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**MANAGEMENT OF UKRAINE'S  
FOREIGN ECONOMIC POLICY IN  
THE EURO-INTEGRATION DIMENSION  
IN THE CONDITIONS OF GLOBAL ASYMMETRY**



MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE  
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The monograph covers theoretical and methodological foundations of research related to the management of Ukraine's foreign economic policy in the process of accession to the European Union in the context of global asymmetry.

Based on the analysis of the system of statistical indicators, global trends in international trade in the post-pandemic period are considered. In the context of innovation development strategy, the essence, directions and impact of Industry 4.0 on the structure of international trade and its importance in strengthening competitiveness of goods and services in the world markets are highlighted. Taking into account latest trends and spatial shifts in geo-economic system, the author assesses Ukraine's position in the global market and in the Middle East.

Taking into account global reformatting of the world community, the regulatory and legal mechanism of foreign economic policy and the specifics of its implementation in the context of the post-war recovery of the Ukrainian economy have been improved.

For specialists in the field of foreign economic policy, researchers, teachers and students of all levels of education who are interested in the problems of modern international economic development.

У монографії розглянуто теоретико-методологічні основи дослідження, пов'язані з управлінням зовнішньоекономічною політикою України в процесі вступу до Європейського союзу в умовах глобальної асиметрії.

На основі аналізу системи статистичних показників розглянуто глобальні тенденції міжнародної торгівлі у період пост-пандемії. У контексті стратегії інноваційного розвитку висвітлено сутність, напрями та вплив Індустрії 4.0 на структуру міжнародної торгівлі та її значення у посиленні конкурентоспроможності товарів та послуг на світових ринках. З урахуванням новітніх тенденцій та просторових зрушень в гео економічній системі, оцінено позиції України на світовому ринку та в країнах Близького Сходу.

Враховуючи глобальне переформатування світового простору, удосконалено нормативно-правовий механізм зовнішньоекономічної політики та особливості його реалізації в умовах повосенного відновлення української економіки.

Для фахівців у сфері зовнішньоекономічної політики, науковців, викладачів та здобувачів всіх рівнів освіти, які цікавляться проблемами сучасного міжнародного економічного розвитку.

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## INTRODUCTION

The full-scale invasion of Ukraine by Russian troops significantly worsened the operating environment for businesses, which faced critical challenges, including the loss of human resources, material and technical facilities as a result of mass migration, missile attacks and hostilities. These circumstances led to profound structural changes in the country's economy and a decline in industrial production, which negatively affected Ukraine's foreign trade balance. In 2022-2023, Ukraine's foreign trade underwent significant changes: exports declined amid rising imports; the share of commodities in the export structure increased, while imports increasingly consisted of high-tech products. In the context of the war, foreign economic policy acquired strategic importance, and its main objectives were ensuring stable foreign exchange earnings through exports; organising imports of critical goods; attracting financial and technical assistance from international partners; and ensuring continuous supplies of arms and ammunition.

Military operations in a large part of Ukraine have severely restricted domestic production and consumption, making exports a key source of foreign exchange earnings. Therefore, foreign economic policy should focus on supporting exports of key goods and services, such as agricultural products, metallurgy, and IT services. At the same time, the destruction of production and logistics chains by the aggressor has strengthened the role of the state in ensuring uninterrupted imports of critical resources, including food, medicine, fuel, and military equipment.

Strengthening Ukraine's geopolitical position in times of war requires active diplomatic work to obtain reliable international support. The key objectives of foreign economic policy include: entering into strategic

economic and political alliances; integration into international economic and security structures; and expanding cooperation with countries that support Ukraine.

Taking into consideration the challenges faced by Ukraine, it is an urgent task to study the peculiarities of the formation and implementation of foreign economic policy in the context of war. This implies improving the mechanisms of state regulation of foreign economic activity to ensure economic sustainability and increase the country's competitiveness in the international arena.

It is necessary to take into account changes in the global environment that have been taking place in recent years under the influence of the Covid-19 pandemic, technological progress and the spread of Industry 4.0 technologies, the growth of service-based national economies and international trade, and the emergence of new growth markets in the Middle East.

Ukraine, as part of the globalised economy and a participant in integration processes, has faced rapid spread of the COVID-19 virus and the negative effects of restrictive measures imposed both internationally and domestically. The shutdown of many industrial enterprises and the closure of service sector establishments led to a decline in GDP, a reduction in investment and consumer demand, and a significant decrease in foreign trade turnover. The impact of the external shocks caused by the pandemic depended heavily on the structure of the national economy and the ability of businesses to adapt to changes in the global environment. In this context, it is especially important to analyse changes in Ukraine's foreign trade, identify key trends in exports and imports during the post-

pandemic recovery, and identify main factors that contributed to the recovery of foreign trade operations.

Industry 4.0 is a logical step in the technological progress of recent decades that has significant potential to transform the global production and consumption of goods and services in global markets. The transition of national economies to Industry 4.0 and the introduction of advanced technologies have a significant impact on the structure of global value chains, supply chains and the international division of labour. This process is changing business environment in both developed and emerging economies, and is also affecting operations of multinational corporations and small and medium-sized enterprises.

Rapid development of technology and the upskilling of human resources provide companies with new competitive advantages based on the use of Industry 4.0 solutions. At the same time, new challenges arise due to the shortage of necessary skills, technological backwardness, as well as ethical and value-based aspects of doing business, which must be overcome to effectively use technological progress.

The relevance of the study of Industry 4.0 and its impact on international trade is due to the active structural changes in national economies that arise under the influence of the new technological paradigm. This transformation creates additional value for companies and consumers, increases competitiveness of firms, and causes both positive and negative changes in global markets for goods and services. The reshaping of global value chains and the change in the comparative advantage of national economies under the influence of Industry 4.0 require in-depth study to understand the new challenges and opportunities in international trade.

International trade in services plays a significant role in the development of Ukraine's economy, contributing to its growth, integration into global economic processes, job creation and development of strategically important industries. Exports of services, in particular in the areas of information technology, transport, tourism, and finance, generate significant foreign exchange earnings and have a positive impact on the country's GDP growth. Increasing the share of services in total exports contributes to the diversification of Ukraine's economy, reducing dependence on traditional industries such as metallurgy and agriculture. The transition to exports of high-tech, financial and professional services creates new opportunities for sustainable economic development.

Trade in services also contributes to Ukraine's international image and its integration into global supply chains. High competitiveness in IT, outsourcing, and other professional services strengthens the trust of foreign partners and opens up new markets for Ukrainian companies. Thus, broadening Ukraine's participation in international trade in services is an important step towards strengthening its position in the global market. This underscores the relevance of researching competitive sectors of Ukrainian services, identifying their strengths, and developing strategies to strengthen competitive advantages internationally.

In the context of a full-scale invasion, when Ukraine's economic and industrial potential has suffered significant losses and traditional logistics routes have been disrupted, Ukrainian exporters are forced to look for new markets to sell their products. In terms of geographical proximity, the most promising markets are Africa, Asia and the Middle East. At the same time, it should be borne in mind that the growth rate of trade with developing countries is much higher than with developed countries, as their economies

are characterised by growing demand due to the increase in population and the rising level of prosperity of their residents.

Diversification of the geographical structure of Ukraine's foreign trade by deepening cooperation with the Middle East is especially important in the context of a sharp decline in demand in certain markets, as it allows producers to reduce losses to some extent. However, Ukraine's exports to these countries are still small and include a few main groups of goods, mainly raw materials, namely wheat, barley, corn, oilseeds, ferrous metals and semi-finished iron products. The low level of adaptation of the structure of Ukrainian exports to the import demand of the Middle East indicates untapped export opportunities and, at the same time, the possibility of increasing diversification of the commodity structure of exports from Ukraine. Considering the existing volumes and commodity structure of Ukrainian exports, the current task is to determine the prospects for its transformation and the possibility of diversification by using the potential of processing industry, increasing exports of goods with a higher level of added value and high-tech products.

# **CHAPTER 1. THEORETICAL AND METHODOLOGICAL FOUNDATIONS OF FOREIGN TRADE DEVELOPMENT IN THE CONTEXT OF GLOBAL CHALLENGES**

## **1.1. Theoretical foundations of international trade development in the world economy**

In today's globalised world, international trade is a key driver of economic growth, global cooperation and improved living standards. Its importance cannot be overestimated, as it provides broad opportunities and numerous benefits for countries, companies and individuals. Countries' participation in international trade contributes to GDP growth through increased exports and imports. Improving export efficiency allows countries to be competitive globally, increase revenues, and attract foreign direct investment, which in turn has a positive impact on economic development and accelerates its growth.

