

THE ROLE AND IMPORTANCE OF INDUSTRIAL SECTORS IN THE GLOBAL  
ECONOMY

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**Abstract**

Our article analyzes the role and importance of industrial sectors in the global economy. We examine the main industrial sectors and their contribution to economic growth, employment, and international trade. Particular attention is paid to the impact of technological innovation, globalization, and structural transformation on industrial development. The paper also discusses trends in countries' industrial specialization and their impact on economic competitiveness in the global market.

**Keywords**

industry, economic growth, global economy, industrial sector, technological innovation, globalization, international trade, structural transformation, employment, competitiveness.

**Аннотация**

Наша статья посвящена анализу роли и значения промышленных секторов в мировой экономике. При этом мы рассматриваем основные отрасли промышленности, их вклад в экономический рост, занятость и международную торговлю. Особое внимание уделяется влиянию технологических инноваций, глобализации и структурных преобразований на развитие промышленности. В работе также обсуждаются тенденции изменения промышленной специализации стран и их влияние на экономическую конкурентоспособность на мировом рынке.

**Ключевые слова**

промышленность, экономический рост, мировая экономика, промышленный сектор, технологические инновации, глобализация, международная торговля, структурные преобразования, занятость, конкурентоспособность.

**Introduction.** Industrial sectors are key drivers of national economic development and play a significant role in shaping the global economy. Historically, industry has been the foundation of economic progress, beginning with the Industrial Revolution, when mechanical engineering, metallurgy, and textiles became drivers of economic growth. While industrial sectors remain important today, their structure and functions have changed significantly under the influence of globalization, scientific and technological progress, and integration processes.

Modern industry not only produces material goods but also contributes to the development of high-tech industries, the creation of new jobs, the development of export potential, and the strengthening of national competitiveness. Particular attention in the global economy is given to sectors such as mechanical engineering, chemicals, energy, information technology, and equipment manufacturing, as they serve as the foundation for innovative development and technological progress.

Furthermore, the industrial sector is an important element of international trade. Economies of countries with a developed industrial base are able to export high-tech products, occupy leading positions in global markets, and attract investment. At the same time, changing industrial structures, the transition to a green economy, and the digitalization of production are creating new challenges and opportunities for countries, stimulating the modernization of industrial enterprises and the introduction of innovative technologies.

**Analysis of literature on this topic.** In scientific research, the industrial sector is traditionally viewed as a key factor in economic growth and the structural transformation of national economies. The importance of industry in the global economy is analyzed within the framework of classical, neoclassical, and modern institutional and innovation theories. The foundations for theoretical understanding of the role of industry were laid by representatives of the classical economic school. A. Smith emphasized the importance of the division of labor and specialization as sources of productivity growth, which is directly related to the development of industrial production. D. Ricardo, developing the theory of comparative advantage, demonstrated that the industrial specialization of countries shapes their positions in international trade and influences the global distribution of resources<sup>1</sup>.

In the works of K. Marx, the industrial sector is considered the basis of the capitalist economy, determining the dynamics of capital reproduction, employment levels, and technological development. This approach has had a significant influence on subsequent research into industrial development and the socioeconomic consequences of industrial growth. The neoclassical theory of economic growth, represented by R. Solow's model, emphasizes the role of capital accumulation and technological progress, with the industrial sector serving as the primary venue for the realization of these factors<sup>2</sup>. Subsequently, endogenous growth theories (P. Romer, R. Lucas) shifted the emphasis to innovation and knowledge, concentrated primarily in high-tech industries.

The analysis of industrialization processes and structural shifts occupies an important place in the literature. W. Rostow, in his concept of the stages of economic growth, considers industrialization a key stage in the transition to sustainable economic development<sup>3</sup>. Contemporary research confirms that an increase in the share of manufacturing contributes to increased added value, higher labor productivity, and the formation of a competitive economy. The relationship between the industrial sector and international trade is explored in detail in the works of P. Krugman and R. Baldwin. The authors note that industrial production forms the basis of countries' export potential and their participation in global value chains. The development of transnational corporations and global production networks increases the importance of industry in the global economy, especially in the context of globalization<sup>4</sup>.

