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ІННОВАЦІЙНИЙ РОЗВИТОК В УМОВАХ ЕКСПОРТООРІЄНТОВАНОЇ ТА ІМПОРТОЗАМІЩУЮЧОЇ МОДЕЛЕЙ ІНДУСТРІАЛІЗАЦІЇ

Актуальність. Актуальність дослідження обумовлена необхідністю переорієнтації економіки України на інноваційний розвиток і зміни у зв'язку з цим моделі економічної політики держави.

Мета та завдання. Завданням даної статті є визначення та співставлення відносних величин витрат на дослідження і розробки у їх зв'язку з відносними величинами валового нагромадження основного капіталу та витрат на машини і обладнання в паритетних показниках для країн, які реалізують імпортозаміщуючу та експортоорієнтовану індустріалізацію з метою аргументації найбільш ефективної моделі інноваційної економічної політики держави.

Результати. Досліджувані економічні показники розраховані на основі паритету купівельної спроможності валюти (ПКС). Розрахунки обсягу і структури нагромадження у паритетних показниках демонструють певні закономірності. Найбільш важливою з них є розрив між величинами ВНОК та його найважливішої частини – витрат на машини і обладнання, розрахованими у національній валюті і за ПКС. При чому такий розрив у країнах експортоорієнтованої індустріалізації є невеликим, тоді як у країнах імпортозаміщуючої індустріалізації і в Україні, як експортоорієнтованої економіки, він дуже значний. Загальною закономірністю є більш висока частка нагромадження у ВВП при розрахунках у національній валюті, чим при розрахунках за ПКС. Як наслідок, розрахунки валового нагромадження основного капіталу і витрат на машини і обладнання у національній валюті створюють необґрунтовано оптимістичне уявлення про перспективи інноваційного розвитку економіки.

Науковий інтерес представляє зіставлення структури нагромадження в країнах експортоорієнтованої індустріалізації, імпортозаміщуючої індустріалізації, та в Україні, як експортоорієнтованої економіки. Так, питома вага нагромадження як частини ВВП за ПКС в країнах експортоорієнтованої індустріалізації підтримується на рівні 22-42%, а витрати на машини і обладнання – на рівні 4-8%. Приблизно такими ж показники залишаються і при розрахунках у національній валюті.

В країнах імпортозаміщуючої індустріалізації питома вага нагромадження як частини ВВП за ПКС підтримується на рівні 11-23%, а витрати на машини і обладнання – на рівні 2-5%.

Економіка України, якщо розрахунки ведуться у національній валюті, демонструє структуру нагромадження достатньо близьку до показників країн імпортозаміщуючої індустріалізації. Проте за ПКС її економіка забезпечує значно меншу питому вагу ВНОК і машин і устаткування у ВВП – 9-13% і 2-3% відповідно.

Висновки. Викривлення показників нагромадження пов'язане зі значним відхиленням офіційного курсу обміну національної валюти від паритету її купівельної спроможності. Незначні масштаби нагромадження розраховані у паритетних показниках характеризують вузьку базу для наукових досліджень і розробок і малий потенціал їх впровадження у виробництво.

Ключові слова:експортоорієнтована індустріалізація, імпортозаміщуюча індустріалізація, валове нагромадження основного капіталу за паритетом купівельної спроможності, витрати на машини та обладнання за паритетом купівельної спроможності.

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INNOVATIVE DEVELOPMENT IN THE CONDITIONS OF EXPORT-ORIENTED AND IMPORT-SUBSTITUTING MODELS OF INDUSTRIALIZATION

Topicality. The actuality of problem is due to the need to reorient the economy of Ukraine to innovative development and change in this regard, the model of economic policy.

Aim and tasks. The aim of the study is to determine and compare the relative costs of research and development in connection with the relative values of gross fixed capital formation and costs of machinery and equipment in parity for countries that implement import-substituting and export-oriented industrialization to justify the most effective model innovative economic policy.

