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The Impact of Globalization on the Structure of National Economies

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ABSTRACT

The paper presents the results of a study of the nature of dynamic processes in the world economy. The dynamics of the development of national economies leading in the ranking of countries by GDP (PPP) with a population of more than 50 million people is analyzed. The tendencies and features of economic growth in various countries, which contributed to the structural changes in national economies, are revealed. It is shown how the distribution of economic competencies in the global economy contributes to the formation of models for the adaptation of national economies to the world trade system. A model has been developed for classifying countries on a scale of the level of integration of national economies into the global one. It was revealed that the level of dependence of the national economy on the global one in the service sector is noticeably less than in the industrial sector of the economy.

Keywords: structure of the economy; industry; manufacturing industry; real economy; service sector; export; import; balance of international trade

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INTRODUCTION

The national economies of both developed and developing countries have been experiencing crisis processes for several years, negatively affecting their socio-economic situation.[1] In particular, they generate unemployment, falling incomes of the population, increasing debt of states and households.[2] In addition, the coronavirus pandemic and increased geopolitical tensions have contributed to the regionalisation of the world economy [1–3].

In this regard, the problem of creating a recovery plan for both the national and global economy is relevant, for the development of which it is necessary to solve the fundamental problem of determining the causes of the generation of crisis processes.

Two paradigms of crisis processes in the world economy have emerged in the economic literature [4, 5]. One argues that the main source of crisis processes generation is the increase in geopolitical tension, to the greatest extent — since 2014, as well as the consequences of the coronavirus pandemic, which complicated various communications between states, economic entities, and the population [6–8]. In this regard, the key problem of overcoming the crisis is the development of mechanisms to

[1] World Economic Situation and Prospects: February 2022 Briefing. No. 157. URL: https://www.un.org/development/desa/dpad/publication/world-economic-situation-and-prospects-february-2022-briefing-no-157/ (accessed on 19.03.2022); Inflation in the OECD area continues to surge, reaching 7.2% in January 2022, the highest rate since 1991. URL: https://www.oecd.org/newsroom/consumer-prices-oecd-updated-3-march-2022.htm (accessed on 19.03.2022).

[2] World Economic Situation and Prospects: February 2022 Briefing, No. 157. URL: https://www.un.org/development/desa/dpad/publication/world-economic-situation-and-prospects-february-2022-briefing-no-157/ (accessed on 19.03.2022).

reduce the impact of these factors external to national economies.

On the contrary, the second one states that the above-mentioned factors have only catalysed recessionary processes in national economies, the signs of which began to appear even before the pandemic, and they are generated by factors internal to the economy. According to this paradigm, a new model of the economy needs to be developed [9–12].

In this regard, it is relevant to conduct research aimed at obtaining direct data showing the relevance of this or that paradigm and determining the impact of global processes on the economic growth of national economies. This constitutes the subject of the article's research. The authors put forward the following position as a hypothesis: the structure of the national economy and the level of its integration into the global economy determine the sustainability of national economic development.

RESEARCH METHODOLOGY

The dynamics of the global economy in 2020–2022 is determined both by external factors, such as pandemics and geopolitical tensions, and by the structure of national economies. When choosing the time period, the authors relied on statistical data from the World Bank, OECD and UNIDO, indicating signs of economic decline in the national economies of leading countries in the period 2008–2019, i.e., in the "pre-pandemic" period. In the study, the coronavirus pandemic is conditionally accepted as an external factor in the development of national economies; therefore, its impact on the dynamics of indicators of socio-economic development of national economies may distort the analysed trends to some extent.

Therefore, the authors decided to choose a time period not related to the pandemic when determining the nature of dynamic processes in the global and national economies. This allows levelling the influence of factors related to the difference in approaches of state regulation and restrictions of economic activity in the conditions of pandemic spread on the sustainability of development of national economies.

When selecting countries to analyse the dynamics of their development, the authors turned to the PPP GDP ranking. Thus, the first 15 countries with a population of more than 50 million people were selected. In aggregate, their contribution to world GDP in PPP terms is about 70%, which allows us to say that the dynamics of their development largely determines the dynamics of the world economy.[3] In the course of the study, the authors use the terms "aggregate economy", "aggregate exports/imports", which are understood as the total value of the relevant indicators of the studied sample of countries (the total value of GDP, exports, imports, etc.).

The specifics of pricing in different countries, as well as the impact of inflation on statistical data were taken into account by using PPP data in constant prices.

In determining the significance of integration of the national economy into the global economy, the authors studied the role of integration processes in the development of the industrial sector and services. The assessment of the effectiveness of the current model of the national economy was determined on the basis of the following assumption: the economic system is effective if the potential for balancing supply and demand is formed within its framework. If this potential does not decrease, such a system can be considered sustainable.

When quantitatively describing the level of integration of the national economy into the global economy, a number of factors should be taken into account:

- domestic demand for goods produced by the national economy;
- domestic demand for imported products;
- external demand for the products of the national industry (export potential).

[3] World Bank Open Data. URL: https://databank.worldbank.org/reports.aspx?source=2&series=NV.SRV.TOTL.ZS&country= (accessed on 19.03.2022).

