ЕКОНОМІЧНІ ПРОБЛЕМИ СТАЛОГО РОЗВИТКУ НАЦІОНАЛЬНОЇ ЕКОНОМІКИ

УДК 338.45.01
JEL classification: B11, E21, F15, O57

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FROM DEINDUSTRIALIZATION TO MODERNIZATION AND GROWTH OF INDUSTRIAL PRODUCTION

ВІД ДЕІНДУСТРІАЛІЗАЦІЇ ДО МОДЕРНІЗАЦІЇ ТА ЗРОСТАННЯ ПРОМИСЛОВОГО ВИРОБНИЦТВА

The article has discussed the features of the formation and development of the industrial sphere in the territory of today's Ukraine, considering the cyclical nature of the passage of socio-economic processes, starting from the time of the fall of the feudal system and the transition to capitalist relations (second half of the 19th century). The evolution of the formation of the fuel and metallurgical base in the Dnieper and Donbas's with the participation of foreign capital has been investigated. The main priorities of centralized management and planning during the five-year period of accelerated industrialization (1928-1932) have been described. The achievements of the Ukrainian industry on the eve of the independence of the state (1991) have been emphasized - from mining to the creation of high-tech industries (space, aviation, shipbuilding, transport engineering, etc.). The problems of the industrial complex functioning (deindustrialization of the economy, a shortage of qualified personnel, critical dependence on the export of raw materials, low resource efficiency, etc.) has been analyzed. The theoretical foundations of the industrial policy formation in the conditions of transformation processes in the economy, the convergence of economic models of Ukraine and the EU countries have been improved. The international best practice of managing changes in the industrial sphere in the conditions of competition, strengthening manifestations of protectionism in the world market has been summarized. Measures have been developed to enhance the process of entering domestic enterprises to the global added value chains, which will contribute to expanding access to international markets, attracting FDI, and modernizing technologies. The expediency of introducing effective organizational forms of supporting business projects and innovations in the industry, increasing responsibility for the development, adoption, and implementation of engineering, business and management decisions has been substantiated. Recommendations on improving the national industrial policy with a focus on the comprehensive and sustainable development of industrial production to further strengthen the economic security of the state have been proposed.

Keywords: inclusive and sustainable industrial development, competitiveness, international trade, industrial policy, consumer demand, technological progress, quality of life

У статті розглянуто особливості становлення та розвитку промислової сфери на території сьогоднішньої України з урахуванням циклічного характеру проходження соціально-економічних процесів, починаючи з часів падіння феодально-кріпосницької системи і переходу до капіталістичних відносин (друга половини XIX ст.). Досліджено еволюцію формування паливно-металургійної бази в Подніпров'ї і на Донбасі за участю іноземного капіталу. Охарактеризовані головні пріоритети централізованого управління і планування в період п'ятирічки прискореної індустріалізації (1928-1932 рр.). Наголошено на здобутках української промисловості напередодні незалежності держави (1991 р.) – від видобутку корисних копалин до створення високотехнологічних галузей (космічна, авіаційна, суднобудування, транспортне машинобудування та ін.). Аналізуються проблеми функціонування промислового комплексу (деіндустріалізація економіки, дефіцит кваліфікованих кадрів, критична залежність від експорту сировини, низька ресурсоефективність і т.д.). Вдосконалено теоретичні засади формування промислової політики в умовах трансформаційних процесів в економіці, конвергенції економічних моделей України та країн ЄС. Узагальнено передовий зарубіжний досвід управління змінами в промисловій сфері в умовах конкуренції, посиленні проявів протекціонізму на світовому ринку. Розроблено заходи по активізації процесу входження вітчизняних підприємств в глобальні ланцюги доданої вартості, що сприятиме розширенню доступу до міжнародних ринків, залученню ПІІ, модернізації технологій. Обгрунована доцільність впровадження ефективних організаційних форм підтримки бізнес-проектів та інновацій у сфері промисловості, посилення відповідальності за розробку, прийняття та виконання інженерних, господарських та управлінських рішень. Запропоновано рекомендації з вдосконалення національної промислової політики з орієнтацією на всеосяжний і стійкий розвиток промислових виробництв для подальшого посилення економічної безпеки держави.

