



# Factors and trends of the development of the pharmaceutical industry in Uzbekistan

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## CITATION

Khomidov, S. O. (2025). Factors and trends in the development of the Pharmaceutical Industry in Uzbekistan. *Journal of Central Asia Economy*, 9(1), 53–64. <https://doi.org/10.18334/asia.9.1.122569>

## ABSTRACT

The article analyzes the development trends of the pharmaceutical industry of Uzbekistan and the factors influencing it. First, the necessity and importance of the development of the pharmaceutical industry are described, as well as the impact of the development of this sector on the development of other sectors. The introductory part of the article briefly presents the volume of the world pharmaceutical market and the names of the leading companies in it. Then, the main part of the work outlines the priority areas of the pharmaceutical policy of Uzbekistan. The article also analyzes the trends in the main indicators of the pharmaceutical industry of Uzbekistan. The dynamics of the production of the main pharmaceutical products and preparations and the physical volume index are considered. The work also describes the role of the innovative scientific and production pharmaceutical cluster "Tashkent Pharma Park" in the development of the country's pharmaceutical industry. All the conclusions drawn are summarized at the end of the article.

**Keywords:** pharmaceutical industry, pharmaceutical cluster, R&D sector, world pharmaceutical market, biotechnology, pharmaceutical products and preparations, drugs with complex components

**JEL Classification:** L60, L65, L69

# Факторы и тенденции развития фармацевтической промышленности в Узбекистане

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## ЦИТИРОВАТЬ СТАТЬЮ:

Хомидов, С. О. Факторы и тенденции развития фармацевтической промышленности в Узбекистане // Экономика Центральной Азии. - 2025. - Т. 9, № 1., С. 53-64. <https://doi.org/10.18334/asia.9.1.122569> – EDN KFTAFJ.

## АННОТАЦИЯ:

В статье проведен анализ тенденций развития фармацевтической промышленности Узбекистана и выявлены факторы, влияющие на нее. Автор статьи указывает на необходимость и важность развития фармацевтической промышленности, а также дает оценку влияния развития этого сектора на развитие других отраслей. В начале статьи представлен анализ объема мирового фармацевтического рынка и выделены ведущие компании. Автор выделяет приоритетные направления фармацевтической политики Узбекистана. В статье также проанализированы тенденции изменения основных показателей фармацевтической промышленности Узбекистана. Автор рассматривает динамику производства основных фармацевтических продуктов и препаратов и изучает индекс физического объема. В статье также оценивается роль инновационного научно-производственного фармацевтического кластера "Ташкент Фарма Парк" в развитии фармацевтической промышленности страны.

**КЛЮЧЕВЫЕ СЛОВА:** фармацевтическая промышленность, фармацевтический кластер, сектор исследований и разработок, мировой фармацевтический рынок, биотехнологии, фармацевтические продукты и препараты, многокомпонентные лекарственные препараты

**JEL Classification:** L60, L65, L69

## INTRODUCTION

The pharmaceutical industry is an industrial sector (a branch of the chemical industry) that is involved in the research, development, mass production, marketing, and distribution of pharmaceuticals, primarily for the prevention, mitigation, and treatment of diseases [1].

The development of this sector is of great importance due to many factors. As noted in numerous studies, the pharmaceutical industry plays a very important role in the development of the economy, depending on a number of factors. Firstly, this sector has a positive impact on economic development due to the dynamics of new products and scientific developments in the R&D sector, secondly, due to the degree of direct impact on the health and living standards of the population, and thirdly, due to the possibility of social protection of all segments of the population through the development of this sector [9] (Khomidov, 2020).

This sector is characterized by high and stable production growth rates and low dependence on economic downturns. The state of the pharmaceutical industry affects the development of healthcare, insurance, finance, employment and related sectors such as chemistry, mechanical engineering, agriculture, biotechnology, the military-industrial complex and other sectors. The pharmaceutical industry also makes a significant contribution to research and development, the development of innovative potential, trade relations, and the creation of technological infrastructure [8].