The degree of impact on the national economy of the second and third factors is determined by both internal and external reasons. The intensity of this impact shows the level of economic dependence of the national economy on the global economy.

In this case, the degree of impact of the first factor on the national economy depends only on internal reasons, so, taking into account the fact that the second and third factors determine the interaction between the national and global economies, we can calculate the level of integration of the national economy into the global economy as the ratio of the total effect of the second and third factors to the sum of the effects of all three factors. The instruments of impact are imports and exports of the products.

STRUCTURAL TRENDS IN THE DYNAMICS OF THE WORLD ECONOMY DEVELOPMENT IN THE SECOND HALF OF XX – EARLY XXI CENTURY

Since the 1970s, the dynamics of the world and national economies have been determined by the accelerated growth of the share of services in them. This is reflected in the "servicisation" of the economy and the slowdown in the development of the real sector.[4] Indeed, if in 1980 in the US economy the added value of the service sector in GDP was 70%, in the year 2019 it was already 77.3%.[5] A similar situation is observed in other OECD countries.[6]

This is accompanied by the intensification of the movement of labour force and capital from material production to the service sector, which was noted back in the 1930s. The theoretical explanation of such processes in the mid-20th century was given by economists A. Fisher [13], C. Clark [15], J. Furastier [16], who developed a new three-sectoral approach to the study of the structure of social production, according to which, in the course of historical development, each economy goes from the predominance of the primary sector to the secondary sector, and then — to the dominance of the tertiary sector. The theory was further developed in the works of S. Kuznets [17], D. Bell [18], P. Dicken [19], M. Castells [20], J. Singelman [21], A. Sayer, P. Walker [22], R. Reich [23] and other economists who added quaternary, quintuple, and hexahedral sectors of the economy.

The structural changes that took place in the economy in the second half of the 20th century were explained by the theory of post-industrial society, according to which one of the main characteristics of the new economy is the transition from material production to the production of services.

However, the dynamics of the crisis processes in South-East Asia (1997–1998), the dotcom crisis in the USA (2000–2001), the Great Recession (2008–2009), and the Coronacrisis (2020) showed that the greatest decline in economic activity was observed in the services sector.

Due to the high elasticity of the service sector of the economy, the demand for services is reduced first of all. The manufacturing sector is more resistant to negative processes. During the above-mentioned crises, the countries with the largest contribution of the manufacturing industry to GDP were the first to emerge from it,[7] which increases the relevance of its study as a factor in ensuring sustainable socio-economic development in modern conditions.

The importance of the development of manufacturing industry for improving the

[4] Harnessing the potential of services, including infrastructure services, to achieve the Sustainable Development Goals. United Nations Conference on Trade and Development (UNCTAD). URL: https://unctad.org/system/files/official-document/c1mem4d23_ru.pdf (accessed on 19.03.2022).

[5] World Bank Open Data. URL: https://databank.worldbank.org/reports.aspx?source=2&series=NV.SRV.TOTL.ZS&country= (accessed on 19.03.2022).

[6] Ibidem.

[7] Who will be the last one? Which countries will emerge from the crisis later than others. URL: https://www.forbes.ru/biznes/401205-kto-posledniy-kakie-strany-vyydut-iz-krizisa-pozzhe-drugih (accessed on 08.12.2021).

sustainability of the economy is shown in the works of American and European scientists: J. Miller, T. Walton, W. Kovacic and J. Rabkin [24], G. Hosper [25], E. Heymann, S. Vetter [26], P. Prisecaru [27], W. Zhao [28], as well as domestic scientists S. Bodrunov [29], S. Gubanov [30], S. Chuprov [31], V. Chernova [32], V. Varnavsky [33].

These works substantiated the idea of re-industrialisation of the developed countries as a factor of increasing the sustainability of economic development in the turbulence of the global economy [34].

DYNAMICS OF ECONOMIC GROWTH OF NATIONAL ECONOMIES

Table 1 presents data characterising the growth rates of different sectors of the national economies of the leading countries in the PPP GDP ranking for the period 2008–2019.

Analysis of the data in *Table 1* shows significant differences in the GDP growth rates of the world's leading economies. Five countries (China, India, Indonesia, Turkey, South Korea) for the period 2008–2019 were above 40% in the GDP growth rate, while the rest — no more than 23%.

Significant differences in the growth dynamics of different sectors of the economy should be noted. Thus, in China, India, Indonesia, Brazil, the development rates of the services sector are more than 1.4 times higher than in the manufacturing sector. In Russia, this difference is 14 per cent, while in the other countries it is no more than 10 per cent. Consequently, the economies of these four countries are undergoing significant structural changes, while in the rest of the countries — the changes are to a much lesser extent.

The dynamic growth rates of industry are the same as in the manufacturing industry. Consequently, there is no noticeable structural change in the latter. The industrial sector in Brazil and Italy has structural changes, while its importance in GDP is decreasing. In Brazil, the manufacturing sector is declining to a greater extent, while in Italy the extractive sector is declining.