Traditionally, the theory of international relations identifies several key positive aspects for the national economy in the context of foreign trade: economic growth and development, expansion of consumer demand in foreign markets, optimisation of resource use, and access to raw materials.

International trade contributes to economic growth and development by opening up new markets for exporters, allowing a country to diversify its economy and increase its production capacity. By specialising in the export of goods and services in which a country has a comparative advantage, it increases the efficiency and productivity of its economy, which accelerates its development and ensures sustainable social and economic progress.

Businesses involved in international trade can meet the needs of more consumers, creating demand for their goods and services in foreign markets<sup>1</sup>. Through exports, companies expand their presence by adapting their products to the requirements of other countries, which stimulates sales growth, revenue and further business development.

In the course of international trade, countries gradually optimise the use of their natural and human resources. Some countries have a surplus of natural resources, while highly developed countries have advanced technologies and a highly skilled workforce. It is through trade exchange that technology is transferred and the necessary resources are obtained for the production of high-tech products, allowing all participants to benefit from comparative advantages<sup>2</sup>. Therefore, international trade is an important tool for improving production efficiency and rationalising the use of resources in the global economy.

The issues of international trade and its impact on economic growth have become particularly relevant due to the active implementation of trade liberalisation policies in developing countries. The impact of international trade on economic development is largely determined by globalisation. However, there are two main points of view among academicians regarding its impact on the economies of these countries. One group of researchers argues that international trade has led to negative consequences in the financial and economic spheres of developing countries, as the main profits have gone to developed countries. Trade liberalisation, tariff reductions and globalisation have had a negative impact on the industries of less developed economies. After opening

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<sup>1</sup> Ramirez R. and Crisologo A. and Vigonte F. and Abante M. V. International Trade: the Whys and Its Impact to Global Economy (January 28, 2023). URL: <https://ssrn.com/abstract=4340167>.

<sup>2</sup> Ramirez R. and Crisologo A. and Vigonte F. and Abante M. V. International Trade....

domestic markets, many new industries in these countries ceased to exist, while others that were previously protected from external competition lost their ability to produce competitive goods.

The other group of economists, which emphasises positive aspects of globalisation and international trade, takes a more optimistic view. They point out that countries that have pursued a policy of trade liberalisation have reaped all the additional benefits of globalisation. China and India are cited as examples. In their view, international trade contributes to the development of countries that participate in the international division of labour in accordance with established rules. They gain access to the global market, new technologies and foreign capital, and increased competition encourages entrepreneurs to improve staff skills and use resources more efficiently.

Although open trade policies create new opportunities for developing countries, participation in international trade alone does not guarantee economic growth. The latter is the result of synergies between liberalisation, flexible trade policies, favourable macroeconomic conditions and political stability. Some countries have not been able to reap the benefits of international trade due to the lack of appropriate measures to overcome economic stagnation and ensure macroeconomic stability, which has created obstacles to the positive impact of trade on their economies<sup>3</sup>.

The degree of openness or protection of a national economy plays an important role in ensuring the long-term stability and sustainable economic growth of a country. Recently, especially after the financial crisis of 2008,

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<sup>3</sup> Gujrati R. The role of International Trade in the Global Economy & Its Effects On Economic Growth. International Journal of Innovative Science, Engineering & Technology. 2015. Vol. 2 Issue 7. P. 453-462

the process of global integration has slowed down and anti-globalisation trends have intensified. Due to such phenomena as the ‘Schumpeter effect’ and ‘flight from the effect of competition’, not only developing countries but also developed countries have become supporters of protectionism<sup>4</sup>. Populist and xenophobic sentiments, which have emerged under the influence of events such as Brexit and the Trump administration's policies, have also strengthened the position of protectionists<sup>5</sup>.

Developed countries, with their strong industrial bases and effective social protection systems, have benefited from economic globalisation and free trade. However, since the financial crisis, social welfare policies have undergone significant changes, making protectionism the only way to preserve social stability and maintain employment levels. While developed countries are protecting their markets, developing countries can respond to the crisis by increasing social welfare<sup>6</sup>.

For developing countries that have long pursued an openness policy, this strategy has become the basis for economic development after increasing production capacity. Opening up the economy brings benefits such as capital accumulation, foreign investment, trade development, and the use of resources in industry and services. However, such measures may not always significantly change the backwardness of individual economies. If government regulation is inefficient, investors have little incentive to invest in innovation and research in the short term. While an increase in foreign capital can promote integration into the global economy, it can also lead to negative consequences, such as

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<sup>4</sup> Chen Z. Research on International Trade Theory and the Status Quo of World International Trade. *American Journal of Industrial and Business Management*. 2022. Vol. 12. P. 1079-1087. doi: 10.4236/ajibm.2022.126057.

<sup>5</sup> Wang, L. Y., Yuan, Z. Q., & Ji, Y. Trade Openness and Fiscal Policy Volatility. *Economic Research Journal*. 2021. No. 2. P. 89-102.

<sup>6</sup> Li W. J., & Zheng M. N. Where to Go: Trade Protectionism or Open Competition? Evidence from Micro-Enterprise Innovation. *Journal of Finance and Economics*. 2018. Vol. 44. P. 20-31.

overexploitation of natural resources and labour, which benefits developed countries the most.

The academic debate on the impact of openness policies on economic development remains controversial. Some researchers argue that openness promotes economic growth by attracting foreign investment, strengthening the role of government, and reducing fiscal policy volatility<sup>7</sup>. They also argue that it can provide exchange rate stability and create a favourable financial environment for high economic growth<sup>8</sup>.

Other researchers emphasise that protecting national market through implementation of specific sectoral policies aimed at improving the industrial system can also contribute to economic growth by harnessing domestic potential. Government, through subsidies and tariff adjustments, can support vulnerable industries that are under pressure from transnational corporations (TNCs). At the same time, domestic corporations should actively invest in research and development of new technologies to reduce technological gap with leading developed countries and develop innovations in new directions. While such measures may limit the activities of foreign companies in short term, long-term development of regional economies may benefit from the spread of new technologies.

All theories of international trade have a common, albeit different, interpretation of the impact of open policies or protectionism on the development of emerging economies. Economic openness is considered to be an important factor in economic development, which is confirmed by both theoretical studies and practical experience of many countries.

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<sup>7</sup> Zheng, Y. Liberalization or Protection: How Do States Respond to the Global Financial Crisis? *World Economics and Politics*. 2018. No. 12. P. 135-160.

<sup>8</sup> Chen Z. Research on International Trade...

However, theorists also point out that openness policies can lead to a number of negative phenomena, such as dumping or waste of resources<sup>9</sup>.

After the Second World War, the international economic system was gradually formed and improved, which led to a significant increase in the volume of trade in goods between developed industrialised countries, an increase in the number of multinational companies and the volume of foreign investment. At the same time, both classical and neoclassical theories of international trade assume the existence of perfect competition in commodity markets. However, these assumptions differ significantly from real conditions of modern trade, which has led to the emergence of new theories. Today's international trade is increasingly characterised by regionalisation trends, influenced by integration associations such as the EU, NAFTA, ASEAN, and various regional trade agreements and organisations<sup>10</sup>.

The geopolitical factor continues to play a leading role in economic development, and this trend will continue until the problem of energy shortages is resolved or fuel consumption, especially in the transport sector, is significantly reduced<sup>11</sup>. In such circumstances, regional economic ties are strengthening, which may lead to increased regional closure and trade discrimination<sup>12</sup>. Developed countries are using anti-dumping measures to protect their markets from an oversupply of cheap, labour-

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<sup>9</sup> Chen Z. Research on International Trade...

<sup>10</sup> Lu, H. (2021). RCEP in the Regionalization of International Trade. *International Business Daily*, 2021-11-18

<sup>11</sup> Yang, W. L., Shi, W. T., & Du, D. B. The Spatial Model and Spatial Mechanism of the Global Geo-Economic Co-Operation: An Empirical Research Based on the Scale of Commodity Trade. *Scientia Geographica Sinica*. 2021. № 41. P. 1875-1883.

<sup>12</sup> Zhang, B. S. WTO's Anti-Discrimination Reform Model and EU's Trade Policy towards China. *International Trade*. 2007. No. 8. P. 56-59

intensive goods, while developing countries are using tariff policies to protect their weak manufacturing industries<sup>13</sup>.