According to research, there is a positive relationship between the export of pharmaceutical products and GDP. Pharmaceutical exports of countries specializing in the pharmaceutical sector have a positive effect on GDP and GDP per capita [2] (Blanc, 2015).

The global pharmaceutical market is currently worth an estimated \$1.6 trillion. The United States accounts for nearly half of global pharmaceutical revenues. The largest pharmaceutical companies by revenue include *Pfizer*, *AbbVie*, *Merck & Co.*, and *Johnson & Johnson* (USA), as well as *Roche* and *Novartis* (Switzerland). *Pfizer* became the world's leading pharmaceutical company in 2021 and 2022, driven by strong revenue from the Comirnaty COVID-19 vaccine. Overall, there are no major shifts in the top pharmaceutical companies at the moment [10].

As in the whole world, the development of the pharmaceutical industry in Uzbekistan is of great socio-economic importance. Today, the pharmaceutical industry accounts for 0.72% of the manufacturing industry and 0.34% of GDP [6].

In recent years, the government has introduced many innovations and developed programs into the pharmaceutical industry of Uzbekistan. In particular, the Decree of the President of the Republic of Uzbekistan No. 55 "On additional measures for

the accelerated development of the pharmaceutical industry of the republic in 2022–2026" was adopted on January 21, 2022, the Resolution No. 14 "On additional measures for the further development of the pharmaceutical industry and acceleration of the implementation of investment projects" was adopted on January 10, 2024, and the Decree No. 20 "On additional measures for the regulation of the pharmaceutical sector" was adopted on January 23, 2024 [4, 5, 12].

The need to analyze the economic reforms in the pharmaceutical industry and the investment potential of the industry is growing more and more based on the adoption of the above-mentioned legal documents and the tasks defined in them.

## MAIN PART

In order to improve the conditions for the development of pharmaceutical activities, further increase the level of provision of the population and healthcare institutions with affordable, high-quality medicines, medical devices and medical equipment, and introduce a unified system for coordinating their production, import and sale, the Agency for the Development of the Pharmaceutical Industry was established in Uzbekistan in 2017 [3].

Today, the following tasks are being carried out by the Agency:

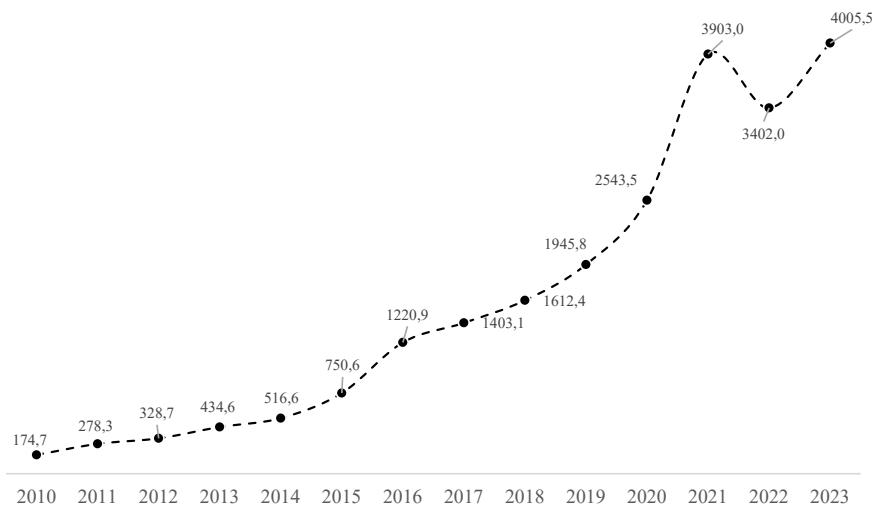
- introduction of modern mechanisms of pharmaceutical network, including its state support;
- organization of the study of the pharmaceutical market situation;
- assist in the development of new, high-quality types of pharmaceutical products that are competitive in domestic and foreign markets;
- application of advanced foreign practices and international standards to the pharmaceutical industry;
- development of proposals for localization of production, etc.

