

ЕКОНОМІЧНА ТЕОРІЯ

UDC 338.23

JEL Classification: E21, F23, L16, O32, O57

DOI: 10.20535/2307-5651.22.2022.259793

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«Київський політехнічний інститут імені Ігоря Сікорського»**RESTRUCTURING THE INDUSTRY: FROM RESEARCH AND PRODUCTION ASSOCIATIONS TO SMALL AND MEDIUM BUSINESSES?****РЕСТРУКТУРИЗАЦІЯ ПРОМИСЛОВОСТІ: ВІД НАУКОВО-ВИРОБНИЧИХ ОБ'ЄДНАНЬ ДО МАЛОГО ТА СЕРЕДНЬОГО БІЗНЕСУ?**

The article summarizes the theoretical, methodological and practical aspects of industrial restructuring as a necessary condition for sustainable development and inclusive economic growth. The irrationality of the approach of the "reformers" to the application of the recommendations of the "Washington Consensus", which led to the deindustrialization of the Ukrainian economy, is analyzed. The main reasons for the low efficiency of the implementation of nationwide targeted economic programs for the development of industry have been identified. The need for effective interaction in the industrial structure of large, medium and small businesses is indicated. The level of innovative development of the national economy is assessed. An analysis of the export potential was carried out; its predominantly raw material character was noted. Measures are proposed to improve the organizational mechanism for managing the state industrial policy.

Keywords: competitiveness, deindustrialization, inclusive growth, industrial restructuring, innovations, research and production associations (corporation), target program of industrial economic development.

У статті узагальнено теоретико-методологічні та практичні аспекти реструктуризації промисловості як необхідної умови стійкого розвитку та інклюзивного зростання економіки країни. Проаналізовано прорахунки ірраціонального підходу українських «реформаторів» до застосування рекомендацій «Вашингтонського консенсусу», прискореного процесу роздержавлення та приватизації власності, що призвело до деіндустріалізації економіки, банкрутства тисяч науково-виробничих об'єднань (корпорацій). Визначено основні причини низької ефективності виконання загальнодержавних та галузевих цільових економічних програм розвитку промисловості. Вказується на необхідність ефективної взаємодії в структурі промисловості великого, середнього, малого та мікробізнесу. Здійснено оцінку рівня інноваційного розвитку національної економіки з використанням критеріїв Індексу інноваційності Bloomberg 2021. Досліджено динаміку наукоємності ВВП України у 1997–2020 рр. за видами робіт. Наголошено на необхідності прийняття невідкладних заходів з боку держави щодо підтримки розвитку фундаментальної і прикладної науки, підвищення мотивації праці науковців у створенні інноваційної, конкурентоспроможної продукції. Здійснено аналіз експортного потенціалу, який засвідчує подальший відхід країни з категорії індустріально розвинених до категорії аграрно-індустріальних, до сировинного придатку світової економічної системи. Запропоновано заходи з вдосконалення організаційного механізму управління державною промисловою політикою з посиленням ролі законодавчої та виконавчої гілок влади, системи державно-приватного партнерства в її формуванні та реалізації.

Ключові слова: конкурентоспроможність, деіндустріалізація, інклюзивне зростання, реструктуризація промисловості, інновації, науково-виробничі об'єднання (корпорація), цільова програма економічного розвитку промисловості.

Introduction. "Knowledge is a treasure trove, but the key to it is practice" (Thomas Fuller, 1608–1661, English historian and preacher). Let's supplement the wise thought of T. Fuller with the Ukrainian folk proverb: "Theoretically – a mare, practically – it does not carry". This introduction reflects the scientific and practical hypothesis of the study. During the years of independence of Ukraine (1991–2022), 5 nationwide targeted economic programs for the development of industry were adopted (1996, 2003,

2008, 2013 and 2021), as well as a large number of programs for individual industries. According to the World Bank, the volume of industrial production in Ukraine in 1990 amounted to 34.71 billion dollars, in 2020 – 32.45 billion dollars, or 93.5% compared to 1990 [1]. Taking into account inflationary processes in the economy, the devaluation of the dollar, the actual volume of industrial output has decreased by more than 2 times. The given data testify, on the one hand, to the declarativeness of the adopted

programs (concepts, strategies), and on the other hand, to the ineffectiveness of the functioning of the program management mechanism, starting with setting goals and objectives, and ending with an assessment of the results of their implementation.