Ключові слова: всеохоплюючий та стійкий промисловий розвиток, конкурентоспроможність, міжнародна торгівля, промислова політика, споживчий попит, технологічний прогрес, якість життя

Introduction. From the first days of Ukraine's independence (1991) and until now we have been witnesses and, in a certain way, direct participants in the proclamation and research of various approaches to the formulation of directions and mechanisms for the state strategic development. The problems of scientific and technological progress researching have changed to the economy and society of knowledge, scientific, technological and innovative development, the innovation and investment model, the strategy of national modernization, the concept of sustainable development, and finally, the digital economy and Industry 4.0. As a result, Ukraine occupies a shameful last (!?) position in the list of countries in terms of GDP growth (PPP) between 1990 and 2018 as a percentage, according to the World Bank. Over thirty years, the GDP growth rate (PPP) has been only ... 11%. This is a the most

provable fact that practically nothing has been created in the state over the indicated period, or more precisely: it has been destroyed, cut and handed over for scrap, sold; stolen, partially restored and new production facilities have been created. Next to Ukraine in the indicated list are Georgia (71%) and Haiti (115%). The highest rates of GDP growth (PPP) has been recorded in Equatorial Guinea (10998%), China (2162%) and Myanmar (1727%). World average indicator is 369%, in EU – 213%, in Euro zone – 200% [1].

One of the key factors in the decline of the national economy, from which it is trying to emerge, although too slow, is the destruction of entire groups of leading industries. Suffice it to mention just a few of them: the aviation industry, the rocket, and space industry, shipbuilding, machine tool building, robotics, tool industry, chemical engineering, tractor manufacturing, agricultural engineering, instrument-making, the household appliance and machine industry, the manufacture of metal products and blanks, etc. Evidence of the above statement is the data about output of the most important types of industrial products for the period 1990-2018 (Table 1). The production volume has decreased by several times (!). The "positive" is a fivefold increase in the production of ... oil.

Industrial production, first of all, technology-intensive manufacturing and high-tech is a decisive sign of a developed economy. According to UNIDO, Ukraine has not been found a place among 57 countries and economies with developed industry. It has been assigned to the second of four state groups (to 32 countries and economies with a developing industry) [2].

A significant amount of research has been devoted to the problems of industrial development in the world and the revival in Ukraine. Their results are reflected in strategies, concepts, programs, monographs, articles, dissertations, analytical notes, etc. For obvious objective reasons, we restrict ourselves to a reference to a rather small number of scientists, whose opinion when considering the chosen problems, we treat with special attention and respect. Let's name their names: V.M. Geyets [3], B. M. Danylyshyn [4], L.V. Deineco [5], A.K. Kinakh [6], Yu.V. Kindzersky [7], G.M. Skudar [8]. It is difficult to add something original to the developments, generalizations of these and many other scientists, industrialists, politicians, officials, sociologists, journalists, etc. Almost all of them express rather constructive thoughts. There are not only ... positive shifts that would satisfy not the oligarchs and their environment, but the population. The main reason from which we need to start considering the decline of the national economy, its industrial complex is the inefficiency of public administration, incompetence, moral and material irresponsibility of those who develop, consider, accept, control, but do not implement properly made engineering, business, and management decisions.