The following are currently operating within the Agency for the Development of the Pharmaceutical Industry:

- (1) Uzbek Research Institute of Chemistry and Pharmaceuticals.
- (2) Tashkent Research Institute of Vaccines and Serums.
- (3) Scientific Research Institute "Oriental Medicine".
- (4) "Tashkent Pharma Park" innovative research-production pharmaceutical cluster development directorate.
- (5) "Center of Good Practices" SE of Agency on Development of Pharmaceutical Industry.
- (6) Pharmaceutical Technical University.

### Analysis of the main indicators of Industry development

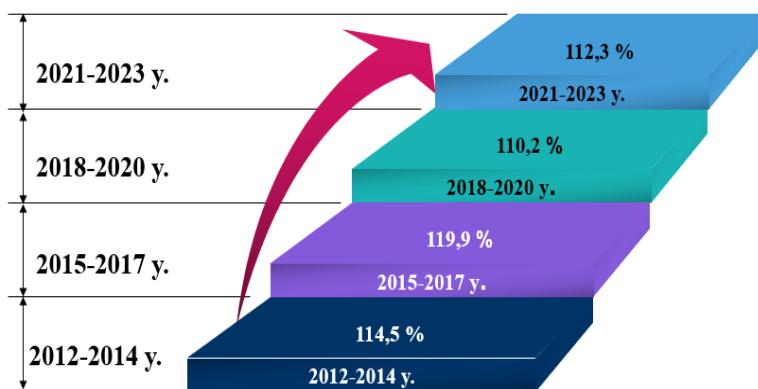
Preliminary statistical analyzes show that the production volume of basic pharmaceutical products and preparations in the republic increased by 22.9 times compared to 2010 and amounted to 4,005.5 billion soums in 2023. In the considered period, only in 2022, a downward trend was observed compared to the previous year, and this difference amounted to 501.0 billion soums (Fig. 1).



**Figure 1.** Dynamics of production of main pharmaceutical products and preparations in Uzbekistan (billion soums)

Source: [www.stat.uz](http://www.stat.uz).

According to the analysis, in the years of active development of the pharmaceutical industry, the growth rate of the physical volume index of the production of basic pharmaceutical products and preparations was significantly higher than in other years. In the period 2021–2023, the physical volume index of the production of basic pharmaceutical products and preparations averaged 112.3 percent (Fig. 2).



**Figure 2.** Physical volume index of production of basic pharmaceutical products and preparations (three-year average growth rate, in percent)

*Source:* compiled by the author.

According to the analysis, there were no significant structural changes in the structure of production of basic pharmaceutical products and preparations. The largest share in this structure was occupied by medicines that do not contain hormones or antibiotics. Provitamins, vitamins and their derivatives took the lead in this structure (*Table 1*).

*Table 1*  
**Changes in the composition of the production of the main pharmaceutical products and preparations (in percentage of the total)**

Production structure of the main pharmaceutical products and preparations	2017	2018	2019	2020	2021	2022	2023
Provitamins, vitamins and their derivatives	0,8	0,5	0,7	1,4	2,8	1,6	0,7
Medicines that do not contain hormones or antibiotics	98,2	98,5	98,8	97,8	95,7	97,1	98,6
Medications containing corticosteroid hormones	0,4	0,4	0,4	0,5	0,6	0,3	0,3
Serums and vaccines for immunity	0,0	0,1	0,0	0,0	0,1	0,1	0,0
Other diagnostic reagents and pharmaceutical preparations	0,6	0,5	0,1	0,3	0,9	0,8	0,4
Total:	100,0	100,0	100,0	100,0	100,0	100,0	100,0

*Source:* [6].