We affirm the lack of unity of theory and practice in the conduct of state policy in relation to such an important sphere of the economy as industry. This statement applies to all levels of management – enterprises, industries, regions, states. The generalizing result of the inefficient state industrial policy was the deindustrialization of the economy, the transition of Ukraine from the group of industrial-agrarian countries to the category of agrarian-industrial ones. Ultimately, this is reflected in the level of well-being of the population, in the quality of their life.

Problems of industrial development, deindustrialization, restructuring, etc. a sufficient number of studies have been devoted both in Ukraine and abroad. Fundamental developments in the field of industry are carried out by scientists, primarily from the Institute of Economics and Forecasting, as well as the Institute of Industrial Economics of the National Academy of Sciences of Ukraine. We respect the publications of such famous scientists as V.P. Aleksandrova [2], V.M. Geets [3], Yu.V. Kindzersky [4], S.A. Korablin [5].

Particularly respectful attitude towards scientists and politicians, who have rich industrial experience behind them, understanding with their minds and hearts of the features of technological, economic and managerial processes in industry. The authorities here are: A.K. Kinakh [6], Yu.V. Makogon [7], G.M. Skudar [8]. We also note that in recent years a number of collective works have been published aimed at reviving, updating and ensuring economic growth through the industrial development of Ukraine [9-11]. The state, key problems of transformation, strategies and mechanisms of industrial development are a topical subject of study by scientists, both in Ukraine and in Brazil [12], the Philippines [13], Slovenia [14], the Netherlands [15] and many other countries.

Despite the "effectiveness" of scientific activity in the form of many monographs, analytical notes, articles in collections of scientific papers, defended dissertations, etc., the economic effect of their introduction in the industry of Ukraine remains quite low. The main reason is that the ongoing research is often unsystematic, fragmented, fragmented, unfocused, with a lack of understanding of the need to establish causal relationships in the process of reforming the economic system. One of the manifestations of ignoring these ties, non-observance of the principle of continuity in making the most important state decisions is the almost complete destruction of industrial complexes, scientific and production associations and an unjustifiably hasty transition to the development of small and medium-sized businesses (SMEs).

On our part, an attempt is being made to radically revise approaches to the formation of state industrial policy, based on the following key positions: 1) the need to personalize responsibility for reforming the sphere of industrial production; 2) the use of an integrated approach to the development of large, medium and small businesses based on their interdependence and complementarity; 3) in the reproduction process, the main attention should be paid to the support of the domestic commodity producer by the state; 4) political priorities should meet the economic inter-

ests of the country; 5) economic integration should contribute to the development of education, science, production, and welfare not in relation to "partner countries", but, first of all, to Ukraine and Ukrainians.

Setting the task. "Only perseverance leads to the goal" (J.F. Schiller, 1759–1805, German poet, philosopher; playwright). The purpose of the study is to analyze the non-fulfillment of nationwide targeted economic programs for the development of industry, to identify possible key areas for the formation of an inclusive industrialization policy for sustainable development.

Methodology. "Qui bene distinguit, bene docet" (Lat.). – He who analyzes well, teaches well". The theoretical and methodological basis of the study was a set of general scientific and special methods, including: historical, logical, causal and comparative analysis, grouping and generalization. From the standpoint of a scientist and practice, the author used a set of heuristic (creative) research methods: scoring and expert assessment, interviewing, the Delphi method, brainstorming, ranking, functional cost analysis (FVA) and target assessment.