Table 1 – Production of main types of products in Ukraine, 1990-2018

Indicators	1990	2000	2010	2013	2015	2018	2018/ 1990,%
Electricity, billion kW, hour	298	171	189	194	163,7	159,9	53,7
Coal, million tons	130	62,4	55	64,2	29,9	26,3	20,2
Finished steel, million tons	38,6	22,6	17,6	17,8	12,1	11,4	29.5
Steel pipes, million tons	6,5	1,7	2,0	1,8	1,0	1,1	16,9
Synthetic ammonia, million tons	4,9	4,4	1,2	4,2	2,2	0,8	16,3
Mineral fertilizers, million tons	4,8	2,3	2,3	-	4,3	3,7	77,1
Cement, million tons	22,7	5,3	9,5	9,2	8,5	8,9	39,2
Cars, thousand units	196	31,9	105,6	45,8	8, 2	6,6	3,4
Tractors, thousand units	106	-	-	2,9	2,8	2,4	2,3
Fabrics, million square meters	1210	66,7	88,2	93,6	86,3	75,0	6,2
Shoes, million pairs	196	13,5	25,7	30,5	23,0	21,5	11,0
Sausages, thousand tons	900	175	281	294	236	248	27,6
Butter, thousand tons	444	135	79,5	94,3	102	105	23,7
Vegetable oil, thousand tons	1070	973	3030	3403	3715	5100	476,6

Source: Calculated based on data from the State Statistics Committee of Ukraine [3]

Setting objectives. The aim of the prepared article is an attempt to understand the reasons for the unsatisfactory results of transformation processes when trying to abruptly transition from a planned management system to a liberal-market economic model and express recommendations of a theoretical, methodological and practical nature on the revival, modernization and further development of the country's industrial complex.

Methodology. The theoretical and methodological basis of the study is the work of foreign and domestic scientists involved in the field of academic, university and factory science, key provisions of economic theory, conceptual approaches to studying the problems of geopolitics, globalization, and sustainable development, integration and convergence processes in the world economy. In the process of scientific and practical search, the following general scientific and special methods of the scientific search have been used: dialectical cognition and formalization, historical, logical and comparative analysis, causation, systemic structural analysis, analytical and empirical generalization, ranking and selective observations.

The information base of the study is legislative and regulatory acts, statistics of international organizations (IMF, WB, UNIDO, OECD), State Statistics Service, Ministry of Finance, National Bank of Ukraine, results of international observations, indexing, and rating, materials of periodicals and Internet resources.

The results of the study. A retrospective analysis of the formation of industrial potential in Ukraine (late XIX century – early XX century). Exploring the changes taking place in the structure of the industrial complex of modern Ukraine, it is advisable to take an excursion into history, at the time of the emergence of capitalist relations in Tsarist Russia. It is known that an important impetus in the implementation of socio-economic reforms in the second half of the XIX century became the manifesto and the relevant legislative acts on the liberation of the peasants from serfdom, dated February 19, 1861. These decisions of the tsarist government completed the fall of the feudal-serf system and the transition to a capitalist manufactory, and then to the development of large-scale machine industry. Peasants and other segments of the population were allowed to buy movable and immovable property, engage not only in agriculture, but also in trade, and participated in commodity production in the factories and plants.

The capitalization of landowner and peasant farms, the use of machinery in agriculture, the use of civilian labor, an increase in sown areas and an improvement in the structure of crops brought tangible results. In the late 90s of the XIX century, the share of Ukrainian wheat in the Russian Empire export was 90%. On Ukrainian lands, 43% of the world's barley, 20% of wheat and 10% of corn were harvested. In 1913, the gross grain harvest amounted to 1200 million pounds [9].

Then the south of Ukraine turned into the main fuel and metallurgical base of the Russian Empire. Coal mining increased by more than 115 times and amounted to 691.5 million pounds in 1900; iron ore – 158 times (210 million pounds). During the years 1870-1880 pig iron production increased by 4 times, rolled products – 7,7 times. The high level of concentration in sugar factories contributed to a 14-fold increase in sugar production. The key positions in the coal, iron ore and metallurgical industries were occupied by English, Belgian, German and French capitals. At the beginning of the XX century foreigners owned about 90% of the share capital of monopolistic associations. Revenues received were sent mainly abroad. The presence of foreign investors made it possible to introduce new equipment and advanced technologies, apply effective forms of labor organization, and train highly qualified personnel. In many factories, the managerial staff, engineers and technicians, craftsmen, as well as some skilled workers were foreigners. The increase in industrial potential and concentration of labor was observed primarily in the Dnieper and Donbas.