All of the above shows the priorities of countries in the formation of economic competences in the domestic and global markets. Thus, in China in the period 2008–2019, the services sector was developing to a greater extent in the domestic market, while in the global market the first place in the world ranking was occupied by the manufacturing industry, the share of which was 39.2%, which was three times higher than the value of the similar indicator of the USA (in other countries it was 1–8%) (*Table 2*).

According to *Table 2*, over the period 2008–2019, in the structure of value added produced in the manufacturing sector of the analysed sample of countries, there was a noticeable increase in the relative contribution of China's manufacturing industry — by 11%. India has a slight increase in this indicator — by 1.2 per cent. In contrast, the economies of the United States of America decreased their contribution — by 3.4 per cent, European countries — by 4.1 per cent and Japan — by 2.3 per cent. The result of these dynamic processes was the formation of new centres of development of the global manufacturing industry.

Despite the fact that in the structure of the US and European economies the service sector produces more than 70% of GDP, their relative contribution to the development of the "total service sector" has noticeably decreased — by 4.8 and 5.1%, respectively. At the same time, there is a sharp increase in this indicator in China — by 10.8%.

Table 3 shows the distribution of development centres of the world economy in its various sectors.

Analysis of the data in *Table 3* shows that 62% of total industrial production and 66% of manufacturing output is carried out in the Asian region, while the total relative contributions of the economies of the USA and the analysed

Table 1

GDP growth rates of the population of the economies and their amounts in the period 2008–2019, % (2019 to 2008)*

Country	GDP	Value added generated by the industry**	Value added generated in the services sector	Value added produced in the manufacturing industry
China	229	190	289	194
USA	122	112	126	113
India	205	163	221	164
Japan	107	108	107	105
Germany	114	113	115	109
Russia	111	116	119	98
Indonesia	177	144	209	126
Brazil	114	89	127	77
France	111	101	112	98
United Kingdom	115	100	118	103
Italy	97	88	100	93
Mexico	123	110	124	135
Turkey	168	174	170	188
South Korea	140	141	142	138
Iran	108	72	124	123

Source: compiled by the authors according to World Bank Open Data. URL: https://databank.worldbank.org/
Note: * – when calculating the indicators of *table 1*, data on the volume of GDP and value added of sectors of the economy at PPP in constant international dollars of 2017 (constant 2017 international $) were used; ** – the authorss in the article use statistics published by the World Bank, according to the methodology of which, when analyzing industry, the industry is taken into account, taking into account construction.

European countries, respectively, are 27 and 26%, i.e., more than 2 times less. In the "aggregate" services sector, the total contribution of US and EU manufacturing is 51 per cent, while that of Asian countries is 45 per cent.

Thus, as a result of dynamic processes in 2008–2019, two centres of production of services of the world economy were formed, while the world production of manufacturing industry concentrated in the Asian region.

The transformation of the structure of national economies led to the prioritised development of their competences and adaptation to the global economy in various directions.

IMPACT OF GLOBAL PROCESSES ON THE ECONOMIC GROWTH OF NATIONAL ECONOMIES

In order to quantitatively describe the level of integration, a number of transformations in the formula determining the volume of domestic consumption of manufacturing goods were carried out:

$$R = (1 - E)^*P + I = (1 - E)^*P + K^*R, \quad (1)$$

$$I = \frac{K^*(1-E)}{1-K}^*P = a^*P, \quad (2)$$

Table 2

Dynamics of the contribution of national sectors to the corresponding sectors of the "aggregate economy" of the leading countries

Country	Contribution of a country's GDP to total GDP, %		Contribution of value added (VA) produced by the industry to the total VA of the industry, %		Contribution of VA produced in the services sector to total VA of the services sector, %		Contribution of VA produced in manufacturing industry to the total VA of manufacturing industry, %	
	2008	2019	2008	2019	2008	2019	2008	2019
China	15.8	25.3	25.2	35.3	11.2	22.0	28.0	39.2
USA	27.1	23.0	19.2	15.7	33.4	28.6	18.3	14.9
India	7.2	10.3	7.6	9.1	5.4	8.2	6.8	8.0
Japan	7.8	5.9	7.7	6.2	9.1	6.6	9.3	7.0
Germany	6.3	5.0	5.8	4.8	6.5	5.1	7.0	5.5
Russia	5.7	4.5	6.0	5.1	4.8	3.9	4.7	3.3
Indonesia	2.9	3.6	4.7	5.0	1.8	2.6	4.4	4.0
Brazil	4.4	3.5	3.4	2.2	4.1	3.5	3.4	1.9
France	4.5	3.5	2.9	2.1	5.2	3.9	2.7	1.9
United Kingdom	4.4	3.5	3.0	2.2	5.0	4.0	2.3	1.7
Italy	4.2	2.9	3.4	2.2	4.5	3.1	3.6	2.4
Mexico	3.3	2.8	3.9	3.1	3.2	2.7	2.9	2.8
Turkey	2.3	2.7	2.0	2.6	2.1	2.4	2.0	2.8
Korea	2.6	2.5	2.8	2.9	2.4	2.3	3.6	3.6
Iran	1.5	1.2	2.5	1.3	1.2	1.0	1.1	1.0
Total	100	100	100	100	100	100	100	100

Source: compiled by the authors according to World Bank Open Data. URL: https://databank.worldbank.org/

$$a = \frac{K*(1-E)}{1-K}, \quad (3)$$

where R — is the value of manufactured goods sold on the domestic market; P — is the value of nationally produced goods; I — is the cost of imported products on the domestic market; E, K — respectively, the share of export products in national production and the share of imported products in the national market; a — the coefficient of proportionality between the value of purchases of imported products and the value of products produced in the national economy.