Research results. The studied economic indicators are calculated on the basis of the purchasing power parity of the currency (PPP). Calculations of the volume and structure of accumulation in parity indicators show certain patterns. The most important of them is the gap between the values of the gross fixed capital formation and its most important part – the cost of machinery and equipment, calculated in national currency and per PPP. Moreover, such a gap in the countries of export-oriented industrialization is small, while in the countries of import-substituting industrialization and in Ukraine, as an export-oriented economy, it is very significant. The general pattern is a higher share of accumulation in GDP in settlements in the national currency than in settlements in PPP. As a result, the calculations of the gross fixed capital formation and the cost of machinery and equipment in the national currency create an unreasonably optimistic view of the prospects for innovative economic development. It is of scientific interest to compare the structure of accumulation in the countries of export-oriented industrialization, import-substituting industrialization, and in Ukraine as an export-oriented economy. Thus, the share of accumulation as a part of GDP per capita in the countries of export-oriented industrialization is maintained at 22-42%, and the cost of machinery and equipment – at 4-8%. Approximately the same indicators remain in the calculations in the national currency. In the countries of import-substituting industrialization, the share of accumulation as a share of GDP per capita is maintained at 11-23%, and the cost of machinery and equipment – at 2-5%. Ukraine's economy, if the calculations are made in the national currency, shows a structure of accumulation close enough to that of import-substituting industrialization. However, according to the PPP, its economy provides a much smaller share of GNP and machinery and equipment in GDP – 9-13% and 2-3%, respectively.

Conclusion. Distortion of accumulation indicators is associated with a significant deviation of the official exchange rate of the national currency from its purchasing power parity. The small scale of accumulation calculated in parity indicators characterizes the narrow base for research and development and the small potential for their introduction into production.

Key words: export-oriented industrialization, import-substituting industrialization, gross fixed capital formation at purchasing power parity, costs of machinery and equipment at purchasing power parity.

Problem statement and its connection with important scientific and practical tasks. A new stage of scientific and technological progress, which unfolded in the XXI century in the framework of Industry 4.0, is based on the intensification of research and accelerating their implementation in all areas of the economy. Relevant changes require significant research and development costs, as well as investments in new equipment and technology, which is reflected in the scale of fixed capital accumulation. Under such conditions, in order to objectively assess the potential for innovative development of a country, it is necessary to get an accurate idea of both the dynamics of research expenditures in its GDP and the dynamics of the physical volume and structure of its accumulation fund. These figures should be comparable for different countries in time and space. The use of constant prices for this purpose is a necessary but insufficient method of calculation for an open economy, which includes not only domestic goods but also imported goods. These goods are bought on foreign markets, paid for in freely convertible currency (FCC), and then their prices are converted from FCC to the national currency at the official exchange rate and with such a domestic price, these goods enter the domestic market. It is clear that the prices of this group of goods depend on the exchange rate of the national currency against hard currency. Changes in the official exchange rate of the national currency are enough that, with the same physical quantities of goods purchased abroad, their price has changed, respectively, and changed the share of this group of goods in GDP and the GDP of the country importing these goods. The impact of changes in the exchange rate will be stronger the more it deviates from the purchasing power parity of the currency and the higher is the share of imports in GDP. To eliminate the impact on GDP of changes in the official exchange rate of the national currency, the value of the economy, especially GDP and its structural parts, which characterize aggregate demand, are calculated at the purchasing power parity of the currency (PPP). Parity indicators allow correctly compare the national economy in its dynamics over time and compare it with the economies of different countries in space.