At the same time, developing countries are actively using their competitive advantages to narrow the gap in industrial development with developed economies<sup>14</sup>, some scholars believe that achieving free and fair trade can help reduce imbalances in global trade<sup>15</sup>. However, the growing interdependence of national economies in the context of globalisation, a crisis in one country can trigger a global financial crisis<sup>16</sup>. For example, a debt crisis in a single economy can lead to global financial turmoil. Currency fluctuations also play an important role, affecting liquidity in global trade<sup>17</sup>.

In today's globalised world, monopolies play a significant role in ensuring effective competition. Monopolistic enterprises, by expanding their commercial territories, can increase markets beyond national borders<sup>18</sup>. Monopolistic transnational corporations accumulate significant resources, technology and capital, which allows them to strengthen their leadership position in the global economy. While these enterprises can contribute to economic vitality, technological progress, and improved human lives, they also carry the risk of abuse, including unrestricted profiteering<sup>19</sup>.

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<sup>13</sup> Yu, Z., Zhou, B. H., Xie, X. B. et al. Participation in the Reconstruction of the GVCs and Sino-U.S. Trade Frictions. *China Industrial Economics*. 2018. No. 7. P. 24-42.

<sup>14</sup> Liu, Y. F. Wave Phenomenon and the Reconstruction of Macroeconomic Theories for Developing Countries. *Economic Research Journal*. 2007. No. 1. P. 126-131.

<sup>15</sup> Udo, B., Alexander, K., & Vivekananda, M. Globalization, Inequality and Economic Policy. *Economics and Business Review*. 2019. Vol. 5. P. 3-11.

<sup>16</sup> He, D. X., Miao, W. L., Yan, J. J. et al. Analysis on the Global Systemic Financial Risks Cross-Market Contagion Effect. *Economic Research Journal*, 2021. No. 8. P. 4-21.

<sup>17</sup> Miao, Y. L., Hao, Y., & Yang, Y. Y. Foreign Exchange Reserves, Global Liquidity and Exchange Rate Determination. *Economic Research Journal*. 2021. No. 8. P. 39-55.

<sup>18</sup> Gai, Q., Zhu, X., Cheng, M. W. et al. Factor Market's Distortion, Markup and TFP. *Economic Research Journal*. 2015. No. 5. P. 61-75.

<sup>19</sup> Wang, D. X., Li, L. L., & Ran, G. H. Financial Capital Formation and Economic Growth. *Economic Research Journal*. 2009. No. 9. P. 39-51.

In view of these challenges, governments widely use control and penalty instruments against large monopolistic companies to regulate their activities and prevent potentially harmful effects on the economy.

Current international trading environment is characterised by considerable complexity and uneven distribution of profits. The majority of profits in industrial sectors are generated by developed countries that already have strong economies and technological advantages. Newly industrialised countries, on the other hand, are at the stage of industrialisation and are actively trying to raise their average income levels by using their own competitive advantages.

International trade, despite its vulnerability to external shocks, demonstrates a significant ability to recover in post-crisis periods. At the same time, the use of protectionist elements by countries allows them to level the playing field for those who are still developing their own industries. This provides protection for vulnerable industries, facilitating gradual economic development. It is important, however, that such measures do not violate basic principles of open trade set out in the World Trade Organisation (WTO).

One of the key challenges for emerging economies is the need to maintain sustainable growth through productive force development, innovation, technology modernisation and addressing demographic challenges such as population ageing and increasing human capital.

International trade is an important component of the global economy that facilitates the international division of labour and allows countries to make more efficient use of their unique resources. It also facilitates the movement of capital, labour, knowledge and technology between countries. This provides a number of benefits to countries, businesses and

individuals, including increased access to foreign markets, increased competitiveness, better access to investment and job creation.

In addition, international trade contributes to improving the quality of life of the population through access to more goods and services, higher wages and lower production costs. Due to the interdependence between countries, it can also play a role in ensuring peace and stability by promoting economic cooperation and strengthening international relations.

## **1.2. Foreign economic policy of countries as the basis for the formation of cooperation in global economy**

The multilateral trading system, overseen by the World Trade Organisation, was established over 75 years ago to promote peace and economic growth through increased interdependence among economies. This vision was based on the experience of three decades of de-globalisation, which saw two world wars, the Great Depression and the rise of political extremism<sup>20</sup>. However, recent economic crises, the COVID-19 pandemic and the war in Ukraine have led to the interpretation of globalisation as a negative process that generates significant threats to national economies. In this regard, scepticism about the role of international trade, which is seen by many experts as an obstacle to building a more secure, inclusive and sustainable world, has become popular, and economic independence has received more attention.

In recent years, international trade scepticism in global trade policymaking has increased, leading to setbacks in efforts to integrate regional trade and a shift towards unilateral trade policies. This has led to

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<sup>20</sup> World Trade Report 2023: Re-globalization for a secure, inclusive and sustainable future. URL: [https://www.wto.org/english/res\\_e/publications\\_e/wtr23\\_e.htm](https://www.wto.org/english/res_e/publications_e/wtr23_e.htm).

tensions between some major traders as unilateral trade measures and stricter technical rules have caused growing trade problems for WTO members<sup>21</sup>.

One common definition of globalisation is that it is ‘an irreversible force imposed on the world by some countries and institutions through which the increasingly free flow of ideas, people, goods, services and capital leads to the integration of economies and societies<sup>22</sup>’. The economic aspect of the phenomenon refers to the growing interdependence of world economies as a result of the growing scale of cross-border trade in goods and services, the flow of international capital and rapid spread of technology. This process ‘reflects constant expansion and mutual integration of market borders and is an irreversible trend of economic development around the world at the turn of the millennium’<sup>23</sup>.

Globalization has significantly increased world trade flows, indicating some positive effects of this process. According to the WTO, until the 1950s, exports of goods grew by more than 8% per year. Although this period of growth was marked by price fluctuations and recessions, world exports of goods grew by an average of 6% until the 2000s. Despite the dynamic development of global trade, the performance of individual countries is not unambiguously positive, as national governments have lost control over their national economies and trade as a result of attempts to change the economic system by deregulating international trade barriers through regional trade agreements and economic integration. Regional integration involves a range of measures

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<sup>21</sup> World Trade Report 2023...

<sup>22</sup> Globalization: A Framework for IMF Involvement. 2002. 02/01. URL: <https://www.imf.org/external/np/exr/ib/2002/031502.htm>.

<sup>23</sup> Shangqun, Gao, 2000. “Economic Globalization: Trends, Risks and Risk Prevention”, Economic & Social Affairs, CDP Background Paper No. 1, ST/ESA/2000/CDP/1, United Nations.

that enhance the competitiveness of participating countries, not just preferential access to trade, and helps small and remote countries increase their supply in regional production networks, which in turn allows these countries to gain access to global markets<sup>24</sup>. However, the effects of globalization and joining free trade agreements or economic integration differ for countries due to their geographical location, availability of natural resources, and level of economic development.

Radical transformation of economic life has occurred as a result of the globalization process, “which has led to the generalization of market economy, increased production, exchange of information, products, labor and capital, and more effective implementation of technical systems<sup>25</sup>.” Countries are no longer self-sufficient in the global economy, and they are included in trade at various levels in order to export manufactured goods and import necessary goods, materials, components and raw materials. This is also confirmed by the provisions of economic theory on economic efficiency, which “prove the beneficial impact of globalization on the growth of world trade<sup>26</sup>.”

Intensification and expansion of the globalization process has resulted from a number of factors, including: progress in the liberalization of world trade and capital movements; technological progress, which has contributed to a significant reduction in transport and communication costs, as well as coordination costs. The increasing openness of market and developing countries, especially China, India and the countries of Central and Eastern Europe, is also reflected in the acceleration of the globalization process. The

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<sup>24</sup> Deichmann U., Indermit G. The Economic Geography of Regional Integration. Finance and Development. 2008. Vol.45(4). p. 45-47, p. 45.

<sup>25</sup> Dudă-Dăianu D. C. The Impact of Globalization through International Trade, Annals. Economic Science Series. International Conference, The Knowledge Society in the Space of United Europe. May 29-30. 2009. Vol. XV/2009. pp. 211-215, p. 211.