<sup>1</sup> Рикардо Д. Начала политической экономии и налогового обложения. — М.: Соцэкгиз, 2007.

<sup>2</sup> Solow R. A Contribution to the Theory of Economic Growth // Quarterly Journal of Economics. — 1956. — Vol. 70(1). — P. 65–94.

<sup>3</sup> Rostow W. The Stages of Economic Growth: A Non-Communist Manifesto. — Cambridge: Cambridge University Press, 1990.

<sup>4</sup> Baldwin R. The Great Convergence. — Harvard University Press, 2016.

A separate area of research is devoted to the role of technological innovation in industrial development. J. Schumpeter emphasized that innovations implemented in the industrial sector are the driving force behind economic development and structural change. Contemporary authors link the growth of industrial competitiveness to digitalization, automation, and the implementation of the Industry 4.0 concept<sup>5</sup>.

The socioeconomic aspects of industrial development are also widely represented in the scientific literature. Research shows that the industrial sector plays a significant role in job creation, the formation of the middle class, and poverty reduction, particularly in developing countries. Furthermore, the need to combine industrial growth with social and environmental sustainability is emphasized. In recent years, particular attention has been paid to the issues of sustainable and "green" industrial development. The work of international organizations and economists notes that the industrial sector must adapt to environmental standards and the principles of sustainable development while maintaining its competitiveness<sup>6</sup>.

**Research methodology.** The research methodology aims to comprehensively analyze the role and significance of industrial sectors in the global economy using theoretical and empirical methods of economic analysis. The choice of methodological tools is driven by the multifaceted nature of industrial development, its impact on macroeconomic indicators, international trade, and structural changes in the economy. The theoretical basis of the study is based on the tenets of classical and neoclassical economic theory, as well as the concepts of endogenous economic growth, industrialization, and structural economic transformation. The work utilizes theoretical approaches by A. Smith, D. Ricardo, K. Marx, R. Solow, P. Romer, and J. Schumpeter, revealing the relationship between industrial development, capital accumulation, and technological progress. The study utilized a combination of general scientific and specialized economic methods, ensuring a comprehensive and objective analysis of the problem under study. General scientific methods include:

- analysis and synthesis used to identify the essence and structure of industrial sectors of the global economy;
- induction and deduction applied in the formation of theoretical generalizations and conclusions;
- comparative analysis, allowing for a comparison of the role of industrial sectors in developed and developing countries.

The study was conducted in several logically interconnected stages:

1. Analysis of the scientific literature on the role of industrial sectors in the global economy and the formation of a theoretical basis for the study.
2. Collection and systematization of statistical data characterizing the development of industrial sectors in the global economy.
3. Conducting a comparative and structural analysis of industrial development indicators in various countries and regions.
4. Summarizing the study results, formulating conclusions and practical recommendations.

It should be noted that the results of the study may be limited by the availability and comparability of statistical data for individual countries, as well as differences in national methodologies for calculating industrial production indicators. However, the use of data from

<sup>5</sup> Schwab K. The Fourth Industrial Revolution. — Geneva: World Economic Forum, 2016.

<sup>6</sup> OECD. Green Growth and Industrial Policy. — Paris: OECD Publishing, 2020.

authoritative international sources minimizes these limitations and increases the reliability of the conclusions.