## **Opportunities and benefits available for industry development.**

In order to organize the production of innovative and high-quality medicines, medical devices and medical equipment in Uzbekistan, meet the population's needs for these products, train pharmaceutical specialists in accordance with international educational standards and in highly demanded specialties, ensure the consistent integration of pharmaceutical education into the system of the international scientific community, and further develop the pharmaceutical industry in the republic, the "Tashkent Pharma Park" innovative scientific and production pharmaceutical cluster was established in the Zangiota district of the Tashkent region [11].

The cluster consists of two main directions:

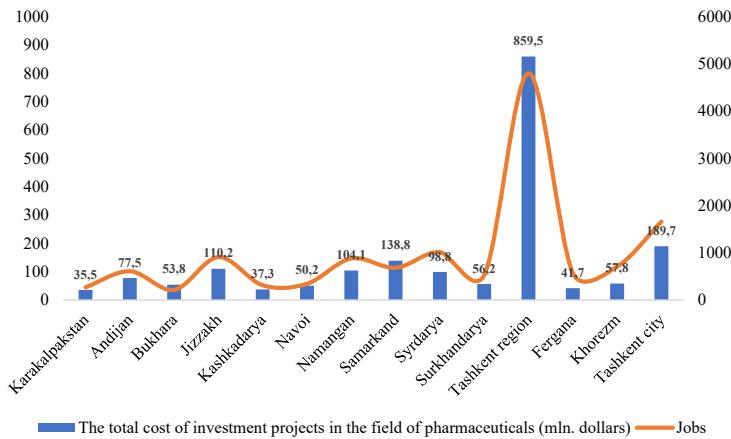
- (1) Creation of a technological park where the academic, research, pre-clinical and clinical components of the cluster will be located.
- (2) Creation of a pharmaceutical industrial zone where the production sites of leading pharmaceutical companies, medical products and medical equipment manufacturers will be located.

A decision was adopted on additional measures to further develop the pharmaceutical industry and accelerate the implementation of investment projects in order to develop products in high demand in the pharmaceutical sector, support the financing of new investment projects, attract foreign direct investment to the sector, increase the production of pharmaceutical products, provide the population with high-quality, effective and affordable pharmaceutical products, and widely implement generally recognized practices and standards at local enterprises [12].

Within the framework of this resolution, it is planned to establish a "Biotechnology Cluster" on the territory of the innovative scientific and production pharmaceutical cluster "Tashkent Pharma Park". The "Biotechnology Cluster" is intended to create biopharmaceutical high-tech drugs and take measures to produce local biotechnological products. This resolution provides for the implementation of investment projects worth a total of \$1,911.0 million and the creation of 13,516 jobs (Fig. 3).

The "Roadmap" developed for the development of the pharmaceutical industry and the acceleration of the implementation of investment projects stipulates the implementation of the following measures [12]:

- attracting international consultants and specialists for the development of the pharmaceutical industry in the regions;
- development of the pharmaceutical industry in the regions and support of local manufacturers;



**Figure 3.** The total value of investment projects and the number of jobs in the pharmaceutical industry

Source: [12].

- attracting large foreign companies to Uzbekistan;
- development of the production of biologically active supplements in the pharmaceutical industry;
- to support the projects of organizing the production of domestic pharmaceutical products;
- providing the pharmaceutical industry with qualified specialists;
- improvement of activities of research institutes under the Agency for the Development of the Pharmaceutical Industry;
- development of prospects for the development of the pharmaceutical industry with the involvement of international consulting companies.

## Development factors of industry

Currently, the following factors are important for the development of the industry:

(1) Uzbekistan is located in the center of Central Asia, and since ancient times, trade routes connecting the West and the East have passed through it. The existence of these trade routes allows us to take advantage of this historical advantage even today.

(2) With a population of over 36 million, Uzbekistan is the most densely populated country in Central Asia, representing a large domestic market.

(3) A large number of medicinal plants grow in the mountainous regions of Uzbekistan. This has led to the formation of rich traditions in the preparation of medicinal products among the population.

(4) The republic has a developed base of clinical research. Currently, a number of scientific research institutes and centers operate in the country. They conduct research on the creation of new drugs and active ingredients. This has a positive impact on the development of scientific research in the pharmaceutical field.