Research results. Responsibility for the formation and implementation of the state industrial policy. "Quis? Quid? Ubi? Quibus auxiliis? Cur? Quomodo? Quando? (Lat.). – Who? What? Where? With whose help? Why (for what purpose)? How? When?". Although the questions posed are related to the process of investigation, they are quite suitable for the analysis of the transformations of complex socio-economic systems. It is no coincidence that the first question in the conduct of state industrial policy is the pronoun *Quis?* (*Who?*). For the failure of this policy during the period of independence, no one has incurred any responsibility – neither moral, nor material, nor disciplinary. And this is no coincidence. In each of the nationwide industrial development programs, neither the body, nor its head, nor those responsible for the implementation of program activities are indicated.

We have repeatedly drawn attention to the lack of a well-functioning organizational mechanism for managing industrial development programs in the country. As of January 1, 2022, among the 23 committees of the Supreme Council of Ukraine, there was still no place for the Industrial Policy Committee, which was present in the previous structures of the parliament. There are committees on issues of agrarian and land policy, state power, local self-government, regional development and urban planning, etc. Legislators do not need industrial policy?

Turbulence is also observed in the structure of executive power. Long before Ukraine gained independence, there were 61 ministries in the structure of the federal government (July 26, 1974). 45 (74%) of the ministries from the indicated number covered various industries and construction. The sphere of influence of these 45 sectoral ministries extended to all enterprises of the corresponding profile located on the territory of 15 union republics, including Ukraine. The Council of Ministers of the Ukrainian SSR (April 1, 1973) included 28 union-republican ministries, i.e. double subordination. Of these 28 ministries, 11 (39%) ministries were directly related to industry and construction: construction of heavy industry enterprises, energy and electrification, coal industry, light industry, forestry and woodworking industry, assembly and special construction works, meat and dairy industry, industrial construction, building materials industry, food industry, ferrous metal-

lurgy. The Ministry of Local Industry (17%) and 5 other ministries were under republican subordination [16].

In 1996, among the 29 ministries of Ukraine, 6 ministries (21%) were directly involved in the development of industry: the ministries of the coal industry, energy and electrification, industrial policy and fuel and energy complex, mechanical engineering, military-industrial complex and conversion, industry. In subsequent compositions of the government, only the Ministry of Industrial Policy dealt with the development of industry. This ministry was periodically liquidated, and after a certain time it was restored again. In the government of Ukraine in 2019, out of 17 ministries, only the Ministry of Economic Development, Trade and Agriculture had a certain relationship with industry. At the same time, out of 26 of its departments, only one (4%) "patronized" industrial policy. Finally, on July 22, 2020, the government included ... the Ministry of Strategic Industries, which is open to ... recruitment.

Thus, we have patiently outlined the evolution of the "development" of the industrial management structure of Ukraine. As a result of the "transformations" of the industrial complex in the classification of countries and economies by the level of industrialization in the UNIDO Industrial Development Report-2018, Ukraine did not find a place among 57 countries and economies with a developed industry. It belongs to the group of 16 countries and economies with developing industries. True, there is also a group of "other developing countries and economies" (78 countries), as well as a group of "least developed countries and economies" (47 countries) [17, p. 26–27]. In the European Innovation Scoreboard for 2021, among 38 countries, Ukraine took the "honorable" ... last place (the "modest innovators/weak positions" group), eventually gaining 33.6 points out of 180 possible [18]. The given data testify to the self-elimination of the legislative and executive authorities from the effective management of the state industrial policy. It is believed that the market, its "invisible hand", will solve all problems.

On the origins and some consequences of the industrial restructuring policy. *"Concordia parvae res crescent, [discordia maximae dilabuntur] (Lat.). – "In harmony, small states (small deeds) grow, [with discord, great ones collapse]"*. Perestroika processes in the political and socio-economic sphere, taking place in Ukraine and other post-socialist countries of Central and Eastern Europe, the Balkans, Transcaucasia and Central Asia, originate from the mid-80s of the twentieth century. "Perestroika" provided for the implementation of fundamental changes in five areas: ideology (glasnost, elimination of censorship), domestic policy (democratization), foreign policy relations (ending the Cold War, building a common European home), economics (development of various forms of ownership, demilitarization), social sphere (improving the well-being of the population).