**Analysis and results.** Industry remains a key element of the global economy, supporting the production of material goods, technological development, employment, and international trade [1]. Today, the industrial sector accounts for approximately one-third of global GDP, reflecting its importance for economic growth and the sustainability of national economies [2]. Key industrial sectors include extractive, manufacturing, and energy, each performing specific functions: extractive industries provide raw materials, manufacturing creates high-tech goods, and energy supports the functioning of all other industries [3]. Modern industry drives scientific and technological progress. The mechanical engineering, chemical, electronic, and metalworking industries concentrate the main investments in research and development (R&D), which facilitates the implementation of innovation and increases labor productivity [4]. Innovative industry stimulates economic competition, creates new markets, and facilitates the formation of global value chains in which components are produced in different countries, and final goods are exported to international markets [5]. Industry also directly influences the socioeconomic structure of countries. It creates jobs with higher skills and wages compared to other sectors, which contributes to the growth of human capital and improves the population's standard of living [6]. The development of the industrial sector requires the training of technical specialists and engineers, which stimulates educational systems to modernize and implement new educational standards. Countries with a developed industrial base have a high concentration of scientific and technical personnel, which provides an advantage in technological development [1]. In the context of globalization, industry is closely linked to international trade. Countries with developed manufacturing export high-tech goods and occupy leading positions in global markets. Industrialized countries account for up to 75% of global manufacturing exports [2]. At the same time, the redistribution of production capacity towards developing countries is associated with lower labor costs, favorable investment policies, and infrastructure development, which creates new opportunities for global production and technological exchange [3].

Modern industrial trends include digitalization, automation of production, the implementation of artificial intelligence, the Internet of Things (IoT), and the green economy. These changes improve production efficiency, reduce costs, and promote sustainable development [4]. Integration into global supply chains makes national economies interdependent: stable production in one country directly influences trade and economic processes in other countries [5]. Industry across the world varies significantly in terms of production volume, share of GDP, and exports. To clearly demonstrate the contribution of the major industrial powers to the global economy, we can examine data on industrial GDP, the share of industry in GDP, and employment in industry. Table 1 shows comparative indicators of industry in key countries and regions.

**Table 1.**  
**Key indicators of the global industrial sector**

Country / Region	Share of industry in GDP, %	Volume of industrial GDP, \$ billion	Employment in industry, million people	Share of industrial exports, %
China	39	6 000	150	30
USA	18	3 500	12	20
Germany	25	1 800	7	25
Japan	20	1 200	9	22

India	28	1 100	40	15
European Union	21	5 000	40	28
Russia	32	1 000	10	18

An analysis of the table's data reveals that China, the United States, and Germany remain the largest industrial powers, each with a high share of industry in GDP and significant volumes of industrial exports. China stands out among other countries due to its high share of industry in GDP and significant employment levels, confirming its status as the "world's factory." The United States and Japan, despite their smaller share of industry in GDP, maintain their leadership in high-tech industries and the export of complex products. Developing countries such as India are showing rapid growth in industrial production, reflecting the trend toward a redistribution of global production toward countries with lower labor costs and growing economies. The European Union demonstrates a high level of integration of its industrial sector into international value chains, ensuring the region's competitiveness in the global market.

To more fully understand the role and importance of industrial sectors in the global economy, it is advisable to supplement general macroeconomic indicators with an analysis of the structure of industrial production by major sector. This approach allows us to identify which industries generate the greatest added value, drive technological progress, and determine the competitiveness of countries in the global economy. Comparing traditional and high-tech industrial sectors is particularly important, as it is structural shifts within industry that determine long-term economic growth trajectories.

**Table 2.**

**Structure of global industrial production by major sector<sup>7</sup>**

Industrial sector	Share of global industrial value added, %	Economic importance of the sector
Mining industry	12–15	Provision of raw materials, energy security
Manufacturing industry	55–60	Added value creation, export potential
Mechanical engineering and metalworking	18–22	Technological development, innovation
Chemical and petrochemical industry	10–13	Production of intermediate goods, multiplier effect
High-tech industries (electronics, ICT, pharmaceuticals)	15–18	Innovative growth, global competitiveness

The data in Table 2 demonstrate the dominant role of manufacturing in the structure of global industrial production, accounting for more than half of global industrial value added. This confirms the findings of economic theory and empirical research that manufacturing industries are the key drivers of economic growth, exports, and employment. The significant share of mechanical engineering and metalworking underscores their strategic importance in ensuring the technological development and modernization of national economies. In turn, the growing share

<sup>7</sup> data provided by the World Bank, UNIDO and OECD.

of high-tech industries reflects the growing role of innovation, digitalization, and knowledge-intensive manufacturing in the global economy.