(5) Price formation in the republic is much lower than in European countries, which ensures the competitiveness of pharmaceutical products and the industry in the international market.

(6) The presence of free economic zones specializing in the pharmaceutical industry ("Zomin-pharm", "Kosonsoy-pharm", "Syrdarya-pharm", "Boysun-pharm", "Bostanlyk-pharm", "Parkent-pharm" and "Andijan-pharm" free economic zones) on the territory of the republic provides investors with very favorable investment opportunities and benefits.

(7) The establishment of the innovative scientific and production pharmaceutical cluster "Tashkent Pharma Park" in the country in recent years serves to ensure the integration of "science-education-production". This, in turn, serves to produce and develop new types of medicines.

## Prospective plans and priorities

Today, the following goals have been set: "to further improve the provision of the population with high-quality, effective and safe pharmaceutical products, to increase the volume of production in the sector by 3 times by introducing advanced scientific and technical achievements and innovations into the pharmaceutical industry, and to increase the level of supply of the domestic market to 80% in natural terms." According to the forecast parameters for the development of the pharmaceutical industry, it is planned to increase the volume of manufactured products by 2026 to 8.2 billion soums (in 2021 prices), the number of mastered products to 5100 units, the level of coverage of the annual demand for medicines (in terms of products) to 80 %, and the export of pharmaceutical products to 130 million dollars (in 2021 prices) [5].

Currently, the following areas are gaining priority in the pharmaceutical policy of the country:

- establishment of free economic zones and clusters specialized in the field of pharmaceuticals;

- introduction of advanced global standards (GMP, GDP, GPP, GSP, GxP, etc.) into the industry and digitalization of industry production;
- further increase the share of localization and adoption of drugs with complex components;
- support of investment projects in the industry, etc.

The following groups of drugs are recommended for localization of production in the republic: antibiotics, drugs for the treatment of endocrine system pathologies, nonsteroidal anti-inflammatory drugs, antiviral drugs, drugs for the treatment of gastrointestinal pathologies, immunobiological drugs, drugs for the treatment of respiratory pathologies, drugs for the treatment of cardiovascular diseases, drugs for the treatment of oncological diseases, as well as diaskin tests for the early detection of tuberculosis infection in children, etc. [7].

## CONCLUSION

The pharmaceutical industry is a highly regulated, socially responsible, and innovative sector. Its development stimulates the development of healthcare, business, science and education (especially R&D), services, agriculture, the chemical industry, and other similar sectors. The pharmaceutical industry is a key driver of growth and competitiveness in many developed countries. Most studies confirm the strong correlation between pharmaceutical exports and GDP. Analyses show that pharmaceutical exports of countries specializing in this sector have a positive impact on both GDP and per capita GDP.

In the pharmaceutical industry, innovation is the main source of sustainable development. The world's leading pharmaceutical manufacturers spend 15–20 percent of their profits on research and development. However, the pharmaceutical industry is characterized by a high level of risk in investments in research and development compared to other high-tech sectors of the economy. The main reason for this is that the development of innovative drugs requires 10–15 years and an average cost of 1.3 billion US dollars to bring chemical and biological compounds to a finished product.

In the pharmaceutical policy of the republic, issues such as localization of production, the organization of free economic zones and pharmaceutical clusters specializing in the pharmaceutical sector, the introduction of advanced world standards (GMP, GDP, GPP, GSP, GxP, etc.) into the industry, the organization of in-house production of high-component drugs, the training of highly qualified personnel, and the adoption of world experience are becoming increasingly important.

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Получено редакцией: 21.01.2025; Одобрено: 22.02.2025  
Опубликовано: 31.03.2025

#### КОНФЛИКТ ИНТЕРЕСОВ

Автор заявляет об отсутствии конфликта интересов.

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Received 21 January 2025; Accepted 22 February 2025  
Published 31 March 2025

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#### CONFLICT OF INTERESTS

The author declares no conflicts of interest.