The dominance of the planned economic system hindered the transition of the economy from extensive economic methods to an intensive type of economic growth using the latest achievements of science and technology. For this reason, economic transformations have affected, first of all, the expansion of the rights of enterprises with their transfer to economic accounting, self-government. The legalization of private property was accompanied by the adoption of laws on individual labor activity (ILA), cooperation (creation of joint ventures), small businesses, and leasing.

The inability of the government to implement the announced reforms led to unemployment, lower real wages, shortages of goods, rising prices, and ultimately to a rapid decline in the living standards of the population. Social processes were accompanied by a split in society, interethnic conflicts, and the formation of radical reformist groups. The failure of the policy of "perestroika" of the economy ended with a "parade of sovereignties", the formation of new states on the basis of the former Soviet republics, including Ukraine.

The main principles of the "perestroika" processes were democratization, glasnost, liberalization and "new thinking" in international politics, accompanied by nationalist sentiments in society. It is not difficult to see that the principles of "perestroika" are fully correlated with the three main principles underlying the 10 recommendations of the "Washington Consensus". It is about macroeconomic discipline, market economy and openness to the outside world. It is known that the recommendations of the "Washington Consensus" proposed by J. Williamson in 1989 were aimed at restoring the economies of Latin America. The main rule in achieving success in carrying out economic reforms was the transition from the dirigisme (command-administrative, planned) model of economic development to market mechanisms of regulation. This approach reflected the common position towards reforms on the part of the US administration, the IMF and the World Bank, as well as leading American think tanks [19].

B. Johnson and B. Sheffer conducted studies to evaluate the effectiveness of IMF assistance to 89 countries during 1965–1995, based on the recommendations of the Washington Consensus. As a result, it turned out that in 48 countries the state of the socio-economic sphere did not change, and in 32 countries the situation worsened [20]. Thoughtless adherence to these recommendations by reformers in Ukraine led to the stagnation of the economy and the industrial complex. This is eloquently evidenced by the dynamics of GDP and industrial output during 1990–2020 (Figure 1). Deregulation of the economy, accelerated privatization, reduction of restrictions on foreign direct investment, and a significant reduction in import duties created the conditions for the destruction of the country's industrial sector, its replacement by foreign large corporations (TNCs) and developed economies. The poor in Ukraine have become even poorer, and prosperity has affected only the oligarchic structures.

Disaggregation of industry – a way to its degradation? *"Divide et impera (Divide ut reges) (Lat.). – Divide and conquer. Divide to rule"*. The above statement is attributed to the Italian thinker Niccollo Machiavelli (1469–1527). In his opinion, the main cause of the country's disasters is political fragmentation. In Ukraine, in relation to industry at the initial stage of its formation as a sovereign state, a reverse process took place – the process of disaggregation of research and production and production associations (NGOs, POs). Under the slogan of diversification, small non-competitive firms were created instead of NGOs. In the premises of the former workshops, the department housed ... supermarkets, casinos, pharmacies, beauty salons, etc. The domestic market was rapidly flooded with the products of foreign TNCs.

Among the remaining large enterprises, export-oriented enterprises continue to operate, primarily in metallurgy. It is appropriate to recall that metallurgical plants are characterized



Figure 1. Dynamics of GDP and industrial products of Ukraine for 1990–2020, billion USD

Source: built by the author according to [1; 21]

by a high level of environmental pollution, high energy intensity and labor intensity of production. Of the 11 largest metallurgical enterprises, 8 (73%) were formed in ... 1896–1899, 3 (27%) – at the end of the first five-year plan (1933–1934).