Using the notations introduced in equations (1)–(3), the level of integration of the national economy into the global economy γ is determined:

$$\gamma = \frac{(a+E)*P}{(1+a)*P} = \frac{a+E}{1+a}. \quad (4)$$

In formulas (1)–(4) the introduced parameters a, E, K — are abstract numbers representing, respectively, fractions of a unit, the values of which lie in the interval from 0 to 1. For the convenience of text perception, these values in

Table 3

Contribution of value added to total output of a sample of countries in various sectors in 2019*

Centre	Industry, %	Services, %	Manufacturing industry, %
USA	15.7	28.6	14.9
China	35.3	22.0	39.2
Other Asian sample countries	27.1	23.1	26.4
EU countries**	11.3	16.1	11.5
Latin America	5.5	6.2	4.7
Russia	5.1	3.9	3.3

Source: compiled by the authors according to World Bank Open Data. URL: https://databank.worldbank.org/
Note: *— Germany, France, Italy, UK. At the end of 2019, the UK was part of the EU.

the tables and text are presented in percentage form.

The authors of the article introduced a scale of the level of integration of national economies into the global economy.

This indicator is very high in national economies in which the cost of meeting external supply and demand accounts for more than 50 per cent of the total cost (C), of meeting domestic consumption of national production and offers to purchase or sell global market products.

At a high level of integration of the national economy into the global economy, the costs of providing external market offers are in the range of 50 to 40 per cent of total costs (C). In national economies with a moderate level of integration — from 40 to 30%. And at a weak level of integration — from 30 to 20%.

At lower values of the share of these costs, the national economy is practically unaffected by the global economy. In this case, the cost of providing external market offers is four or more times less than the cost of supporting national production to meet the needs of the domestic market.

Tables 4, 5 present data on the level of integration of the leading national economies in the world ranking by the level of GDP by PPP in 2008 and 2019.

The analysis of the data in *Table 4* shows that in 2008 the contribution of Asian countries to the world production of manufacturing industry — was 44.8%, and that of the G7 countries (USA, Japan, Germany, France, Great Britain, Italy) — 43%. In the services sector, the corresponding contribution of Asian countries — was 20.9 per cent and that of the G7 countries — was 63.7 per cent. Thus, the world manufacturing output is almost evenly distributed between the Asian countries in the top 15 in the GDP ranking and the above-mentioned G7 countries. However, the relative importance of Asian economies and G7 countries in global output changed in 2019. Thus, the contribution of Asian economies increased to 57.1%, while that of the G7 countries — decreased to 33.8% (*Table 5*). In the period 2008–2019, global manufacturing output was heavily concentrated in Asian countries. In the services sector, the opposite process took place: the contribution of Asian countries increased to 36.4 per cent and that of the G7 countries — decreased to 52.1 per cent

The data in *Tables 4 and 5* show that the manufacturing sectors in South Korea,

Table 4

Model for integrating the manufacturing industry of the national economy into the global economy, 2008*

Country	Share in "total sector of the economy"			Structure of domestic and external consumption of manufacturing goods as a share of national production, %				Level of integration (γ)
				Domestic demand		External demand		
	Industry, %**	Manufacturing industry, %	Service sector, %	National production	External offerings (*a****)	National production	Index of interaction with the global economy (*f*)	
China	25.2	28.0	11.2	77.4	13.4	22.6	0.25	0.32
USA	19.2	18.3	33.4	79.5	29.9	20.5	–0.19	0.39
India	7.6	6.8	5.4	77.2	26.2	22.8	–0.07	0.39
Japan	7.7	9.3	9.1	76.1	15.0	23.9	0.23	0.34
Germany	5.8	7.0	6.5	45.8	37.0	54.2	0.19	0.67
Russia	6.0	4.7	4.8	76.6	29.3	23.4	–0.11	0.41
Indonesia	4.7	4.4	1.8	56.1	56.0	43.9	–0.12	0.64
Brazil	3.4	3.4	4.1	84.4	15.9	15.6	–0.01	0.27
France	2.9	2.7	5.2	55.2	47.1	44.8	–0.02	0.62
United Kingdom	3.0	2.3	5.0	57.1	58.2	42.9	–0.15	0.64
Italy	3.4	3.6	4.5	63.9	29.6	36.1	0.10	0.51
Mexico	3.9	2.9	3.2	26.8	88.8	73.2	–0.10	0.86
Turkey	2.0	2.0	2.1	65.7	41.0	34.3	–0.09	0.53
South Korea	2.8	3.6	2.4	58.3	28.4	41.7	0.19	0.55

Source: compiled by the authors according to World Bank Open Data. URL: https://databank.worldbank.org/

Note: *— Statistical data on Iran are published irregularly, not in all analyzed areas and are not presented in all used databases, and therefore, during the study, it was not always possible to collect data for tables on Iran, and the authors were forced to exclude Iran from a number of tables; ** — the authors in the article use statistical data published by the World Bank, according to the methodology of which, when analysing the industry, the industry including construction is implied; *** — the designation was introduced in the explanation to the formula (3).