For an open economy, such a comparison reflects the results achieved and the potential for innovative development on the basis of the implemented economic policy model, so on the basis of import-substituting or export-oriented models of social capital reproduction. Since the middle of the XIX century it has been

theoretically substantiated that economic development is connected not only with the import-substituting or export-oriented model of reproduction of social capital, but with the import-substituting or export-oriented model of industrialization. The first was laid in the foundation of economic policy of Argentina, Brazil and Mexico in the 50-60s of the twentieth century. On the basis of the second, the economic policy of the Republic of Korea, Taiwan, Hong Kong, and Singapore was developed in the 1970s and 1980s. (Given the unique specific political and socio-economic conditions of Taiwan, Hong Kong and Singapore, the article, due to its limited scope, does not consider the results of the development of these three countries). Since the beginning of the XXI century, the export-oriented model of industrialization has been implemented in China. Thus, the subject of this article is the long-term economic results of these two models of industrialization in terms of the potential for innovative development. The research method is a statistical comparison based on comparable parity indicators, calculated on the basis of three rounds of the World Bank's International Comparisons Program, the last of which was carried out in 2017, and the report was published in 2020.

Analysis of recent publications on the problem. Real-world PPPs have been calculated once every six years by national statistical offices under the World Bank's International Comparison Program (ICP) since 1970 to compare the different countries economies. The purpose of the Program is to convert the GDP of different countries into a single currency, which provides the possibility of their direct comparison. Calculations cover GDP and its main components: consumption of households, general government, gross capital formation, net exports. The calculation methodology is constantly being improved, the latest version of which was issued by the World Bank in 2013 [1]. Full reports are published for 2005, 2011 and 2017. Between the year for which the calculations are made and the year of publication of the report there is a long period of processing of the received data by national statistical services and then – their consolidation in the uniform report by the World Bank. Thus, the report for 2005 was published only in 2008 [2], the report for 2011 – in 2013 [3], the report for 2017 – in May 2020 [4].

Despite the importance of measuring the real value of the national economy in indicators calculated at purchasing power parity to provide reliable information to the expert community, government and administration, researchers, business leaders, these indicators have not yet become common and widely known, widely used in economic calculations and management. Only a few authors refer to the data of the International Comparison Program.

Thus, international comparisons for PPP are touched upon in Pogosov I. O publications, in particular in a thorough monograph, which provides a comparison of gross fixed capital formation in PPP for the Russian Federation and the G7 countries [5]. An overview of comparable indicators for the Russian Federation for 2011 is given in the article by Ivanova M.I. and Machavariani G.I. [6, p. 231-236]. Substantiation of reliability of statistical information presented on the basis of PPP and calculations on the basis of this information the stratification of economies of the EU are given in articles by Kosarev O. E. [7, p. 63-72; 8, 70-82]. The method of calculations based on PPP and calculations of aggregate demand based on PPP is given in previous articles by Lyudmila Zhdanova [9, с.54-58; 10 ,с 7-15, 11, с. 32-39, 12, с. 127-140].

Allocation of previously unsolved parts of the general problem. Analyzing publications that affect parity indicators, it should be noted that their authors do not address the issue of comparable indicators that characterize the potential for innovative development, including such as gross fixed capital formation and its most important part – the cost of machinery and equipment. The presented article is intended to fill this gap in macroeconomic research.

Formulation of research objectives (problem statement). The task of this article is to determine and compare the costs of research and development in connection with the gross accumulation of fixed capital and costs of machinery and equipment in parity for countries that implement import-substituting and export-oriented industrialization to justify the most effective model of innovation economic policy.

An outline of the main results and their justification. Indicators of the International Comparison Program allow to determine the real comparable size of the economy of any country in the world, the real well-being of its population as the most common indicator of development. The most informative are the relative indicators of GDP, primarily GDP per capita, calculated at the purchasing power parity of the currency at the date of the last round of the World Bank's International Comparisons Program, i.e. in 2017 prices. The table 1 shows the GDP per capita for the past years of the XXI century of two groups of countries – those that introduced import-substituting industrialization and those that introduced export-oriented industrialization. Their indicators are compared to the average for the world, the United States and Ukraine.