Recall that, in accordance with the Regulations approved by the government [22], NGOs were called upon to organize and carry out research, development, design and technological work, the manufacture of prototypes, their experimental verification and development of pilot batches (series) and the production of the first industrial batches of products (materials). After that, industrial production of single-piece and small-scale production was carried out (industrial development of new and improved technological processes). Then there was a transfer to manufacturers of technical documentation, samples of new equipment, installation supervision and commissioning. Thus, within the framework of the NGO, a full cycle of reproduction took place – from an idea to consumption, service, and disposal of products. NGO covered the whole range of activities in the sequence: education – science – production – distribution – consumption.

As you know, a significant part of NGOs functioned in the interests of the military-industrial complex (DIC). The further process of “restructuring”, “deindustrialization” or “degradation” of the industrial complex can be judged from the following information by D. Mendeleev. The author of the publication emphasizes: “At the time Ukraine gained independence, there were 3,594 enterprises operating on the territory of the country producing military and dual-use products, with a total staff of about 3 million people. About 700 enterprises were involved in the production of direct military products, including 205 software companies and 139 NGOs with a total staff of 1.45 million people. To date, only 147 state-owned enterprises remain in Ukraine, and there are about 250 more private business entities that have been established over the past two decades. The total number of personnel is not more than 100 thousand people” [23].

According to the State Statistics Service, at the end of December 1990, there were 7.9 thousand industrial enterprises on the territory of Ukraine. They employed 7.1 million people. The average number of industrial and production personnel (PPP) of the enterprise was 900 people. During 1991–1994 the number of PPPs decreased by 1.5 million people, i.e. by 19.6%. The loss of jobs, the reduction in the income of the population, of course, was reflected in the deterioration of the social conditions of their lives [24].

In 2020, there were 49.0 thousand enterprises in industry with the number of employed 2185.0 million people. The number of operating entities of large, medium, small and micro-entrepreneurship in industry during 2010–2020 presented in table.1. The absolute number of industrial enterprises belongs to the category of small businesses (95.9%), including individual entrepreneurs (FOPs). The average number of personnel at one enterprise amounted to ... 45 people, i.e. 20 times less than it was in 1991. By type of economic activity, the employment of workers in 2020 looked as follows: large enterprises – 688.0 thousand people (31.5%); medium – 1021.7 thousand people (46.8%); small – 475.2 thousand people (21.7%), incl. micro-enterprises – 238.6 thousand people (10.9%) [24].

The average annual number of employees employed at large industrial enterprises (over 250 people) is 1640 people, i.e. 2–20 times less than it was in 1990.

The induced data testify not only to the very fact of the downsizing of industry, but also to the loss of highly qualified personnel in the educational, scientific, technological and industrial spheres, as well as to the breakdown of cooperation ties, the loss of traditional markets, and a significant decrease in the level of economic activity.

In domestic and foreign literary sources, the problems of enterprise restructuring are widely discussed. This concerns both the very concept of “restructuring” and its classification (according to the financial and economic condition

Table 1

Number of operating entities of large, medium, small and micro businesses in the industry of Ukraine, 2010–2020

Enterprise category	2010	2015	2020
Large enterprises	347 (0,2%)	233 (0,2%)	243 (0,2%)
Medium enterprises	6168 (4,1%)	4749 (3,5%)	4986 (3,9%)
Small businesses	145454 (95,7%)	130167 (96,3%)	121108 (95,9%)
Micro enterprises	133443 (87,8%)	120859 (99,4%)	110470 (87,4%)
Medium Enterprises (ME)	61 (0,1%)	58 (0,1%)	68 (0,1%)
Small Enterprises (SMEs)	104081 (99,9%)	92527 (99,9%)	78463 (99,9%)
Microenterprises (MEP)	102668 (98,6%)	91844 (99,2%)	77391 (98,5%)

Source: compiled by the author according to [24]

of the enterprise, direction, objects, restructuring process, etc.). Possible models of enterprise restructuring are considered: “industrial park”, “cluster”, “key competence”, “knowledge economy”, “outsourcing”, etc. [24]. So far, declarations on restructuring have not brought any tangible results in the practical activities of Ukrainian enterprises.