Particular attention should be paid to the protectionist policies of the tsarist government, which in every way contributed to the development of the industrialization process. To protect the domestic market, in 1891, compared with 1868, the toll on pig iron increased by 10 times, kerosene – 3 times, rails – 4,5 times, cars – 8 times, steam locomotives – 4 times, cotton fabrics – 2 times. The amount of

the toll in 1868 was 17.6% of the value of the goods, and in 1891 – 33% of the value of the export. In Germany, this figure was 8% (France – 9%, Italy – 18, USA – 30%, Brazil – 40%). High customs toll on imported goods ensured the development of our producer, domestic industry. State policy was aimed at importing not goods, but capital. To an interested reader, we would advise in this connection to refer to one of the works of D.I. Mendeleev, moreover, not as a chemist, but as a picky researcher-economist with his "Sensible Tariff ..." [10].

The industry of Ukraine during the planned economic system (1928-1991). The main priorities of centralized management and planning during this period were: the production of means of production before the production of consumer goods; investments before consumption, industry before agriculture, material production before the service; military products before civilian; domestic goods before imported. After revolutions, wars, crises and other disasters, the revival of the economy began from the industry. This approach took place in England (late XVIII - first half of the XIX century, the Navigation Act of O. Cromwell, 1651), Germany (L. Erhard and his program for building a social market economy in conjunction with the "Marshall Plan" and the American GARIOA program, 1948-1950), China (the implementation of socialist industrialization, 1953-1957), etc. A similar approach took place in Ukraine in the implementation of the first five-year plan (1928-1932). It was aimed at transforming the country from an agrarian to industrial. The main task of the five-year plan was to "catch up and overtake the western countries" economically. The government made a decision "at any cost" to accelerate the development of engineering and other sectors of heavy industry. The growth volumes of heavy industry sectors were foreseen at the level of 330%.

Among the main achievements of the first five-year plan, the five-year industrialization: Dneproges, Kyiv, Kryvyi Rih, and Kharkiv power plants. New buildings included metallurgical plants (Azovstal, Zaporizhstal, and Krivorozhstal). Kharkiv Tractor Plant, Dnepraluminiybud and Krammashbud were put into operation. After the reconstruction, the Lugansk Locomotive Plant, as well as metallurgical plants in Dneprodzerzhinsk, Dnepropetrovsk, Kommunarsk (Alchevsk) and Makiivka, were commissioned. During the period of the first five-year plan, whole segments of the industry were recreated: automobile, aviation, machine-tool industry, tractor, metallurgy, agricultural engineering, and the chemical industry. In the organization of production, the emphasis was on reducing costs, introducing new technology, reducing the length of the working day by increasing labor productivity and product quality.

A special stage in the history of Ukraine was the revival of industry in the postwar years. Summing up the development of the industrial complex during the period of the planned economic system, it is worth noting that Ukraine occupied one of the leading

places in the framework of the union state in this area. It is not only about industrial potential, but also about the level of education and science. In the world ranking in 1991 Ukraine ranked 60th in terms of GDP (PPP) per capita. Ukraine belonged to the group of highly developed industrial and agricultural states, was characterized by the presence of a complex set of industries (about 300). In 1990, over 40% of the total industrial and production potential of the republic was occupied in the machine-building complex. In the structure of industrial production, products of this industry accounted for 31%. Machine-building enterprises produced power and metallurgical equipment, instrument-making products, agricultural machinery, and railway cars, combines, rotary excavators, equipment for the light and food industries, and agriculture. In the most high-tech sectors of engineering, considerable attention was paid to the production of computers, automation, etc.

The results of the "shifts" in the functioning of the industrial complex (1991-2020). During the period of independence, during the reign of 6 presidents and 15 prime ministers, Ukraine adopted many concepts, strategies, and programs for the development of the industry. The results of the proclaimed, accepted, but unfulfilled strategies are well known. Reasonable evidence is the comparative data (Table 1) for the production of the main types of industrial products in 2018 compared with 1990.