<sup>26</sup> Rodrigue J.-P., Comtois C. and Slack B. The Geography of Transport Systems. Routledge, 2006., p. 144.

significant increase in both economic activity and international trade flows in developing countries and economies in transition has had an impact on economic growth at the global level<sup>27</sup>.

At current stage of globalization, three characteristic trends of the world economy are distinguished, which form globalization flows. Since the late 1970s, the volume of international trade has increased 16 times, which characterizes the first trend - the constant growth of international trade, both in absolute terms and in relation to world national income. The second trend is the growing role of transnational corporations, which have become leaders in international trade, especially in terms of the share of trade occurring within corporations. The third trend is the higher relative growth of trade in Pacific Asia, as many economies use an export-oriented development strategy, which was associated with an imbalance in commercial relations<sup>28</sup>. Empirical evidence suggests that globalization has significantly accelerated economic growth in East Asian countries such as China, the Republic of Korea, and Singapore. However, not all developing countries have been equally involved in globalization, nor have they benefited equally from it. In fact, with the exception of most East Asian countries and some Latin American countries, developing countries have been slow to integrate into the world economy<sup>29</sup>. The inequalities between developed countries, developing countries, and less developed countries, the positive impact of globalization is questionable.

Contemporary literature on globalization is based on the assumption that the increasing mobility of capital, technological progress, and

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<sup>27</sup> Manteu C. Economic Effects of Globalisation: Lessons from Trade Models. Economic Bulletin. Banco de Portugal. 2008., p. 73-74.

<sup>28</sup> Rodrigue J.-P., Notteboom T. and Shaw J. The SAGE Handbook of Transport Studies. SAGE Publications. London, 2013., p. 19.

<sup>29</sup> Soubbotina T. P. Beyond Economic Growth an Introduction to Sustainable Development, The World Bank, Washington, D.C., 2000., p. 66.

increased market competition are irreversible forces that are not influenced by local policies. In this context, globalization is often used as “a synonym for greater openness and is closely linked to the liberalization of domestic and external transactions<sup>30</sup>.” Trade between countries that take into account comparative advantage promotes growth, which is explained by strong relationship between openness to trade flows and the impact on economic growth and economic performance. Similarly, “capital flows and their impact on economic growth are closely linked<sup>31</sup>.” For a long time, international trade was considered an engine of growth, but during the 20<sup>th</sup> century, economic openness was not very popular, instead protectionist theories became dominant, and most developing countries for a long time implemented industrialization policies based on a limited degree of international openness<sup>32</sup>. Conversely, after the end of World War II, a new phase of international trade began, with world merchandise exports growing by more than 8% per year. By 1973, this growth had slowed somewhat due to oil price spikes, a surge in inflation caused by monetary expansion, and inadequate macroeconomic regulation policies. By the 1990s, developments in the information technology sector had contributed to a new phase of world trade expansion, with world merchandise exports growing by an average of 6% between 2000 and 2007<sup>33</sup>, and by 2022, world merchandise exports were 150% higher than in 2005<sup>34</sup>.

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<sup>30</sup> Bairoch P. and Kozul-Wright R. Globalization Myths: Some Historical Reflections on Integration, Industrialization and Growth in the World Economy. UNCTAD/OSG/DP/113. 1996., p. 3-4

<sup>31</sup> Pologeorgis N. How Globalization Affects Developed Countries. <http://www.investopedia.com/articles/economics/10/globalization-developed-countries.asp>.

<sup>32</sup> Edwards S. Openness, Trade Liberalization, and Growth in Developing Countries. *Journal of Economic Literature*. 1993. Vol. 31(3). pp. 1358-1393, p. 1358.

<sup>33</sup> WTO, 2008. “World Trade Report 2008, Trade in a Globalizing World”, [https://www.wto.org/english/res\\_e/booksp\\_e/anrep\\_e/world\\_trade\\_report08\\_e.pdf](https://www.wto.org/english/res_e/booksp_e/anrep_e/world_trade_report08_e.pdf), p. 15.

<sup>34</sup> World Trade Report 2023...

The degree of openness or protection of the domestic market plays a key role in the long-term stability and sustainability of economic growth of countries and regions. After the global financial crisis of 2008, the process of global integration slowed down and there was a tendency towards anti-globalization. As a result of the real manifestations of the phenomenon of "escape from the effect of competition", not only developing countries, but also developed countries became supporters of trade protectionism. Populist and xenophobic ideas that arose as a result of Brexit and the coming to power of D. Trump became widespread<sup>35</sup>. Developed countries, which were previously supporters of economic globalization, with powerful industries and perfect social protection, have received many benefits from free trade. Although after the financial crisis, rigid social security policy has not undergone significant changes, which led to the introduction of trade protectionism as the only real tool to maintain social stability and ensure employment of workers. On the other hand, developing countries "can reduce negative consequences of the crisis by improving social welfare"<sup>36</sup>. However, developing countries that have long used an openness policy, after increasing their production capacity, rely heavily on open trade. The main advantages of open trade include: capital accumulation and economic development in line with global economic trends; inflow of foreign capital; growth in trade volumes; development and efficient use of the resource base; development of industry and the service sector. However, for many countries with a low level of development, these advantages have not become a source of reducing

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<sup>35</sup> Wang L. Y., Yuan Z. Q., & Ji Y. Trade Openness and Fiscal Policy Volatility. *Economic Research Journal*. 2021. No. 2. P. 89-102.

<sup>36</sup> Li W. J., & Zheng M. N. (2018). Where to Go: Trade Protectionism or Open Competition? Evidence from Micro-Enterprise Innovation. *Journal of Finance and Economics* 2018. Vol. 44. P. 20-31.

backwardness and technological gap with developed countries. In the conditions of ineffective political leadership, freely developed national and domestic capital is difficult to invest in technological innovations and scientific progress in the short term. Despite being integrated into the global financial and industrial system, countries with a low level of economic development become a center for the placement of foreign capital for transnational corporations to establish production using cheap labor of the host country.

All trade theories offer the same, but unique and ambiguous understanding of the impact of open policies or protectionist policies on the development of underdeveloped countries. Openness to trade is considered a favorable factor for the economic development of countries, which is fully confirmed by both theoretical studies and practical examples of national development. However, according to theoretical studies, open trade policies also cause negative consequences for backward sectors of the economy, which manifest themselves as dumping of product prices or theft of resources.

The theory of international trade has undergone a long period of development, which consists of four stages: classical, neoclassical, new trade theory and new classical theory of international trade. At the early stage, the world was dominated by classical and neoclassical theories, which considered the emergence of international trade due to the difference between human costs and commodity resources of different countries. The main theories were Adam Smith's theory of absolute advantage, Ricardo's theory of comparative advantage, based on its development, and John Mill's theory of mutual necessity<sup>37</sup>. The above

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<sup>37</sup> Hong Y. X. From Comparative Advantage to Competitive Advantage: On the Defects of the Theory of Comparative Advantage in International Trade. *Economic Research Journal*. 1997. No. 6, 20-26.

theories to some extent did not correspond to the provisions of political economy at the national level. In 1841, the German economist F. List put forward the theory of trade protectionism, in which he combined trade with national economic development from the point of view of protecting productivity, which made nationalism the basis of national policy, which, thanks to this, became more objective and practical. With the development of science and technology, the production of individual goods is no longer limited to one factor of production. The classical theory of trade could not adequately explain many important phenomena of trade, so E. Heckscher put forward the theory of factor endowment, and B. Ohlin substantiated it and formulated the Heckscher-Ohlin theory. According to this theory, the United States has a surplus of capital and labor in conditions of relative shortage in other countries, so the structure of foreign trade should be aimed at exporting capital- and technology-intensive products, and importing labor-intensive products. Instead, V. Leontief in 1947 analyzed 200 industry statistics to confirm the structure of import and export trade and obtained a result that was called the "Leontief paradox" and was the opposite of the Heckscher-Ohlin theory. This paradox confirmed that classical and neoclassical trade theory is difficult to adapt to the model of international trade after World War II.