Table 1

GDP PER CAPITA, PPP (CONSTANT 2017 INTERNATIONAL $)

	World	USA	Japan	Rep. Korea	China	Argentina	Brazil	Mexico	Ukrain
			Export-oriented industrialization			Import-substituting industrialization			
2000	11,1	50,1	35,6	23,0	3,5	18,6	11,6	17,8	7,2
2010	13,9	54,3	37,6	34,4	8,9	23,5	14,9	17,8	11,8
2015	15,5	58.5	39,8	38,9	12,7	23,9	15,1	19,3	11,2
2016	15,8	59.1	40,0	39,8	13,5	23,2	14,5	19,6	11,5
2017	16,2	60,1	41,0	40,1	14,3	23,6	14,5	19,7	11,9
2018	16,6	61,6	41,2	41,9	15,2	22,8	14,7	19,9	12,3
2019	16,9	62,6	41,4	42,7	16,1	22,1	14,8	19,7	12,8
2020	16,2	60,2	n.d.	42,3	20,4	19,7	14,1	17,9	12,4

Source: [13].

As can be seen from Table 1, the GDP per capita of export-oriented industrialization economies is higher in absolute terms compared to the indicators of import-substituting industrialization, and also have a steady upward trend. Regarding the Chinese economy, it is also possible to note that its indicators show the highest growth rates, increasing from 2000 to 2020 from 3.5 thousand parity dollars to 20.4 thousand, i.e. 5.83 times. For the economies of all countries, 2020, the year of the pandemic, was marked by an economic downturn. Therefore, to identify long-term trends, the comparison for the period 2000-2019 will be more informative. The corresponding figure of the Republic of Korea during this period increased from 23.0 thousand dollars up to 42.3 thousand, i.e. by 83.9%. Japan's indicator increased from 35.6 thousand to 41.4 thousand, ie by 18.6%. In countries that pursued a policy of import-substituting industrialization, GDP per capita was lower both at the beginning and at the end of the period 2000-2020. In Argentina, this figure increased from 18.6 thousand dollars to 22.1 thousand, ie by 18.8%, Brazil – from 11.6 thousand to 14.8 thousand, ie by 27.6%, Mexico – from 17.8 thousand to 19.7 thousand, ie at 10.7%. A comparison of these indicators with the world average, which increased over the same period from 11.1 thousand to 16.9 thousand, ie by 52.3%, shows that in general the growth rate of welfare was higher in export-oriented industrialization countries. Import-substituting industrialization proved to be less effective. The growth rate of the US economy over the same period was 21%. This growth rate suggests that export-oriented countries are closing the welfare gap with the United States, growing faster than the United States and the world at large.

The situation is different in the countries of import-substituting industrialization. Their growth rates in the long run were lower than the world average, which characterizes their relative lag not only from the leaders of scientific and technological progress, but also from the average results inherent in the world economy. A special case in this world development is the economy of Ukraine. Ukraine's economic policy is consistently export-oriented, but it is not export-oriented industrialization. The world market is addressed to those goods that have absolute or relative competitive advantages, including relative advantages that are made artificially, due to the constant depreciation of the official exchange rate of the national currency relative to its purchasing power parity. As a result of such exchange rate policy, the structure of exports is primitive [14, p. 37-39]. Ukraine supplies to the world market mainly agricultural products, raw materials, and primarily processed products. Weapons dominate among high-tech goods [15, p.32-33]. In 1990, Ukraine's GDP per capita in parity US constant 2017international dollars was 15.8 thousand. In 2000, it decreased to 7.2 thousand. It is from this year, when the structural change of the economy has already been carried out, the GDP per capita began to grow, reaching 12.8 thousand dollars in 2019. Comparing this indicator in 2019 with the indicator in 2000, the achievements are quite positive. But this figure is almost 20% lower than it was 30 years ago.

Given that the best results of population welfare growth are shown by export-oriented industrialization countries, it is necessary to pay attention to the share of industry (including construction) in their GDP. As can be seen from Table 2, the share of industry in export-oriented industrialization countries is higher than in the alternative economic policy model. It is also higher than the world average.