B. Danylyshyn notes: “By the time it gained independence, Ukraine had developed, by the standards of the late 20th century, industry - from mining and production of raw materials from them to high-tech industries such as space, aviation, and engineering. If we talk about the scale, they were relatively modest: according to the results of 1991, the share of Ukraine in world industrial production amounted to 0,57%, but the country, of course, was industrialized. Unfortunately, there has been a downward trend since then, which has accelerated in the last few years: in 2013, Ukraine's share in world production of industrial goods amounted to 0,2%, in 2016 – 0,16%. The share of the Ukrainian economy in the world is also falling: in 1991 – 0,36%, in 2013 – 0,17, in 2016 – 0,12%” [4].

This idea is continued by A.K. Kinakh, Prime Minister of Ukraine (May 20, 2001-November 21, 2002): “It has been recorded that since 2016, not a single aircraft has been built in the country, the shipbuilding industry is in deep crisis, and the famous “corvette”, which was a chance for Ukraine to preserve itself as a shipbuilding state, frozen, and with such an attitude, the authorities have no prospects. I'm not talking about the space-rocket complex, transport engineering, etc. And this is a situation when the moral and physical wear and tear of fixed assets in Ukraine, on average, by industry reaches 70%, and in the rolling stock of Ukrzaliznitsa – 90%. What other arguments are needed for the state to understand how serious it is necessary to use our

potential with a reasonable localization of production, to formulate clear programmatic actions in the relevant areas of industrial development, modernization?" [6].

During the period of independence, the state economy has suffered significant losses. Now the GDP level is only 65.8% (2019) compared with 1991. The negative dynamics of industrial production significantly outpaces the rate of change in GDP (Fig. 1). The share of the industrial sector in GDP decreased from 45.8% (1991) to 21.2% (2017) and continues the negative dynamics.

The most important problems of industrial development include the following: de-industrialization of the economy, which led to a sharp decrease in production volumes and the decline of many industries; shortage of qualified personnel, their mass outflow abroad; critical dependence on export of raw materials; the prevalence of industrial production with low added value; high level of imports of manufactured goods; low resource efficiency of production capacities, high level of environmental pollution [11].

Demand for products and services in the domestic and foreign markets determine a comprehensive and sustainable industrial development strategy. In the preface to the Industrial Development Report 2018, Lee Yoon, UNIDO Director-General, emphasizes that a comprehensive and sustainable industrialization process is extremely important for sustainable development. It releases dynamic, competitive economic forces that create jobs and generate income, facilitate international trade, and ensure efficient use of resources. Industrialization is an important factor in reducing poverty and ensuring overall prosperity. Along with issues such as capacity building, energy efficiency, job creation, and technological progress, special attention should be paid to studying the demand for traditional and new industrial products. At the same time, during the process of industrial development, environmental sustainability should be ensured through the adoption of measures that would contribute in every way to environmental goods production. We are talking about the production of goods, during which the use of natural resources and toxic substances is reduced, as well as the reduction of emissions, waste, and pollutants [2, p. V].