After World War II, the international system was gradually established and improved, the volume of trade in similar products among developed industrial countries increased significantly, the leading positions of the industry were constantly shifting, and the emergence of transnational companies and foreign investment gradually increased. In addition, both classical and neoclassical theories of international trade assume that the commodity market is perfect competition, which is

significantly different from the reality of modern international trade, so new trade theories have emerged. Modern international trade is increasingly taking on the characteristics of regional trade in the EU, NAFTA, ASEAN, RCEP, and is characterized by the increasing number of various regional trade agreements<sup>38</sup>. Geopolitics will continue to play a dominant role in economic development until the problem of energy scarcity is completely solved or energy consumption in the transportation sector is reduced<sup>39</sup>, on this basis, close ties between regions of the economy will lead to regional restrictions, and trade discrimination will increase<sup>40</sup>, developed countries will continue to use anti-dumping to prevent labor-intensive products from destroying their industrial systems, and developing countries will use tariffs to protect vulnerable manufacturing industries<sup>41</sup>. However, as “developing countries use their competitive advantages and accumulate capital to narrow the industrial gap with developed countries<sup>42</sup>,” scholars believe that “free and equitable trade can be achieved to mitigate the manifestations of injustice in international trade<sup>43</sup>.” On the other hand, as the world economy becomes more interconnected, a debt crisis in one country is likely to trigger a global financial crisis<sup>44</sup>. Exchange rate fluctuations will also have a greater

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<sup>38</sup> Lu H. RCEP in the Regionalization of International Trade. *International Business Daily*. 2021-11-18; Cai R. The Development Trend of Trade Regionalization and Globalization. *International Business*. 2003. No. 4. P. 13-16.

<sup>39</sup> Yang, W. L., Shi, W. T., & Du, D. B. The Spatial Model and Spatial Mechanism of the Global Geo-Economic Co-Operation: An Empirical Research Based on the Scale of Commodity Trade. *Scientia Geographica Sinica*. 2021. Vol. 41. P. 1875-1883; Lu, D. D., & Du, D. B. Some Thoughts on the Strengthening of Geopolitical and Geoeconomics Studies. *Acta Geographic Sinica*. 2013. Vol. 68. P. 723-727.

<sup>40</sup> Zhang, B. S. WTO's Anti-Discrimination Reform Model and EU's Trade Policy towards China. *International Trade*. 2007. No. 8. P. 56-59.

<sup>41</sup> Wang, X. S., Shi, B. Z., Xie, S. X. How Do Trade Barriers Affect Dual Margins of China Export Growth. *Economic Research Journal*. 2014. No. 11. P. 58-71.

<sup>42</sup> Liu Y. F. Wave Phenomenon and the Reconstruction of Macroeconomic Theories for Developing Countries. *Economic Research Journal*. 2007. No. 1. P. 126-131.

<sup>43</sup> Udo B., Alexander K., & Vivekananda M. Globalization, Inequality and Economic Policy. *Economics and Business Review*. 2019. Vol. 5. P. 3-11.

<sup>44</sup> He D. X., Miao W. L., Yan J. J. et al. Analysis on the Global Systemic Financial Risks Cross-Market Contagion Effect. *Economic Research Journal*. 2021. No. 8. P. 4-21.

impact on the liquidity of global trade<sup>45</sup>. In addition, in the modern world, “only monopoly is considered effective competition,” and in the context of economic globalization, “each monopoly enterprise can infinitely expand its commercial territory, increasing the market across borders<sup>46</sup>.” All types of monopolistic transnational enterprises “accumulate a lot of resources, technology and capital, therefore, continue to strengthen their leading position through operations with accumulated advantages, which can have a significant impact on the world economy<sup>47</sup>.” Although monopolistic enterprises can increase their economic capacity, promote technological progress and make people’s lives easier, at the same time they cause great potential harm, such as unlimited profit. Thus, from the point of view of trade policy, the activities of monopolies are harmful, so governments of various countries introduce strict control over the operation of large monopoly enterprises.

In this complex and changing situation, new theories are developing in international trade, including the theory of factors of production, the theory of similarity of advantages, the theory of dynamic trade, the theory of intra-industry trade and other theories, among which the development of the theory of industrial organization has laid a solid theoretical foundation for the emergence of new theories of international trade. In fact, the idea of economies of scale was put forward by Adam Smith, who argued that trade increases the size of markets and, therefore, labor productivity. However, with the emergence of the neoclassical school, economies of scale were excluded from the general equilibrium theory with competitive

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<sup>45</sup> Miao Y. L., Hao Y., & Yang Y. Y. Foreign Exchange Reserves, Global Liquidity and Exchange Rate Determination. *Economic Research Journal*. 2021. No. 8. P. 39-55.

<sup>46</sup> Gai, Q., Zhu, X., Cheng, M. W. et al. Factor Market’s Distortion, Markup and TFP. *Economic Research Journal*. 2015. No. 5. P. 61-75.

<sup>47</sup> Wang, D. X., Li, L. L., & Ran, G. H. Financial Capital Formation and Economic Growth. *Economic Research Journal*. 2009. No. 9. P. 39-51.

equilibrium as the core, because it is opposite to the market structure of perfect competition. Industrial organization theory emerged in the 20<sup>th</sup> century as an extension of market structure theory in microeconomics. This theory mainly studies market structure of imperfect competition and analyzes causal relationship between market structure, firm behavior, and market efficiency. In the mid-1980s, industrial organization theory received a significant boost in development, especially after game theory was introduced into industrial organization theory. The emergence of a new theory of industrial organization has greatly contributed to the development of many branches of the economy, and the field of international trade is no exception. In his doctoral dissertation, P. Krugman was the first to extend the model of monopolistic competition of differentiated products and internal economies of scale proposed by Dixit and Stiglitz to the conditions of trade openness, and proposed a new set of trade theories, namely a new theory of international trade. While with the continuation of theoretical research, the emergence of new (NN) trade theory illustrates current trade situations from the perspective of heterogeneous firms, which is a combination of heterogeneous firm trade models (HFTM) and endogenous firms. Thus, these two theories change the scope of international trade research from the traditional theoretical study of inter-industry trade to the study of choices made by enterprises with differences in the same trade industry<sup>48</sup>.

International trade theory has developed from the original classical trade theory to the modern NN trade theory, where the trend towards trade diversification is the basis. The key provisions of international trade theory

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<sup>48</sup> Chen Z. Research on International Trade Theory and the Status Quo of World International Trade. American Journal of Industrial and Business Management. 2022. Vol. 12. P. 1079-1087.

are always tested for their relevance to the current situation in international trade, especially in terms of rapid development of productivity. However, practice proves that international trade changes gradually and these changes precede changes in the basic theoretical provisions. Modern international trade environment is particularly complex, the monopoly of developed countries brings most of the profits of most industries in the world, and many newly industrialized countries are in the process of industrialization, trying to get rid of the middle income level. Protectionism aims to make world trade fairer when industry is well developed, rather than being limited unilaterally by high productivity. Therefore, scholars argue that all countries should adhere to an open trade policy and encourage a certain degree of freedom of trade protection. For many developing countries, at the current stage of global transformations, the strategic directions for strengthening competitive positions in international markets are further development of productive forces within the existing international trade order, development and implementation of technological innovations, and solution of such development problems as population aging and the acceleration of innovative development.

Thus, in the face of global challenges, participation in international trade can have a positive impact on the national economy, allowing a country to use its comparative advantages, obtain additional profits from economies of scale and ensure competition, greater diversity and contribute to the stabilization of the domestic market and prices for goods and services. At the same time, the benefits of trade are not evenly distributed both within the country between enterprises and industries and among countries, which explains the resistance of some parties to free trade policies. At the same time, political decisions do not concern foreign

trade in general, but mainly the protection of the domestic market from foreign competitors through trade barriers.

### **1.3. World market of services and economic development of countries**

Current state of the world economy is characterized by the growth of international trade in services and investment in enterprises that provide them. Rapid development of information and communication technologies has contributed to the expansion of the range of services that can be provided cross-border. More and more countries are interested in attracting foreign investment in recently privatized and competitive markets of key infrastructure services, such as energy, telecommunications and transport. A significant part of migration flows is formed by people who go abroad, consuming tourism, education and medical services, as well as providing services in the fields of construction and software development. Scientists emphasize that “services have become most dynamic component of the global economy, and trade and foreign direct investment (FDI) in this sector have grown faster than in the goods sector over the past decade and a half”<sup>49</sup>.

The performance of services sector is vital for economic growth and poverty reduction in developing countries. Direct impact of this sector is due to the fact that it is an important part of the economy, where gross value added is created and a significant part of the country's GDP is formed. The indirect impact of services is that sectors such as finance, communications and transport, as well as education and health care, are

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<sup>49</sup> Mattoo A., Stern R. M., and Zanini G. (Ed.). A Handbook of International Trade in Services. <https://documents1.worldbank.org/curated/en/568351467995816402/pdf/105324-PUB-Box394886B-PUBLIC-978-0-1992-3522-3.pdf>

critically important for the development of other sectors of the economy and significantly affect the productivity of workers. Today, in many countries, insufficient access to services not only reduces the quality of life of people, but also perpetuates economic backwardness through low productivity of enterprises and their inability to participate in international trade.

