw materials in the region (large discovered and expected deposits, existing mineral resources, land resources, water resources)   | High<br>Average<br>Low                  | 3 2 1             |
| 5. | Level of development of market and production infrastructure in the region (banking, insurance, credit unions, location of service facilities, level of development of electricity, transport and communication systems, access to roads, drinking water, natural gas, etc.) | High<br>Average<br>Low                  | 3 2 1             |

|     |  |                           |       |
|-----|--|---------------------------|-------|
| 6.  | Availability of large natural and economic resources in the cultivation of fruits and vegetables, meat and dairy products in the region, which have the ability to work deeply on the basis of modern technologies                                     | High<br>Average<br>Low    | 3 2 1 |
| 7.  | Availability of rare, valuable raw material types and deposits   | Available<br>Notavailable | 2 1   |
| 8.  | The degree of formation of traditional production practices in the region  | High<br>Average<br>Low    | 3 2 1 |
| 9.  | Factors limiting the industrial production capacity of the region (the level of demand for environmental, drinking and technical water resources, the rational location of production facilities, etc.)  | High<br>Average<br>Low    | 3 2 1 |
| 10. | Analysis of the external environment of the region (political situation in neighboring countries, the level of organization of cross-border cooperation, changes in labor, growth of labor migration, transport system and problems, regional factors) | High<br>Average<br>Low    | 3 2 1 |
| 11. | Other potential sources and opportunities in the region (IMFR 2019)  | High<br>Average<br>Low    | 3 2 1 |

A system of indicators for each factor is determined and their level is assessed using a three-point criterion.

## 4 Discussion

The development of industrial production in the region, the full and appropriate use of industrial potential requires the identification of important factors and their gradual implementation [23, 24]. It is important to take into account the trends in the development of the world economy [25-28], a realistic assessment of domestic demand and opportunities [29, 30]. Many scientific studies have focused on the following factors in increasing industrial capacity [31, 32].

> determining the industrial potential and the comparative advantage of the industrial complex, assessing the technological level of production capacity;

> assessment of innovative and investment capacity of production, the level of availability of raw materials, the availability of highly qualified personnel and the state of marketing etc.

According to O.V. Bakanach and K.V. Gauss [33]. "industrial potential" is the overall ability of industrial enterprises to produce and create competitive products. The authors note that the most important areas of industrial potential development are its renewal, technological modernization, and rapid development of industries, relatively advanced and technological relations.

According to I.Kh. Tsogoev, "industrial potential" is a generalized quantitative assessment of industrial organizations, which represents the maximum possible potential for resource efficiency. Industrial potential is a significant opportunity to make maximum use of all the resources involved in the process of gross value added [34].

The production potential is determined by the following complex factors:

- Availability of resources;
- Quantity and quality of resources and the appropriate ratios between them;
- The level of used resources, depending on the natural conditions and economic mechanism, the description of production relations and the form of organization of production.

## 5 Conclusions

In general, when evaluating the factors of industrial development in the Khorezm region, it is necessary to take into account its competitiveness, the processes of ensuring personnel and their qualifications suitable for capital growth. As a result, industry stability and positive growth rates are ensured, which ultimately leads to increased investment opportunities and innovation potential. Due to this integration, labor efficiency and capital productivity will increase based on the use of new technologies, in general, the industry will develop further and all criteria of competitiveness will increase. In addition, the creation of development strategies of industry and evaluation of forecast indicators using econometric models based on those factors and criteria will allow further development of industry in the region.

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