Industry (including construction), % GDP

	World	USA	Japan	Rep. Korea	China	Argentina	Brazil	Mexico	Ukraine
			Export-oriented industrialization			Import-substituting industrialization			
2000	29,0	22,5	32,8	34,8	45,5	26,0	23,0	34,2	30,8
2010	27,2	19,4	28,4	34,1	46,5	25,3	23,3	32,4	25,9
2015	25,5	18,5	29,0	34,2	40,8	23,2	19,4	30,0	21,7
2016	25,0	18,0	29,0	34,3	39,6	22,1	18,4	29,6	23,2
2018	25,6	18,5	29,1	34,0	39,7	24,0	18,8	31,2	23,3
2019	24,8	18,2	n.d.	32,8	38,6	23,4	18,4	30,9	22,6
2020	n.d.	n.d.	n.d.	32,8	37,8	22,5	17,6	29,6	20,9

Source: [16].

At the same time, both the world average and the countries pursuing the policy of export-oriented and import-substituting industrialization are characterized by a decrease in the share of industry in GDP. This trend is also characteristic of the Ukrainian economy.

Industry is one of the most important engines of scientific and technological progress, creator and consumer of scientific and technical developments. Thus, the share of GDP spent on research and development is one of the indications of the level of industrial development. The data in Table 3 characterize the share of GDP spent on research in export-oriented and import-substituting industrialization countries in their comparison with world indicators on average, the United States and Ukraine. As can be seen from these data, export-oriented industrialization countries show not only the positive dynamics of these costs, but also their highest rates, higher than in the world as a whole and higher than in the United States. At the same time, China is increasing its research potential at the fastest pace, the share of research and development expenditures which has increased over the period 2000-2018 from 0.89% of GDP to 2.19, ie 2.46 times. On average in the world, this figure increased from 2.08% to 2.28%, ie by 10%, and in the United States – from 2.62% to 2.8%, ie by 7%. In import-substituting countries, the share of R&D expenditures tends to increase somewhat. But this trend is unstable, ie the years of growth are replaced by years of decline. Such fluctuations are inherent in all three considered economies of import-substituting industrialization. As a result, as a result of the period 2000-2018 (for Mexico – 2017), the share of spending on research and development in Argentina increased from 0.44% of GDP to 0.54%, ie by 23%, in Brazil – from 1.00 up to 1.26%, ie 26%. In Mexico, this figure in 2000 and 2017 is the same. Although the growth rate of research expenditures is higher than the world average, the absolute lag is quite significant and it will not be possible to overcome it quickly at such a rate.

In the economy of Ukraine there is a tendency to reduce the share of spending on science and research in GDP. During the period under review, it decreased from 0.96% of GDP in 2000 to 0.47% in 2018, ie more than 2 times. Such dynamics is associated with the rapid rate of loss of industrial potential, and consequently with the decline in demand for scientific developments.

R&D, % GDP

	World	USA	Japan	Rep. Korea	China	Argentina	Brazil	Mexico	Ukraine
			Export-oriented industrialization			Import-substituting industrialization			
2000	2,08	2,62	2,91	2,18	0,89	0,44	1,00	0,31	0,96
2010	2,06	2,7	3,12	3,47	1,71	0,56	1,16	0,50	0,83
2015	2,09	2,7	3,28	4,22	2,07	0,62	1,34	0,43	0,62
2016	2,13	2,7	3,16	4,23	2,12	0,56	1,26	0,39	0,48
2017	2,15	2,7	3,21	4,55	2,15	0,54	1,26	0,33	0,45
2018	2,28	2,8	3,27	4,81	2,19	Нд	нд	0,31	0,47
2019	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
2020	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.

Source: [17].

The current stage of scientific and technological progress is characterized by the rapid introduction into production of the latest scientific developments, and this requires significant investment. The most important indicators of the investment process are the gross fixed capital formation (GFCF) and the cost of

machinery and equipment. Comparison of the shares of gross fixed capital formation in GDP, calculated in the national currency and in PPP allows to determine the real scale of material resources directed to the development of production in a country. The methodology of such calculations and the calculations themselves for the period of previous rounds of International Comparisons are set out in the author's publications [9, p. 54-58; 18, p. 38-50].