Services play a key role in the growth and efficiency of various industries, determining overall economic performance. For example, transport, telecommunications and financial services are key factors influencing movement of people, goods and capital. Environmental services contribute to sustainable development by reducing negative impact of economic activity.

The specificity of the international services market is due to the very nature of services as an object of trade, which includes a wide range of activities that are usually intangible. It is often difficult to separate services from the goods to which they are related. The World Trade Organization (WTO) definition describes services as “the result of a production activity that changes the conditions of consumers or facilitates the exchange of products or financial assets”<sup>50</sup>. These services can be divided into transformation services and margin services. Transformation services are products that are manufactured to order and consist in changing the conditions of the consumer as a result of the activities of the service producer. Their peculiarity is that they are not separate objects to which property rights can be established, and cannot be separated from the

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<sup>50</sup> Measuring trade in services. A training module produced by WTO / OMC. [https://www.wto.org/english/res\\_e/statis\\_e/services\\_training\\_module\\_e.pdf](https://www.wto.org/english/res_e/statis_e/services_training_module_e.pdf).

process of their production until the moment of completion and transfer to the consumer.

The concept of "international trade in services" covers not only traditional trade transactions involving production of products in one country and their sale in another, but also a wide range of international transactions, such as foreign investment and international movement of people as consumers or providers of services<sup>51</sup>. Thus, trade in services includes: cross-border road and air transport; consumption of tourist services by foreigners; foreign direct investment in banking, communications and distribution; temporary migration of specialists such as doctors, teachers and builders. This indicates a significant impact of international trade in services on the development of the national service sector and the economy of the country as a whole.

Services differ from goods in a number of ways, including the need for direct interaction between the supplier and the consumer. Many services are non-transportable, requiring physical presence of both the supplier and the consumer in the same location. For example, hotel services require the presence of a hotel at the customer's location; cleaning services are provided at business's premises; and haircuts require presence of both the hairdresser and the customer. In the case of international trade in such services, the consumer must visit the supplier, or the supplier must visit the consumer. Suppliers often choose to provide their services through a physical presence in the country of the consumer, rather than remotely. International trade agreements such as the GATS take into

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<sup>51</sup> Mattoo A., Stern R. M., and Zanini G. (Ed.). A Handbook of International Trade in Services...

account the need for suppliers to be present in the country of the consumer<sup>52</sup>.

Services include such diverse activities as freight and passenger transport, financial intermediation, communication, distribution, hotel and restaurant services, education, health care, construction, and accounting. According to the IMF Balance of Payments Manual (BPM6)<sup>53</sup>, services are divided into four main categories that include different activities and form distinct segments in the international services market.

Transport services include sea, air and other means of transport, including land, inland waterways, space and pipeline transport, provided by the residents of one country for the residents of another. They include carriage of passengers and goods, rental of vehicles with crew, and related services, such as postal and courier services.

Travel-related services include goods and services purchased by travelers outside their country of residence.

Other commercial services include: construction, insurance and pension services, financial services, use of intellectual property, telecommunications, computer and information services, other business services, and personal, cultural and recreational services.

Services related to goods include activities related to the production of physical resources belonging to other enterprises, as well as maintenance and repair services.

Domestic scholars distinguish types of services depending on the factors affecting the conditions of their provision and consumption in the national economy. A similar approach can be applied to the classification

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<sup>52</sup> *ibid*

<sup>53</sup> Balance of Payments Manual. IMF, 2013. <https://www.imf.org/external/pubs/ft/bop/2007/bopman6.htm>

of services in international trade, taking into account the availability of these services for foreign consumers and the methods of their provision (Table 1.1).

Table 1.1

Factors determining the typology of services in the national economy<sup>54</sup>

<b>Factors</b>	<b>Types</b>	<b>Example</b>
Property type	Private	recruiting, consulting companies, entertainment venues
	State	pension provision, railway transport services
Degree of contact with a person	High-contact services	medicine, beauty salons
	Low-contact services	communication services, shoe repair, banking services
Qualification level	Highly qualified services	legal service
	Those that do not require special skills	entertainment services, clearing services
Purpose	For final, own (B2B) consumption	entertainment and recreation, massage parlours
	Business-to-business (B2B) consumption services	development

Unlike trade in goods, services are often intangible, invisible and perishable, usually requiring simultaneous production and consumption. In many cases, the need for physical proximity between the consumer and the producer means that one of them must travel to another country to effect an international transaction. The usual definition of trade as “the movement of goods across a border” does not capture the range of international transactions involved in trade in services. The WTO’s General Agreement on Trade in Services (GATS) therefore identifies four main ways in which services can be supplied to consumers<sup>55</sup>.

<sup>54</sup> Hryhorova-Berenda L. I., Shuba M. V. Theory and practice of foreign trade: textbook. V. Karazin Kharkiv National University. Kharkiv. 2016.

<sup>55</sup> Adlung, R. GATS and Democratic Legitimacy. *Aussenwirtschaft*. 2004. Vol. 59(2). P. 127–149.

Cross-border mode: supply of services from the territory of one country to the territory of another. For example, software development services supplied by post or electronic means from one country to another.

Consumption abroad mode: the supply of services in the territory of one country to consumers in another. Examples are the travel of citizens of one country to receive tourist or educational services in another country, or the repair of ships abroad, where only the consumer's property is moved.

Commercial presence mode: provision of services through a business or professional establishment of one country in the territory of another. For example, an insurance company from one country establishes a branch through foreign direct investment (FDI) in another country.

Presence of natural persons: provision of services by citizens of one country in the territory of another. This applies to both independent service providers and employees of a company in another country. For example, a doctor from one country providing medical services in another country, or employees of a foreign bank providing services in another country on a temporary basis.

Modern development of the international services market is due to such factors as: scientific and technological progress and emergence of new types of activities due to Industry 4.0 technologies; structural changes in national economies, the transition from industrial to post-industrial development; liberalization of trade relations within the WTO; the development of information and communication technologies and the Internet, which stimulates growth of e-commerce; as well as an increase in production and international trade in goods that require more supporting services (Fig. 1.1).

Determinants of the development of the global services market:	
→	1. Scientific and technological revolution, the emergence of new areas of activity (based on information technologies and new means of communication, a range of new services has emerged and is developing, their traditional types are being radically updated, and the quality of service is improving).
→	2. Structural and technological restructuring of material production (the needs of industrial companies for high-quality business services have increased, associated with various and complex problems of their restructuring and development - technical, sales, management, etc.).
→	3. Liberalization of foreign economic operations (barriers to the entry of leading corporations in the field of financial, transport and tourism services into the world market are gradually being eliminated).
→	4. Gradual humanization of life, increasing the role and importance of the human factor (the global market for tourist services is actively developing, as people have additional needs for impressions, recreation, treatment, etc.).
→	5. Development of computer technology) and means of communication (removal of obstacles and barriers to the development of consulting services, creation of additional opportunities for the development of tourist services, communication services).
⇒	6. Development of the economy of "material" production (dynamic development in the field of material production initiates secondary demand in the field of services - this primarily concerns transport services and engineering services).

Fig. 1.1. Factors determining the development of the international services market in the global economy <sup>56</sup>

As services play an increasingly important role in the development of national economies and international trade in services has an increasing impact on the economic growth of countries, ensuring fair trade conditions and removing restrictions are becoming critically important for the effective functioning of the world market for services in the context of globalization. Scholars emphasize that domestic policy reforms should take into account the need to strengthen competition between service providers, ensure consistency of reforms and reduce the influence of

<sup>56</sup> International trade: lecture notes for students of the first (bachelor's) level of specialty 073 "Management". Ihor Sikorsky Kyiv Polytechnic Institute; compiled by: K. O. Kuznetsova, V. V. Chorniy, O. S. Chenusha. Kyiv: Ihor Sikorsky Kyiv Polytechnic Institute, 2021.

national monopolies<sup>57</sup>. In addition, international cooperation has been proven to be key to supporting domestic reforms, promoting mutual liberalization, increasing confidence in reforms, providing external support for domestic adjustments, strengthening the reform process and promoting policy harmonization and integration<sup>58</sup>.