Table 5

Model of integration of the manufacturing industry of the national economy into the global economy. 2019

Country	Share in "total sector of the economy"			Structure of domestic and external consumption of manufacturing goods as a share of national production. %				Level of integration (γ)
				Domestic demand		External demand		
	Industry, %	Manufacturing industry, %	Service sector, %	National production	External offerings (*a*)	National production	Index of interaction with the global economy (*f*)	
China	34.4	38.3	21.2	82.5	11.1	17.5	0.23	0.26
USA	15.3	14.7	28.9	75.7	38.4	24.3	–0.22	0.45
India	9.4	8.3	8.0	74.0	31.8	26.0	–0.10	0.44
Japan	6.2	7.0	6.7	76.4	18.5	23.6	0.12	0.36
Germany	5	5.8	5.2	33.6	50.5	66.4	0.14	0.78
Russia	5.3	3.3	3.9	69.7	32.0	30.3	–0.03	0.47
Indonesia	4.9	3.9	2.5	67.8	42.3	32.2	–0.14	0.52
Brazil	2.3	1.9	3.6	81.4	21.6	18.6	–0.07	0.33
France	2.1	2.0	4.0	50.8	54.3	49.2	–0.05	0.67
United Kingdom	2.2	1.8	4.1	42.4	80.9	57.6	–0.17	0.77
Italy	2.2	2.5	3.2	53.4	36.9	46.6	0.12	0.61
Mexico	3.2	2.9	2.8	11.3	95.2	88.7	–0.04	0.94
Turkey	2.8	2.9	2.4	58.7	46.1	41.3	–0.06	0.60
South Korea	3	3.7	2.3	57.6	26.8	42.4	0.22	0.55

Source: compiled by the authors according to World Bank Open Data. URL: https://databank.worldbank.org/

Indonesia, Italy, France, UK, Germany, Turkey, and Mexico had a very high (over 50%) degree of integration with the global economy in 2008 and 2019.

The manufacturing sector integration indices of the US, Indian and Russian economies in 2019 were in the range of values corresponding to a high level (40–50%). Similar indicators were observed for these economies in 2008 as well.

The level of integration of Japan's manufacturing sector in 2008 and 2019, according to the values of γ, can be characterised as moderate (30–40%).

For Brazil, on the other hand, it increased from 27% in 2008 (weak level) to 33% in 2019 (moderate level).

China's manufacturing economy is the least dependent on the global economy, with its integration index values decreasing from 32% in 2008 to 26% in 2019, which corresponds to a weak level.

The analysis shows that the same level of integration can be achieved in different ways, for example, by using only exports of products and excluding imports for domestic consumption. In this case, in formula (4) $a = 0$, and the level of integration $\gamma = E$.

Table 6

Level of integration of the service sector of national economies into the global economy, 2016*

Country	*E/P*, %**	*I/P*, %**	γ	*f*
France	9,40	8,60	0,168	0,04
Germany	8,50	9,20	0,162	–0,04
Italy	5,17	5,40	0,10	–0,02
Japan	3,42	3,63	0,068	–0,03
Mexico	3,06	4,19	0,070	–0,15
UK	11,60	7,26	0,177	0,23
USA	3,32	2,24	0,054	0,19

Source: compiled by the authors according to OECD Data. URL: https://stats.oecd.org/
Note: *— as a source of data for the analysis of the services sector, the authors used the OECD database, where statistical data on services are published by member countries of the organization. The lack of an alternative source of information containing more up-to-date and broader information has led to a limitation in the number of countries in a number of tables; ** — values of exports and imports as shares of domestic consumption of services.

An alternative option assumes that only imports are used in integration. In this case, in formula (4) E = 0, and the level of integration $\gamma = \frac{a}{1+a}$.

In both cases, the same level value can be achieved using different integration tools. For example, let γ = 0,6. In the first case it will be at $E = 0{,}6$, and in the second case — at $a = 1{,}5$.

Therefore, to describe the features of the mechanism of integration of the national economy into the global economy, we introduce the parameter *f*, defined as:

$$f = \frac{E - a}{E + a}. \quad (5)$$

Values of *f* range from –1 to 1. In an export-oriented economy $f > 0$, in an import-oriented economy $f < 0$, and in a balanced economy $f = 0$.

The corresponding data calculated by formula (5) are presented in *Tables 4 and 5*. Their analysis shows that the group of highly integrated economies in 2019 includes three export-oriented (Germany, Italy, South Korea) and five import-oriented (Indonesia, France, UK, Mexico, Turkey) countries. Among the highly integrated countries, there are two import-oriented (USA and India) and one balanced country (Russia). Among the moderately integrated ones: Japan — export-oriented, Brazil — import-oriented.

At the same time, according to *Tables 4 and 5,* there is a marked decline in the level of integration of Japan (from 23% in 2008 to 12% in 2019) and Germany (from 19% in 2008 to 14% in 2019).