The competitiveness of a product originates from the inventor. “At first they inevitably come: thought, fantasy, fairy tale. They are followed by scientific calculation and, in the end, execution is crowned by thought” (K.E. Tsiolkovsky, scientist, inventor, founder of theoretical astronautics). During 1991–2022, Ukrainian scientists achieved certain results. One can note their participation in experiments at the Large Hadron Collider, the discovery of new galaxies by astrophysicists, the development of Regina hardware and software systems for monitoring the functioning of power systems, the creation of high-yielding wheat varieties by genetic scientists, etc. At the same time, statistics testify too many negative trends in the development of science and technology in the country.

Always and everywhere, all problems, all tasks are solved by personnel, first of all, highly qualified specialists. Unfortunately, in Ukraine over the past 30 years there has been a trend towards a significant reduction in the number of both research organizations and scientists. The level of professionalism of scientists, their creative activity is one of the main indicators of the state of the scientific and intellectual potential of the country's economy, including its industrial complex. According to statistics, if in 1990 there were 1400 research organizations, then in 2020 their number decreased to 769, i.e. by 45.1%. In 2020 alone, compared to the previous 2019, the number of research organizations in the business sector was halved. In 1990, scientific and technical work was carried out by 313.1 thousand people, in 2010 – 133.7 thousand people, in 2020 – 51.4 thousand people [24]. Thus, there was a catastrophic drop in the number of researchers – more than six fold. Of particular concern is the outflow of young scientists abroad, as well as to commercial structures. For 2015–2021 the number of young scientists in the system of the National Academy of Sciences of Ukraine decreased by almost a third [24].

On Figure 2 shows the dynamics of science intensity of Ukraine's GDP in 1997–2020, %, including by type of work (fundamental, applied and experimental work). Only for the period 2013–2020 the science intensity of GDP decreased from 0.70% to a critical value of 0.41% [24]. In this situation, science performs not an economic, but rather a cognitive function in society. According to Eurostat (2019), the share of spending on research in the GDP of EU-27 countries averaged 2.2%. This figure was higher in

Sweden – 3.4%, Austria – 3.19%, Germany – 3.18% and some other developed countries. From 0.37% to 0.64%, the level of knowledge intensity varies in North Macedonia, Romania, Malta, Latvia and Cyprus [25]. Consequently, the science intensity of Ukraine's GDP is five times less than the average value of this indicator in the EU countries. In this situation, Ukraine cannot compete with countries that are suppliers to the market of new technologies, products with a high degree of added value.

When analyzing the innovative potential of the country's economy, various international ratings are traditionally used. Among the most authoritative rankings: Global Innovation Index (GII), Bloomberg Innovation Index (BIA), European Innovation Scoreboard (EIT) and some others. In Table 2 we compared the positions of Ukraine with some other countries of the world in the Bloomberg Innovation Index 2021. We have chosen Poland and Russia as neighboring countries, Germany as one of the leaders in innovation policies in the economies of the EU countries and the world. Malaysia, Argentina and South Africa represent different continents, but in terms of population they can be compared with Ukraine.

The Bloomberg Innovation Index ranks 60 innovative countries around the world using seven criteria, namely: spending on research and development (R&D); value added production (VAP); productivity (P); proportion of high technologies (HT); the effectiveness of higher education (HEE); concentration of researchers (CR); patent activity (PA). Among the 60 countries studied, Ukraine is rapidly losing positions in this index: 46th place in 2018, 53rd in 2019, 56th in 2020. Since 2019, the Belarusian economy has been excluded from the Bloomberg rating, as innovative economy. It is quite realistic that a similar prospect awaits Ukraine.

Among the most important factors for improving the efficiency of innovation activity are the following: a change in the approach to understanding the role of science and technology in the development of the state; improving the quality of education; workforce qualifications; attracting talented youth to scientific research; improvement of the system of labor motivation of scientists; growth of expenses for science and innovations, first of all, in the sphere of industry; expanding the activities of small innovative fast-growing firms; international transfer of knowledge and technology; increasing investment in intangible assets; activation of patent activity, etc.