As can be seen from the data in Table 4, even externally, ie in national currency calculations, the share of GFCF in the GDP of export-oriented industrialization countries is significantly higher than in import-substituting industrialization countries. This gap is associated with the motivation of accumulation, which depends on the institutional structure of the country, the institutions of development created by it [19, p.75-76]. In countries of export-oriented industrialization, despite the difference in their socio-economic and political system, such institutions are made and function effectively. The countries of import-substituting industrialization do not have similar institutions.

GFCF calculations for the currency exchange rate show that the countries of import-substituting industrialization lag far behind the countries of export-oriented industrialization and

Table 4

Gross fixed capital formation, % of GDP

	Calculations in national currency			Calculations in PPP		
	2005	2011	2017	2005	2011	2017
USA	19,21	18,81	20,47	19,21	18,81	20,47
Export-oriented industrialization						
Japan	23,1	21,904	23,83	21,97	21,32	22,36
China	41,5	45,59	42,85	38,68	41,53	38,87
Rep. Korea	29,3	30,15	31,51	29,97	28,84	33,20
Import-substituting industrialization						
Argentina	21,5	Не брала участь	15,05	16,41	Не брала участь	11,30
Brazil	16,3	20,61	14,56	14,38	22,96	15,67
Mexico	19,3	22,27	22,13	14,31	18,4	17,89
Експортоорієнтована економіка						
Ukraine	22,0	18,57	15,76	13,12	8,62	10,35

Note: compiled by the author according to the data [2,3,4]

the United States. The lag in the share of GFCF in GDP continues throughout the period under review. The situation of Brazil in 2011 and 2017 needs a special explanation, when in the structure of its GDP the GFCF, calculated for PPP, turned out to be larger than in the national currency. This situation is related to the fact that the GFCF covers machinery and equipment, buildings and structures, cultivated biological resources, intellectual property products, etc. Given the policy of import-substituting industrialization to underestimate the official exchange rate of the national currency against parity, part of the expenditures of the GFCF, which is carried out on the national market and directed to buildings and structures, cultivated biological resources, becomes much cheaper than the share spent on the world market for the purchase of machinery and equipment. In the years when the GFCF parity was higher than in the national currency, most of the GFCF fund was spent on domestic goods.

The economy of Ukraine looks unique, the share of GFCF in GDP has consistently decreased in the years under review from 22.0% to 18.57% and 15.76% in national currency. In terms of purchasing power parity, the dynamics was as follows: 13.12% in 2005, 8.62% in 2011 and 10.35% in 2017. According to this indicator, the export-oriented economy is much weaker than even the import-substituting economy.

The most important part of the gross fixed capital formation is the cost of machinery and equipment. It is this part of the investment costs provides material resources for technical and technological modernization of production, increasing its efficiency. The Program of international comparisons presents the relevant costs as part not of the gross fixed capital formation (which is accepted in domestic statistics), but as part of GDP, which is due to the different share of GFCF in the GDP of different countries. This method of calculation provides direct comparability of indicators of different countries on the cost of machinery and equipment, ie the technical improvement of production.

As can be seen from Table 5, the structure of GDP is not only in terms of gross fixed capital

Table 5

COSTS OF MACHINERY AND EQUIPMENT,% of GDP

	Calculations in national currency			Calculations in PPP		
	2005	2011	2017	2005	2011	2017
USA	5,80	6,44	5,90	5,80	6,44	5,90
Export-oriented industrialization						
Japan	8,60	8,43	7,53	6,76	7,85	6,59
China	11,5	12,65	7,9	4,51	5,79	3,54
Rep. Korea	9,10	10,44	9,17	6,25	7,70	5,48
Import-substituting industrialization						
Argentina	8,5	Не брала участь	6,05	3,19	Не брала участь	2,08
Brazil	7,9	7,84	5,18	3,64	4,18	2,66
Mexico	8,3	6,55	9,19	4,59	3,34	4,16
Експортоорієнтована економіка						
Ukraine	10,2	7,123	8,02	3,36	2,62	2,0