It should be noted that although China, in terms of the impact of the world economy on the national economy, is poorly integrated, nevertheless the scale of the latter has a significant impact on the development of the world economy — 38.3% of the total manufacturing value added of the countries presented in *Table 5* and 34.4% of the total value added of their industries. Thus, from the economic point of view, China has the

Table 7

The importance of international trade for the development of national economies in 2019

Country	Manufacturing industry			Services sector		
	Value added, USD billion	Balance, USD billion	Ratio of balance to value added, %	Value added, USD billion	Balance, USD billion	Ratio of balance to value added, %
China	3318	904.7	27.0	7150	–261.1	–3.65
USA	2610	–826.0	–32.0	17248	287.5	1.67
India	221.6	68.6	31.0	1563	84.2	5.60
Japan	931.9	144.8	15.5	3611	1.10	0.03
Germany	678.5	352.9	52.0	2588	–24.2	–1.00
Russia	187.9	–11.9	–6.3	1059	–36.2	–3.48
Indonesia	163.3	–39.6	–24.2	523.8	–7.7	–1.47
Brazil	208.8	–22.3	–10.7	1230	–35.1	–2.33
France	290.8	–54.4	–18.7	2128	24.1	1.27
United Kingdom	242.3	–172.8	–71.3	2218	134.9	6.69
Italy	290.8	130.2	44.8	1278	–2.3	–0.18
Mexico	151.2	–28.6	–18.9	683.3	–8.2	–1.20
Turkey	183.7	–15.8	–10.0	449.0	37.0	8.24
South Korea	507.2	220.6	43.5	85.8	–2.3	–2.63

Source: compiled by the authors according to World Bank Open Data. URL: https://databank.worldbank.org/

maximum potential for economic recovery during global crisis processes. This was clearly demonstrated in 2020–2021, when China's economy recovered from the negative consequences of the coronavirus pandemic with minimal losses (compared to the leading countries).

PECULIARITIES OF INTERNATIONAL TRADE IN SERVICES OF NATIONAL ECONOMIES

Using a wide range of instruments (exports and imports of manufactured goods, global production chains), the manufacturing industries of national economies shape the distribution of competences in the industrial sector of the world economy. On the contrary, the interaction of the global economy is less significant for the service sector of national economies. This is evidenced by the data of *Table 6*.

The analysis of the data in *Table 6*, in accordance with the scale adopted by us, indicates weak and very weak integration of the service sector of national economies into the global economy. At the same time, there are insignificant trends in the nature of the use of integration instruments — exports and imports. For the first four countries of *Table 6* the use of these instruments is practically balanced. A slight priority in the use of exports is observed in the UK and the USA. On the contrary, Mexico has a slight priority in the use of imports.

Thus, the dynamics of development of the services sector of national economies of the

Table 8

The structure of the balance of current operations of the balance of payments of national economies in 2019, billion US dollars

Country	Industrial sector of the market			Commodity balance **	Services balance	Balance of primary and secondary income	Total balance of current transactions
	MI Goods *	Energy carriers, mineral resources	Balance of the sector				
China	1084.9	−496.2	588.7	392.9	−261.1	−28.9	102.9
USA	−957.9	−22.5	−980.4	−861.5	285.2	104.2	−472.1
India	−10.7	−121.6	−132.3	−157.7	84.2	43.7	−29.8
Japan	186.7	−170.5	16.1	1.4	−9.9	184.7	176.2
Germany	357.0	−80.5	276.4	242.5	−23.0	70.1	289.6
Russia	−119.3	238.5	119.2	165.8	−36.7	−63.7	65.4
Indonesia	−38.3	13.7	−24.7	3.5	−7.6	−26.2	−30.3
Brazil	−81.0	28.4	−52.6	26.5	−35.5	−56	−65
France	−45.2	−52.0	−97.1	−52.4	26.8	17.4	−8.2
United Kingdom	−123.7	−18.9	−142.6	−176.8	150.3	−50.4	−76.9
Italy	109.0	−50.2	58.9	67.9	−0.6	−2.7	64.6
Mexico	18.1	−16.2	1.9	5.2	−8.3	−0.87	−3.97
Turkey	19.0	−42.0	−23.0	−16.8	−34.1	56.2	5.3
South Korea	170.3	−106.9	63.4	79.8	−26.8	6.7	59.7

Source: compiled by the authors according to WTO Stats portal (URL: https://stats.wto.org/) and IMF Data Portal (URL: https://data.imf.org/regular.aspx?key=62805740)
Note: *— manufacturing industry; ** — Total balance for all product groups, incl. products of the industrial sector.

countries leading in the GDP PPP ranking is influenced mainly by domestic factors.

Indeed, the values of the ratios of trade balance in the services sector to the value added of the services sector of national economies are a few per cent (2–8 per cent). On the contrary, the values of this indicator in manufacturing for 10 countries are 10 or more times higher (*Table 7*).