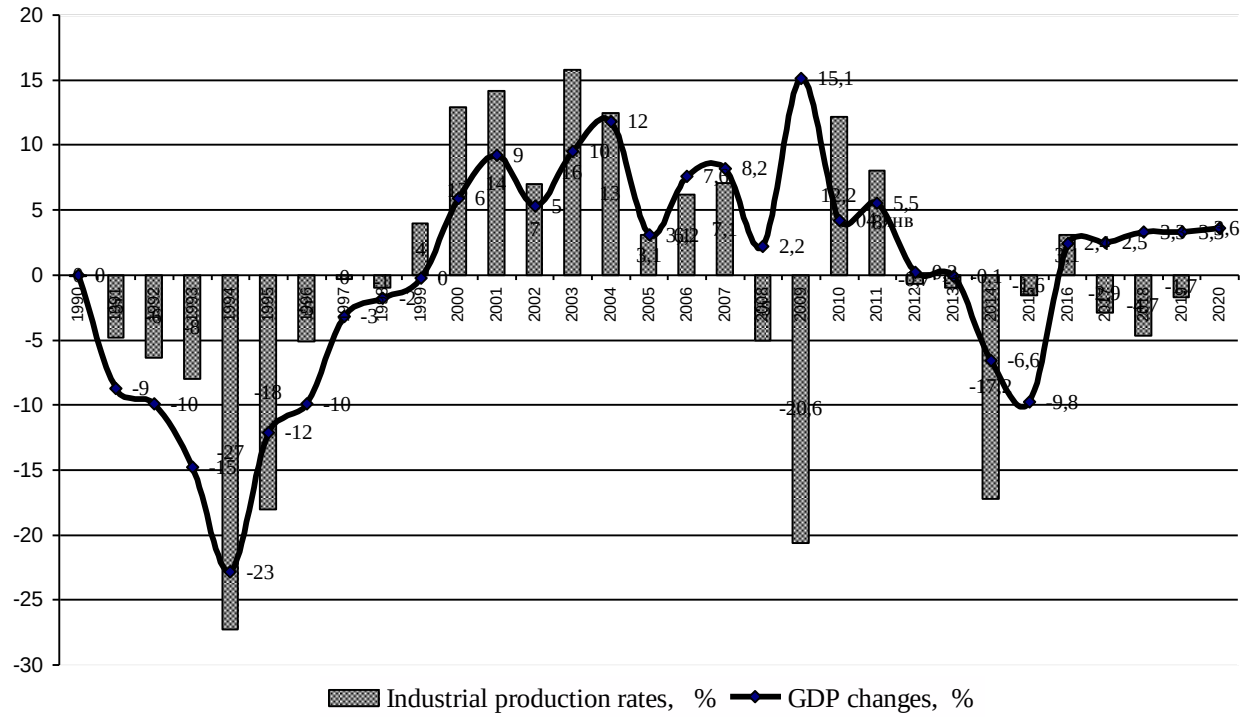

Figure 1 – Dynamics of GDP and industrial production, 1990-2020, %

Source: Calculated based on data from the State Statistics Committee of Ukraine

When supplementing existing program documents or developing new ones, one should strictly adhere to the classical scheme of their development, discussion, adoption, and execution [12]. The structure of the program (strategy, concept) includes the following main elements: target, where the general-purpose, key goals and sub-goals of the program (goal system), the sequence of their implementation are determined; structural, which defines the range of economic entities involved in the program; feasibility study of the need for solving the problem; resource block, where the volumes, sources, terms, and structure of the allocation and distribution of all types of resources necessary for the proper implementation of planned activities are determined; organizational, in which responsible executors and the timing of planned activities implementation should be indicated.

An important condition for achieving the program objectives is the creation of an effective mechanism for managing the program, its organizational and economic component. The actions of the organizational mechanism should be aimed at implementing the full management cycle of the program development and implementation. The economic mechanism provides for the application of the necessary methods of economic influence, the provision of necessary material, technical, financial and information resources, their effective use, assessment, moral

and material encouragement for the perpetrators. An indispensable function of the program management mechanism should be the day-to-day and proactive control of the progress of each array of activities.

One of the latest projects of the Industrial Complex Development Strategy for the period up to 2025 is noteworthy. In this development, the authors determine the following main goals of the strategy: modernization and growth of industrial production; regional development of the industrial sector; increasing resource efficiency. The task of modernization and the expected growth in industrial production should be solved based on the following positions: development of existing and implementation of new technological processes with high added value; increase productivity and increase production volumes; improvement of management methods; joining global value chains. The urgent tasks are the need to increase industrial production in underdeveloped regions, strengthening regional value chains. Measures related to optimizing the use of raw materials and energy sources, as well as the introduction of effective practices in waste management, their processing, and reduction of industrial emissions should contribute to improving the resource efficiency of industry [11].

As domestic and world experience shows, among the main functions of the state in facilitating the modernization of industrial sector development, increasing its competitiveness in the domestic and foreign markets, it is worth highlighting the following: marketing sphere; industry bodies; financial and economic structures; information channels; regulator; consumer [2]. The general factor of success in the implementation of industrial policy, according to the author and relying on my own 50-year-old experience of production, management, and scientific activity, should be a charismatic leader, a leader with exceptional personal qualities.