Removing barriers to trade in services in certain sectors helps to lower prices, improve quality, and expand the range of services. As in trade in goods, restrictions on trade in services reduce overall welfare because they create a gap between domestic and foreign prices, leading to increased costs for consumers that exceed the benefits to producers and government revenues. Since many services are key to production, their inefficient provision can act as an additional tax on production, making it difficult to achieve significant productivity gains. When tariffs and other barriers to trade in goods are reduced, the effective rates of protection for manufacturing sectors can become negative if they continue to face high input prices due to uncompetitive services markets<sup>59</sup>.

The main benefit of liberalization is access to a wider range of services, the production of which depends on economies of scale. Consumers benefit not only from a greater choice of services, such as restaurants and entertainment, but also from lower costs of producing goods and services through increased access to specialized production services, such as telecommunications and financial services<sup>60</sup>. Researchers

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<sup>57</sup> Mattoo A., Stern R. M., and Zanini G. (Ed.). *A Handbook of International Trade in Services...*

<sup>58</sup> Finger, J. M. and P. Schuler. 2002. *Implementation of WTO Commitments: The WTO Challenge*. Chapter 48 in B. Hoekman, A. Mattoo, and P. English (eds.), *Development, Trade, and the WTO: A Handbook*. Washington, D.C.: World Bank.

<sup>59</sup> Mattoo A., Stern R. M., and Zanini G. (Ed.). *A Handbook of International Trade in Services...*

<sup>60</sup> Copeland, B. R. *Benefits and Costs of Trade and Investment Liberalization in Services: Implications from Trade Theory*. URL:

[https://www.researchgate.net/publication/285786181\\_Benefits\\_and\\_costs\\_of\\_trade\\_and\\_investment\\_liberalization\\_in\\_services\\_Implications\\_from\\_trade\\_theory](https://www.researchgate.net/publication/285786181_Benefits_and_costs_of_trade_and_investment_liberalization_in_services_Implications_from_trade_theory).

note that smaller markets are particularly interested in liberalizing trade in services because it can offset some of the constraints faced by firms in larger markets<sup>61</sup>.

Despite the peculiarities of international trade in services, such as the impossibility of their prior production and accumulation, the emergence and strengthening of the competitive positions of national suppliers in the world market of services is an important factor in the economic growth of countries in modern conditions. Trade in services has a significant impact on the economy, contributing to the intensification of economic activity and employment growth due to the rapid increase in the number of enterprises, especially small and medium-sized businesses. In the context of globalization, the importance of international trade in services and relevant state policy is growing, since this sector significantly affects the investment attractiveness of countries, the level of productivity of national economies, communications, competitiveness of products, as well as the dynamics and structure of exports of goods. Thus, trade in services, which accompany the exchange of goods with high added value, increases the importance of this sector for countries at all levels of development.

In recent decades, the global economy has undergone significant structural changes driven by rapid technological progress, which has transformed the services sector into one of the most dynamic in the global economy. Since the 1990s, services have become the main engine of economic growth, and today they dominate production and employment at all levels of development<sup>62</sup>. Sub-sectors such as logistics, finance and

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<sup>61</sup> Markusen, J. R. Trade in Producers Services and in Other Specialized Intermediate Inputs. *American Economic Review*. 1989. Vol. 79. P. 85–95.

<sup>62</sup> Nayyar, G. and Davies, E. *Services-led Growth: Better Prospects after the Pandemic. Falling Long-term Growth Prospects: Trends, Expectations, and Policies*. Washington: World Bank, 2023.

information and communication technologies (ICT) play a key role in the functioning of the modern economy. The services sector encompasses numerous rapidly growing sectors of the global economy, including business services, healthcare, entertainment and ICT services.

Services have driven significant transformations in national economies. Not only have they become indispensable for managing complex industrial economies – from logistics and finance to information technology – but the services sector itself is the fastest growing segment of the economy, encompassing areas from business services to healthcare and entertainment. Today, services generate more than two-thirds of global economic output, attract more than two-thirds of foreign direct investment, and provide almost two-thirds of jobs in developing countries and four-fifths in developed countries<sup>63</sup>.

Although services account for only one-fifth of international trade, they are the fastest growing sector<sup>64</sup>. Since 2011, the value of merchandise exports has grown by just 1% per year, while exports of commercial services have grown by 3% per year. The share of services in world trade has grown from 9% in 1970 to over 20% in 2017, and is projected to account for up to one-third of world trade by 2040, a 50% increase in the share of services in world trade in just two decades<sup>65</sup>. Such a significant increase in services trade, combined with modest growth in goods trade, suggests that globalization is likely to accelerate in the long term.

Before the COVID-19 pandemic, services remained the most dynamic component of international trade and investment. They expanded

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<sup>63</sup> World Trade Report 2019. The future of services trade. [https://www.wto.org/english/res\\_e/booksp\\_e/00\\_wtr19\\_e.pdf](https://www.wto.org/english/res_e/booksp_e/00_wtr19_e.pdf).

<sup>64</sup> World Trade Statistical Review 2018. World Trade Organization. [https://www.wto.org/english/res\\_e/statis\\_e/wts2018\\_e/wts2018\\_e.pdf](https://www.wto.org/english/res_e/statis_e/wts2018_e/wts2018_e.pdf).

<sup>65</sup> World Trade Report 2019...

export opportunities, particularly for developing countries and least developed economies, due to digitalization, the ability to provide services remotely, and the reduction of trade barriers arising from the limited size and complex geography of economies. However, the pandemic has severely affected the services sector: business closures and social distancing have led to significant losses. Restrictions on cross-border mobility have led to an unprecedented decline in trade in services in all regions of the world, especially in sectors that require face-to-face interaction between sellers and consumers. In the second quarter of 2020, trade in services in the tourism sector fell by 81% compared to the same period in the previous year<sup>66</sup>.

At the same time, ICT services have become a key factor in ensuring economic resilience and trade, as well as accelerating the recovery of economic growth in the post-pandemic period. A sustainable recovery in services trade and investment is crucial for the global economic recovery. Trade and investment policies in services are becoming important to harness the growth potential and development of the sector. However, to maximize the benefits, it is necessary to rethink the main contribution of trade in services to the development process. The ability of companies and service providers to operate in international markets is key to promoting growth, deepening integration and accelerating economic diversification. Economic diversification contributes not only to increasing opportunities for services exports, but also to the widespread use of services as inputs in different sectors at competitive prices. Services play a central role in the functioning of cross-border production networks, such as regional and

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<sup>66</sup> Trade in services for development: Fostering sustainable growth and economic diversification. World Bank Group; World Trade Organization. [https://www.wto.org/english/res\\_e/publications\\_e/trade\\_in\\_serv\\_devpt\\_e.htm](https://www.wto.org/english/res_e/publications_e/trade_in_serv_devpt_e.htm).

global value chains, and they account for 50% of world trade in value added<sup>67</sup>.

The contribution of services to the global economy has grown significantly over time. The share of the services sector in global GDP increased from 53% in 1970 to 67% in 2021. The increase in the contribution of services to GDP occurred in economies at different levels of development and was accompanied by a noticeable decrease in the relative share of agriculture (Fig. 1.2).

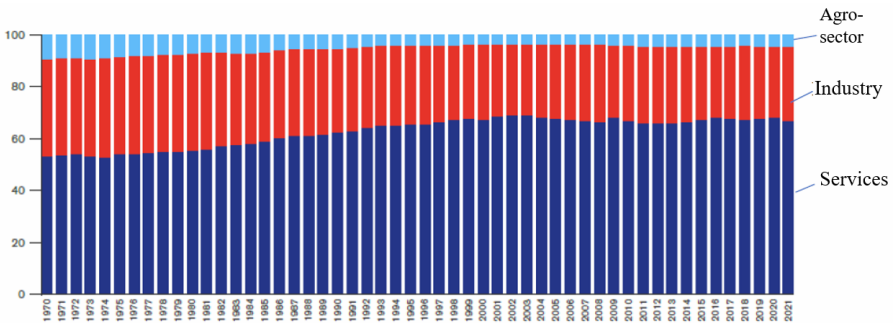


Fig. 1.2. Share of GDP by economic sectors in the world in 1970-2021 (%)<sup>68</sup>

The shift towards services in developing economies is one of the most visible structural changes in recent decades. In many developing countries, the growth rate of the services sector is exceeding that of industry and agriculture. According to the World Bank, this shift has been most pronounced in middle- and high-income countries: the share of services in GDP increased from 40% to 56% and from 59% to 75%, respectively, between 1970 and 2021<sup>69</sup>. Even in low-income countries, the

<sup>67</sup> The rise of services in the global economy <https://www.oecd-ilibrary.org/sites/9789264275232-4-en/index.html?itemId=/content/component/9789264275232-4-en>.