Note: compiled by the author according to the data [2,3,4]

formation, but also in terms of costs for machinery and equipment, which is calculated in the national currency, presents the economies of export-oriented industrialization as economies aimed at industrial transformation. The share of machinery and equipment in the GDP of these countries, calculated in the national currency is significantly higher than in the most developed economy in the world – the United States. If we consider in a comparable dimension for PPP, the corresponding figures, although higher than in US GDP, but this lead is not so significant and is for Japan in 2005, 16.6%, in 2011 – 21.9%, in 2017 – 11.7%. In the Republic of Korea in 2005 the lead was 7.8%, in 2011 – 19.6%, in 2017 there was a lag from the US by 7.1%. The dynamics of the structure of the Chinese economy is different. In 2005, the share of expenditures on machinery and equipment in the Chinese economy lagged behind the corresponding indicator of the US economy by 22.2%, in 2011 – by 10.0%, in 2017 the lag was 40%. This means that technological re-equipment of production remains a difficult task even for a rapidly growing economy, rapidly increasing its scientific and technological potential.

In the countries of import-substituting industrialization, the smallest lag of the share of expenditures on machinery and equipment from the corresponding indicator of the USA was 20.9% in 2005 in Mexico, and the largest lag was 55.0% in 2017 in Brazil. The share of expenditures on machinery and equipment in the GDP of these countries has never outpaced the corresponding figure in the United States. Thus, in terms of opportunities for innovative development, the gap between the most developed economies and economies of import-substituting industrialization does not narrow over the years.

Regarding the export-oriented economy of Ukraine, it can be noted that its lag in terms of the share of expenditures on machinery and equipment in GDP from the corresponding figure in the US in 2005 was 42.0%, in 2011 the lag was 2.5 times, in 2017 – 3 times. For the export-oriented economy of Ukraine, the indicator of the share of expenditures on machinery and equipment in GDP turned out to be related to the share of expenditures on research and development in GDP. The decline in both is characterized by a significant narrowing of the potential for innovative development of the domestic economy.

Conclusions and perspectives of further research. To obtain reliable information about the economies of different countries, economic indicators must be calculated at a level that eliminates the impact of changes in commodity prices, as well as changes in the exchange rate of the national currency. The most reliable from this point of view are parity indicators. Calculations of the structure of aggregate demand in parity indicators show certain patterns. The most important of them is the gap between the values of the structural parts of aggregate demand, especially the GFCF and its most important part – the cost of machinery and equipment, calculated in national currency and in PPP. Moreover, such a gap in the countries of export-oriented industrialization is small, while in the countries of import-substituting industrialization and in Ukraine, as an export-oriented economy, it is very significant. The general pattern is a higher share of gross fixed capital formation in GDP in settlements in the national currency than in settlements in PPP. As a result, the calculations of indicators of innovation potential, primarily the gross fixed capital formation and

costs of machinery and equipment in the national currency create an unreasonably optimistic view of the prospects for innovative economic development.

It is of scientific interest to compare the structure of accumulation in the countries of export-oriented industrialization, import-substituting industrialization, and in Ukraine as an export-oriented economy. Thus, the share of gross fixed capital formation as a part of GDP in the countries of export-oriented industrialization is maintained at 22-42%, and the cost of machinery and equipment – at 4-8%.

In the countries of import-substituting industrialization, the share of gross fixed capital formation as a share of GDP is maintained at 11-23%, and the cost of machinery and equipment – at 2-5%.

Ukraine's economy, if the calculations are made in the national currency, shows a structure of accumulation close enough to that of import-substituting industrialization. However, according to the PPP, its economy provides a much smaller share of GFCF and machinery and equipment in GDP – 9-13% and 2-3%, respectively. This distortion of accumulation indicators is associated with a significant deviation of the official exchange rate of the national currency from its purchasing power parity. The small scale of accumulation characterizes the narrow base for research and development and the small potential for their implementation in production.

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