To better understand the scale and dynamics of the world's leading economies, it is useful to analyze changes in gross domestic product (GDP) over a long period. Inflation-adjusted GDP is a key macroeconomic indicator reflecting a country's overall economic potential and the performance of its industrial and non-industrial sectors. A comparative analysis of the GDP dynamics of the world's largest economies allows us to identify general trends in global economic growth and assess the contribution of the industrial sector to the long-term economic stability of countries.

**Figure 1.**

**GDP dynamics of the world's leading economies for 2015–2025 (in constant prices)<sup>8</sup>**



As can be seen from the data presented in Figure 1, most of the world's leading economies demonstrated positive real GDP dynamics during the period 2015–2025, although economic growth rates varied significantly across countries. The United States retains the largest absolute GDP, growing from \$23.7 trillion to \$30.3 trillion, demonstrating high resilience and a diversified economic structure, largely based on a developed industrial and technological sector. China and India, demonstrating the highest GDP growth rates, are particularly noteworthy. China's 74% and India's 77% growth over the period under review reflect active industrialization, expansion of the manufacturing sector, and integration into global production chains. These countries confirm the thesis that accelerated industrial development is a key factor in catch-up economic growth.

<sup>8</sup> [https://internationalinvestment.biz/en/analytics/5667-ranking-the-worlds-largest-economies-by-gdp-growth.html?utm\\_medium=organic&utm\\_source=yandexsmartcamera](https://internationalinvestment.biz/en/analytics/5667-ranking-the-worlds-largest-economies-by-gdp-growth.html?utm_medium=organic&utm_source=yandexsmartcamera)

At the same time, developed European economies such as Germany, France, and Italy are characterized by more moderate growth rates. This is due to the high degree of maturity of their economies, structural constraints, and the gradual transition to a post-industrial development model. However, even in these countries, the industrial sector remains an important source of export revenue and technological competitiveness, particularly in high-tech and knowledge-intensive industries. Overall, the data presented confirm that the long-term economic growth of the world's leading countries is closely linked to the state and transformation of their industrial sectors. Economies that actively invest in industrial production, innovation, and technological modernization demonstrate higher growth rates and strengthen their position in the global economy.

Despite the relatively smaller share of extractive industries, this sector remains crucial for the sustainable functioning of the global economy, providing raw materials and energy resources for other industries. Overall, the presented structure demonstrates that the competitiveness of countries in the global economy is increasingly determined not by production volumes, but by the level of development of manufacturing and high-tech industrial sectors. Thus, industry remains a fundamental part of the global economy, providing technological innovation, employment, export potential, and economic stability. Its role continues to evolve, but it remains a key factor in the competitiveness of countries on the global stage [6].

**Conclusion and suggestions.** An analysis of the role of industrial sectors shows that industry remains a key driver of economic growth, technological innovation, and international trade. Countries with a developed industrial base, such as China, the United States, Germany, and Japan, make the largest contribution to global GDP, but emerging economies are demonstrating rapid growth and potential for further industrialization. The industrial sector also contributes to job creation, improved workforce skills, and the development of competitive export potential. Current trends, including digitalization, automation, the implementation of artificial intelligence, and the green economy, are changing the structure of industry, increasing production efficiency, and stimulating sustainable development. At the same time, the global integration of supply chains creates interdependence among countries and highlights the need for strategic industrial policy planning.

While researching the topic, we identified the following problems and expressed our scientific proposals to them, which include:

1. Stimulate the development of high-tech industries through investment in research and development and innovation.
2. Improve the skills of the workforce by developing technical and vocational education systems that meet the modern requirements of the industrial economy.
3. Develop international cooperation and integration into global production and trade chains to enhance the competitiveness of national industry.
4. Implement digital technologies and "green" production methods to improve the efficiency and sustainability of the industrial sector.
5. Create government industrial support programs aimed at modernizing production facilities and implementing advanced technologies.

Thus, industry remains strategically important, and its development directly impacts the economic stability, competitiveness, and technological superiority of countries on the global stage. Implementation of the proposed measures will strengthen the position of national economies, increase production efficiency, and ensure long-term sustainable growth of the industrial sector.



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