From a predominantly raw material to an innovative model of economic development. “Innovation distinguishes a leader from a follower” (Stephen Paul Jobs, inventor, co-founder of the American corporation Apple). The loss of Ukraine's positions in the educational, scientific

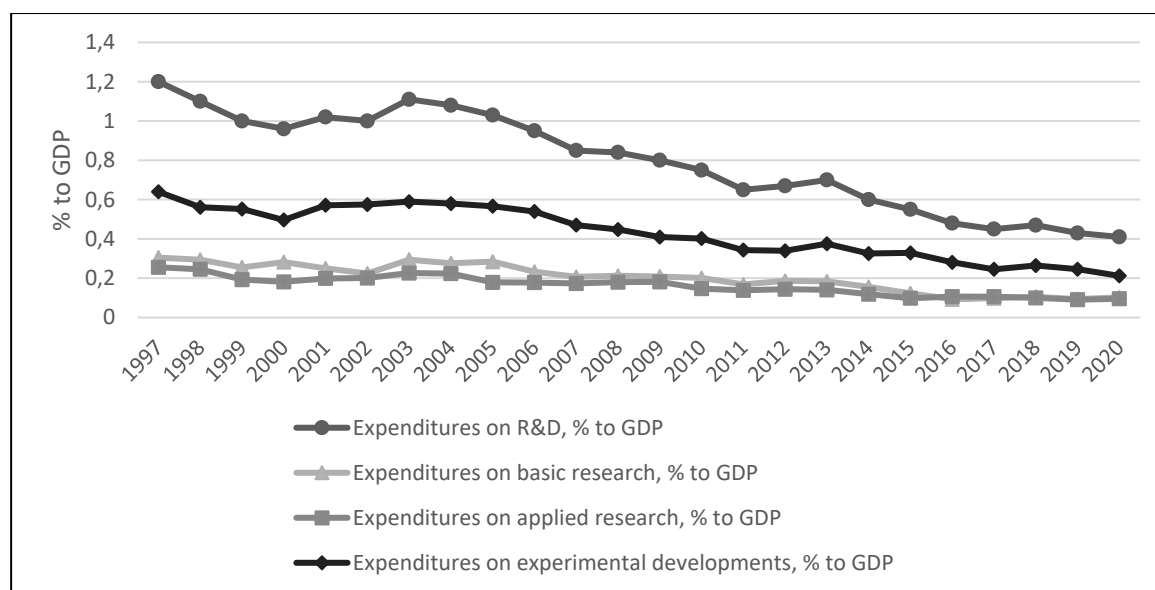


Figure 2. Dynamics of science intensity of Ukraine's GDP in 1997–2020, %

Source: built by the author according to [24]

and industrial sphere is complemented by the strengthening of the raw material export model of economic development. Over the past twenty years (2001–2020), the share of agricultural products in export supplies has increased more than 4 times – from 9.0% to 38.0%. During this period, the volume of high-tech engineering products decreased from 14% to 11%. There is also a drop in volumes in the metallurgical industry (from 41% to 18%) [24].

It should be noted that the volume of Ukraine's foreign trade in the context of the COVID-19 pandemic at the end of 2021 increased by 37.0% compared to 2020 and amounted to 141.38 billion dollars. The balance in carrying out export-import operations is still developing not in favor of Ukraine. Thus, at the end of 2021, the negative balance of foreign trade increased compared to the previous year from \$5.04 billion to \$5.2 billion [24]. Agricultural products continue to prevail in the structure of export deliveries. The following agricultural products are in the greatest demand on the world market: sunflower oil, corn, wheat, barley. There is an increase in exports of ferrous metals and products from them, as well as some types of services (gas transit). Among the imported goods, oil and products of its distillation, gas, electronics, means of land transport, machinery, and services predominate.