The exception is India, where it is only 5.8 times larger. The high importance of the global market for the services sector of the Indian economy is due to the fact that it has a developed software sector aimed at meeting the needs of the global economy.[8]

For Russia, this value is only twice as large — exports of oil products and metallurgical products largely compensate for the cost of foreign supplies of machine-building and chemical products. In the services market, payments to provide foreign holidays for the population are significant, which leads to a

[8] India Software Market Revenues Forecast to Surpass US$ 8.2 Billion by End of Year 2021, According to IDC. URL: https://www.idc.com/getdoc.jsp?containerId=prAP48517221&utm_source=ixbtcom (accessed on 20.02.2022).

Table 9

Sectoral structure of value added, %

Country	Industry		Manufacturing industry		Service	
	2008	2019	2008	2019	2008	2019
China	46.9	38.9	32.1	27.2	42.9	53.9
USA	20.9	18.2	12.3	10.9	74.5	77.3
India	31.1	24.8	17.1	13.6	45.9	49.4
Japan	29.0	28.7	21.4	20.3	69.8	69.3
Germany	26.9	26.7	20.0	19.1	62.2	62.6
Russia	30.8	32.2	14.9	13.1	50.7	54.0
Indonesia	48.1	38.9	27.8	19.7	37.5	44.2
Brazil	23.1	17.9	14.0	9.4	56.8	63.3
France	18.8	17.1	11.1	9.8	69.7	70.2
United Kingdom	20.0	17.4	9.6	8.6	69.8	71.3
Italy	23.6	21.4	15.5	14.9	64.7	66.3
Mexico	34.8	30.9	15.8	17.3	59.5	59.9
Turkey	26.2	27.2	16.3	18.3	55.5	56.5
South Korea	32.5	32.8	25.6	25.3	56.2	57.1

Source: compiled by the authors according to World Bank Open Data. URL: https://databank.worldbank.org/

negative balance of payments. In Turkey, the services sector is export-oriented to a large extent due to the provision of foreigners' holidays.

Thus, for only two countries (Russia and Turkey) the role of interaction with the global market is the same in both the services and manufacturing sectors.

The economic efficiency of interaction of national economies with the global market is determined by the balance of payments. *Table 8* presents data characterising its structure.

The data of *Table 8* show that only 7 countries out of 14 analysed have positive values of the balance of payments of current account transactions.

Based on the results of analysing its structure, we can conclude that the trade balance in the global market of manufactured goods is almost always larger in absolute value than in the market of services (with the exception of the United Kingdom, Mexico and Turkey).

At the same time, the impact of the global economy on the domestic market of industrial goods is noticeably greater than on the domestic market of the services sector. This follows from a comparison of the trade balance of industrial goods and the balance of the services sector. Indeed, the absolute value of the trade balance of industrial goods is two or more times higher than the same indicator for the services sector of 8 countries. Thus, it should be noted that the level of globalisation in services is noticeably lower than in the industrial sector of the economy.

The analysis shows that 11 countries have different types of integration with the global

market in its industrial and services segments. In this regard, it should be noted that in economies with a negative balance in international trade in manufactured goods, the main instrument of integration is imports. But it was assumed that the development of the national services sector would form a source of compensation for these losses. However, as the data of *Table 9* show, such a source has not been formed, despite the fact that in almost all developed countries the contribution of the services sector to GDP ranges from 65 to 80 per cent.

Indeed, even in the economies of the USA, France, and the UK with a high level of development of the service and services sector, the negative commodity balance is not compensated (Table 8). Among developed countries, only Japan, Germany, Italy, and South Korea have a positive trade balance of the industrial sector. The contribution of industry to the GDP of these countries is quite high — more than 20%.

It should be noted that in developed countries, the decline in manufacturing output is due to a reduction in the production of traditional products, the need for which is met through external procurement.

An important element of the balance of payments is the balance of operations carried out in the investment market, in assessing which it should be taken into account that two instruments are used — direct and portfolio investments. A positive balance in the case of direct investments indicates that investments in foreign projects realised abroad are more efficient than investments by residents in the economy. For example, in the 2019 US balance of payments, income from direct investment abroad is $ 580bn, while income from non-residents investing in the US economy — is $ 245.8bn. In the case of portfolio investment, US investors received $ 57bn less than foreign investors.[9] Thus, the US economy is not competitive enough in the investment market. This circumstance is one of the key factors of the crisis of the US financial system.

CONCLUSIONS

The study shows that in the period 2008–2019, there was a significant difference between the growth rates of the services sector and industry, which led to significant changes in the structure of national economies. The importance of China and India in the industrial sector of the world economy has increased. On the contrary, despite the high importance of the service sector in the structure of the US and Western European economies, their contribution to the service sector of the world economy decreased by more than 5%.

As a consequence of the above-mentioned dynamic processes, two centres of production of services of the world economy have emerged, while global manufacturing production has concentrated in the Asian region.

The results of the study of the dynamics of development of national economies leading in the ranking of GDP by PPP revealed common trends and peculiarities in different countries. Fourteen of the 15 countries (Italy is the exception) increased their GDP over the time period, but there is considerable variation in growth rates. Five Asian countries increased their GDP by more than 40 per cent, while 3 EU countries increased by around 11–15 per cent and Italy saw a fall of 3 per cent (*Table 1*).