The Ukrainian government believes that it is not advisable to recreate the Ministry of Industrial Policy in its structure. In Japan, for example, functions the Ministry of Economy, Trade, and Industry, in Belarus – the Ministry of Industry, in Ukraine – the Ministry of Economic Development, Trade, and Agriculture ... There place for the key concept “industry” in the name of this and no other ministry has not found, unless at the level of one of the many departments. From the triad of the foundations of the country's economy “industry – agriculture – services”, one of its components, “industry”, is crossed out step by step.

Conclusions. The industrial complex, together with the field of education and science, has been formed over the centuries. Its destruction in the country occurred extremely quickly under the influence of many internal and external factors. A sharp transition from a planned to a liberal-market model of management, a hasty process of joining the WTO (2008), the breakdown of trade and economic ties with traditional

partners negatively affected the level of well-being of the population. It is necessary to strengthen the role of the state in the implementation of economic transformations, in protecting the interests of domestic producers in the domestic and foreign markets. The process of entry of domestic enterprises into global value chains should be intensified, which will help to expand access to international markets, attract FDI, and modernize technologies. The organizational and economic mechanism of industrial management should contribute to strengthening the moral and material responsibility of all participants in the implementation of the developed strategies. Ukraine should actively implement measures to digitalize the economy and implement the Industry 4.0 program.

References:

1. GDP, PPP (current international $). World Bank, International Comparison Program database. URL: https://data.worldbank.org/indicator/NY.GDP.MKTP.PP.CD.
2. United Nations Industrial Development Organization. Industrial Development Report 2018. Demand for manufacturing products: a factor of inclusive and sustainable industrial development. Vienna, 2018. URL: https://www.unido.org.
3. Geyets V.M. Barriers to the development of industry on an innovative basis and the possibilities of overcoming them. The economy of Ukraine. 2015. No. 1 (638). P. 4-25.
4. Danylyshyn B. How can Ukraine return to the club of industrialized countries. The mirror of the week. 2017. Dec.2-Dec.8 (No. 46). P. 3. URL: https://dt.ua/promyshliennost/yak-ukrayini-povernutisya-v-klub-promislovo-rozvinenih-krayin-262070_.html.
5. Industry development to ensure growth and renewal of the Ukrainian economy: scientific and analytical report / ed. Deineko L.V.; Institute economics and forecaster". Kyiv, 2018. 158 p.
6. Kinakh A. K. Where there is a dialogue between government and business, there is a chance to find a balanced solution at the systemic, professional level in the interests of society and the state: doc. at an expanded meeting of ARGO, the board of USPP 11/15/19. URL: https: // uspp. ua / news / actual / 2018 / tam-de-ie-dialoh-vlady-i-biznesu-ie-shans-znaity-zbalansovane-rishennia-na-system nomu-profesiinomu-rivni-v-interesakh-suspilstva-i-derzhavy.
7. Kindzersky Yu.V., Yakubovsky M.M., Galitsa I.A. et al. The potential of national industry: goals and mechanisms of effective development / ed. Yu.V. Kindzersky; National Academy of Sciences of Ukraine, Institute econ. and forecaster". Kyiv, 2009. 928 p.
8. Skudar G. M. Competitiveness management of a large joint-stock company: problems and solutions. Kiev: Nauk. dumka, 1999. 496 p.
9. Leonenko P.M., Yukhimenko P.I. Economic history. Kyiv: Knowledge Press, 2004. 499p.
10. Mendeleev D. I. Explanatory tariff or Study on the development of industry of Russia in connection with its general Customs tariff of 1891. S.-Pb.: Type. V. Demakova, 1892. 782 p.
11. On approval of the Development Strategy of the industrial complex of Ukraine for the period up to 2025 (Project). URL: http://search.ligazakon.ua/l_doc2.nsf/link1/NT4284.html. 2018.
12. Gerasymchuk V. Strategic enterprise management. Graphic Modeling. Kyiv: KNEU, 2000. 360 p.