The structure of the country's economy continues to be characterized by a predominantly raw material nature of production. Iron ore, agricultural products, metallurgical semi-finished products are goods with a low level of processing. This industrial policy has a negative impact on the growth rate of Ukrainian exports. For the period 1994–2020 its volumes increased 3.8 times, while the Czech Republic – 9.3 times, Latvia – 12.1 times, Belarus – 13.4 times, Poland – 14.1 times. If the share of agriculture in Ukraine in 2020 in gross value added was 10.8%, then in neighboring Poland it was 2.7%. In Ukraine, only 16.8% of industrial products are classified as high-tech, while in Hungary – 54.7%, the Czech Republic – 57.1%, Slovakia – 58.1% [27].

Let us draw the attention of the interested reader that the raw material nature of the country's economy is rooted in the mists of time. Back in the 9th-10th centuries, merchants from Ancient Russia exported to Byzantium, Germany, Moravia, and the Czech Republic mainly raw materials (furs, wax, flax, honey, resin), as well as various handicraft products. At the beginning of the 20th century, from the territory of present-day Ukraine, in the structure of export deliveries, unprocessed grain crops accounted for 87.0% and only 2.0% for goods of non-agricultural origin. In relation to the Western European countries, agricultural

Table 2

Ukraine compared to some other countries in the Bloomberg Innovation Index 2021

Place	The country	Points	R&D	VAP	P	HT	HEE	CR	PA
1	2	3	4	5	6	7	8	9	10
4	Germany	86,45	7	6	20	3	23	12	14
23	Poland	73,38	33	19	34	19	28	33	30
26	Russia	72,84	37	32	41	20	21	24	25
29	Malaysia	69,68	24	10	46	27	50	42	31
47	South Africa	54,06	44	53	53	34	58	57	28
51	Argentina	57,56	54	42	49	43	55	49	53
58	Ukraine	47,54	59	57	55	39	57	52	36

Source: compiled by the author based on [26]

production was in a semi-colonial position. Foreign trade in agricultural products was controlled by English, French, Belgian, Dutch, German and Italian trading firms through their own extensive network of offices and clerks on the purchase lines [28, p. 69]. Does history repeat itself on the principles of the theory of cycles?

Conclusions. *"Where the drums sound, the laws are silent"* (Thomas Fuller). The saying of the English historian and preacher T. Fuller is given from the considerations that manifestations of political instability have continued in Ukraine over the past decades. The study emphasizes that many socio-economic problems are solved by the authorities not from the positions of continuity, rationalism, deep scientific calculations, prospects, not based on the interests of the majority of the country's citizens, but from the interests of oligarchs, various advisory groups, international missions, foundations. If back in 1989 Ukraine was among the 30 largest economies in the world, now it ranks 56th in the ranking of countries in terms of GDP.

Reforming the economy based on the principles of the "Washington Consensus", accelerated mass privatization, deregulation and liberalization of the economy led, ultimately, to a significant drop in educational, scientific and industrial potential. The bankruptcy of thousands of research and production associations (corporations) was

reflected in the rupture of cooperation ties, a decrease in output, and the loss of sales markets. There has been a mass reduction of millions of highly qualified specialists. Many of them went into trade or went to Poland, the Czech Republic, Russia, Italy, the USA, and other countries to strengthen their economies. Numerous targeted state programs for the development of industry remained unfulfilled. From the category of an industrial-agrarian country, Ukraine has moved into the category of a raw material appendage of the world economy. The country is on the verge of leaving the group of innovative economies. Having lost its own aerospace, electronics, shipbuilding, automotive and many other industries, Ukraine is rapidly moving onto the tracks of the next campaign – Industry 4.0.

To radically change the situation and increase the country's competitiveness, it is necessary to adopt and implement a set of program measures, including: establishing the rule of law, political and economic stability, improving budgetary and monetary policy, easing the tax burden for innovative companies, increasing budgetary allocations for research and development – design work, increasing the prestige of engineering work. At the same time, in our opinion, Lee Kuan Yew's statement is quite appropriate: *"If the country is not run correctly, all smart people will leave"*.

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