In all countries, the services sector has a higher growth rate than the industrial sector (including manufacturing). As a result, the services sector has become a major contributor to GDP (contributing more than 50 per cent). The exception is Indonesia, with a contribution of 44 per cent (*Table 9*). The high rate of manufacturing development in South-East Asian countries and in Turkey has led to their

[9] U.S. Bureau of Economic Analysis. International Transactions, International Services, and International Investment Position Tables. URL: ttps://apps.bea.gov/iTable/iTable.cfm?reqid=62&step=2&isuri=1&6210=1#reqid=62&step=2&isuri=1&6210=1 (accessed on 16.04.2022).

leading role in the sector's output. Asian countries account for 62 per cent of the total (*Table 2*).

In addition to the outstripping development of the service sector, the second trend in the development of national economies in 2008–2019 is the increasing degree of integration of national economies into the global economy. In order to quantitatively characterise this indicator, a special parameter was introduced, which was used to classify the interaction and determine the models of adaptation of national economies to the global economy.

Eight countries in the manufacturing sector have a very high degree of integration of their national economies (γ more than 50 per cent) with the global economy. Three countries have integration index values in the range of high integration (range 40–50 per cent). For the remaining countries analysed, this indicator can be assessed as moderate and weak.

The paper introduces a special parameter that characterises different ways of adapting the national economy to the global economy. It allows us to determine whether an economy is import- or export-oriented. The results of the study show that China and South Korea have the highest degree of export orientation, while the United States has the highest degree of import orientation.

The excessive development of the service sector, primarily the financial sector, has led to the formation of negative balance of payments of national economies by increasing their dependence on the supply of products of the industrial sector. The need for industrial goods is ensured by the integration of national economies with the global economy, within the framework of which global production chains function. Increasing geopolitical tension negatively affects the stability of supply chains in the global market and leads to structural problems in national economies in case of shortage of imported components, which has been repeatedly written about by domestic[10] and foreign[11] experts, and clearly demonstrated in the global market of microelectronics in the period 2020–2023.[12]

With relatively low labour costs in developing countries, it seemed economically viable to invest in their industrial sector. The technological development of communications facilitated the cost-effective exchange of goods with developing countries. The post-industrial model of the economy, when integrated into the global economy, was expected to promote economic efficiency, lower costs, and higher profits.

However, the study has shown that under the current models of national economies there are negative dynamics of the balance of payments, increased dependence of developed economies on the products of the industrial sector and, accordingly, a decrease in the level of resilience of national economies to the impact of external factors.

In addition, it is found that almost all countries leading in the ranking of countries in terms of GDP by PPP with a population of more than 50 million people are able to meet service needs on their own, as the interaction

[10] Reshaping global production chains: from efficiency to sustainability. Analytical note. Bank of Russia. URL: https://www.cbr.ru/Content/Document/File/132380/analytic_note_20220125_dip.pdf (accessed on 23.05.2023); The domino effect: why global supply chains are collapsing and what the risks are. URL: https://www.forbes.ru/biznes/460163-effekt-domino-pocemu-rusatsa-global-nye-cepocki-postavok-i-cem-eto-grozit (accessed on 23.05.2023).

[11] Global Value Chain Development Report 2021: Beyond Production. URL: https://www.wto.org/english/res_e/booksp_e/00_gvc_dev_report_2021_e.pdf (accessed on 23.05.2023); Lieferketten-Probleme haben sich weiter verschärft. Lage insbesondere mittelständischer Industriebetriebe teils dramatisch. URL: https://www.dihk.de/de/aktuelles-und-presse/aktuelle-informationen/lieferketten-probleme-haben-sich-weiter-verschaerft-67866 (accessed on 23.05.2023).

[12] Semiconductor Chips Applications Markets and Impact of Shortages, 2022–2027 with 2021 as the Base Year. URL: https://www.businesswire.com/news/home/20230109005462/en/Semiconductor-Chips-Applications-Markets-and-Impact-of-Shortages-2022–2027-with-2021-as-the-Base-Year—-ResearchAndMarkets.com (accessed on 23.05.2023); When the chips are down: How the semiconductor industry is dealing with a worldwide shortage. The Word Economic Forum. URL: https://www.weforum.org/agenda/2022/02/semiconductor-chip-shortage-supply-chain/ (accessed on 23.05.2023).

of the global economy is less significant for the service sector of national economies.

In economies with a negative balance in international trade in manufactured goods, the needs of the domestic market are met at the expense of imports. In the economies of Western Europe and the United States, the deficit of energy resources on the world market, high inflation, and instability of the banking system have shown signs of recession. This indicates the fallacy of the assertion that the development of the national services sector will form a source of compensation for these losses. As the research data show, such a source has not been formed, despite the fact that in almost all developed countries the contribution of the service sector to GDP is from 65 to 80%. In order to maintain the sustainability of the national economy, the U.S. tightened the sanctions regime against Russia, which provoked the emergence of inflation, reduced growth of the economies of Western European countries, and a decline in their competitiveness. The U.S. government creates conditions that stimulate the transfer of industrial companies from Western European countries to the U.S. and thus increases the growth of its industrial production while it is declining in Western European countries.

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