<sup>68</sup> Trade in services for development....

<sup>69</sup> *ibid*

share of services in GDP increased from 36% to 42% between 2017 and 2022. However, this growth has been less pronounced due to the significant role of agriculture in the economies of the least developed countries.

Services now account for 75% of GDP and provide jobs in most advanced economies. In both developed and developing countries, the share of services in GDP exceeds that of agriculture and industry. At the same time, the share of industry in GDP is also declining due to the introduction of labor-saving technologies, leading to “premature deindustrialization”, when the manufacturing sector reaches its peak in the early stages of economic development. The services sector is now the main source of job creation in the global economy<sup>70</sup>.

Services have long been considered non-traded activities, characterized by low productivity and wages, oriented mostly to domestic demand. However, the experience of the newly industrialized countries of Asia has shown that economic growth based on export-oriented industries is important for the sustainable development of low-income economies. However, recent decades have witnessed an increase in employment opportunities in the services sector and a narrowing of productivity gaps both between sectors and between countries. Today, services are seen as key factors in productivity, competitiveness and improving living standards<sup>71</sup>.

As technology advances, services become easier to trade across borders, more technology-intensive, and more dependent on economies of

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<sup>70</sup> Trade in services for development....

<sup>71</sup> Nayyar, G., Hallward-Driemeier, M. and Davies E. At Your Service? The Promise of Services-led Development. Washington: World Bank, 2021. <https://www.worldbank.org/en/topic/competitiveness/publication/promise-of-services-led-development>.

scale. This challenges traditional theories of economic growth, which have argued that productivity gains occur primarily in manufacturing, and that an expansion of the services sector can dampen overall growth. The rise in productivity in the services sector suggests that more and more services sectors are exhibiting features that promote productivity growth similar to manufacturing, thanks to the adoption of information and communication technologies. Digitalization promotes economies of scale by reducing the need for simultaneous production and consumption, which greatly expands the markets that can be accessed remotely.

Services and their trade have an important impact on the development of global and regional value chains, “connecting fragmented and dispersed stages of production that form global value chains (GVCs)<sup>72</sup>.” The expansion of international production networks depends to a large extent on the efficiency and quality of services, such as transport, logistics, communications and financial services, as well as cross-border business services.

The linkages of services with other sectors of the economy and their ability to increase productivity through spillover effects contribute to their central role in the production and export of goods and other services. Although labor productivity in services has increased and closed the gap with the manufacturing sector, cross-industry and cross-country differences remain significant. Some service sectors, such as financial and ICT services, exhibit higher productivity than manufacturing in low- and middle-income economies, while others, such as hospitality, have lower productivity compared to manufacturing sectors<sup>73</sup>.

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<sup>72</sup> Díaz-Mora C., R. Gandoy, B. González-Díaz. Looking into Global Value Chains: Influence of Foreign Services on Export Performance. *Review of World Economics*. 2018. Vol. 154. pp. 785-814.

<sup>73</sup> Trade in services for development...

Openness to foreign trade in services, as well as in goods, contributes to increased economic productivity and efficiency in both manufacturing and services. However, trade barriers are often used to protect domestic enterprises from competition, which leads to higher prices and lower incentives for investment and innovation in services. Studies of individual national economies confirm that “openness to trade in services increases the productivity of manufacturing: a 10% increase in restrictions on trade in services leads to a 5% decrease in bilateral trade in manufactured goods<sup>74</sup>.”

Based on these data, experts have identified four critical areas of public policy: “expanding trade in services; promoting technology adoption; training workers to improve their skills; and focusing on developing services that provide broader benefits to the national economy and improve the standard of living of the population<sup>75</sup>.” Harnessing the benefits of expanding trade in services for economic development requires significant structural changes in favor of services that create trade opportunities, while simultaneously developing effective public policy in this area. This is a key factor in stimulating economic growth, increasing the efficiency and competitiveness of national economies.

Services sectors “that have lower trade costs due to lower barriers to services tend to be more productive and show higher productivity growth rates than sectors with higher trade costs<sup>76</sup>.” In developed countries, services policies that include restrictions on foreign direct investment (FDI) lead to differences in total factor productivity, which reflects

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<sup>74</sup> Hoekman, B. and B. Shepherd. Services Productivity, Trade Policy and Manufacturing Exports. *World Economy*. 2017. Vol. 40(3). pp. 499-516.

<sup>75</sup> Nayyar, G., Hallward-Driemeier, M. and Davies E. At Your Service? The Promise of Services-led Development....

<sup>76</sup> Miroudot, S., J. Sauvage, and B. Shepherd. Measuring the Cost of International Trade in Services. *World Trade Review*. 2013. Vol. 12(4). pp. 719-735.

differences in productivity growth rates<sup>77</sup>. Restrictions on trade in services negatively affect the productivity of important services sectors in many countries. Scholars note that “in countries with restrictive commercial banking policies, credit markets are less developed,<sup>78</sup>” and “barriers to entry and restrictive regulations on services” negatively affect the volume of “investment in digital technologies and information and communication technologies<sup>79</sup>.” This highlights the negative impact of trade restrictions on services on investment activity in sectors related to the digitalization of the economy.

Thus, the level of development of the services sector and the country's position in the global services market are important factors in the development of the national economy. The impact of trade in services on the economic growth of countries is constantly increasing, especially in developing countries, where there is a rapid growth in the volume of trade in services. A significant contribution of trade in services to economic growth is due to high economic activity, employment levels, as well as an increase in the number of enterprises, especially small and medium-sized businesses. In the context of global digitalization, international trade in services and state policy on its regulation play an important role in the development of the world economy, as they significantly affect the flows of foreign direct investment, the level of productivity of national economies, communications, the competitiveness of enterprises and their positions in foreign markets.

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<sup>77</sup> Van der Marel, E. and S. Miroudot. The Economics and Political Economy of Going Beyond the GATS. Review of International Organizations. 2014. Vol. 9(2). pp. 205–239.

<sup>78</sup> Nordás, H. and D. Rouzet. The Impact of Services Trade Restrictiveness on Trade Flows. World Economy. 2016. Vol. 40(6). pp. 1155–1183.

<sup>79</sup> World Development Report 2016. Digital Dividends. World Bank. Washington DC. 2016.

#### **1.4. Theoretical and methodological approaches to assessing trade cooperation among countries**

The study of trade cooperation among countries is usually conducted using a number of basic indicators that are used both to assess the main trends in foreign trade in general and bilateral trade between countries. Among such indicators, the most commonly used are foreign trade turnover, export and import volumes, foreign trade balance, export-import coverage ratio, the share of the partner country in exports and imports of the studied country, the share of the main commodity groups in exports and imports of the country in trade with partner countries. Analysis of the dynamics of these indicators and their forecasting allow us to identify the main trends and patterns in the development of trade cooperation in the studied country, as well as to substantiate promising directions for deepening trade relations with partner countries.

To predict the effectiveness and nature of trends, to determine the prospects of foreign economic activity, various tools of economic and mathematical modeling are used. R. Enverov draws attention to the fact that when studying bilateral cooperation between countries, it is advisable to use both types of macroeconomic models: “1) ex-ante models – preliminary analysis of indicators in order to model future scenarios of economic development in the process of changing trade conditions (due to accession to the WTO, free trade zone, customs union, other economic groupings); 2) ex-post models – post-factual analysis in order to assess the effectiveness of trade and economic policy, built on the basis of statistical

indicators of past periods (assessment of the effectiveness of the implementation of bilateral trade and economic policy)”<sup>80</sup>.

The most common models within the ex-ante method include models of partial (analysis of foreign trade policy and restrictions on imports of certain goods) and general (determination of income or losses, allocation of resources between export-oriented industries) equilibrium, static and dynamic equilibrium models. The main methods of ex-post analysis are: multivariate statistical analysis, single and multivariate regressions, autoregressions, vector autoregressions. The feasibility of using these methods is due to the nature of the relationships between variable parameters that characterize the macroeconomic situation and political situation in the country and allow predicting events in the short term.

Despite wide variety of research methods, the most common approach to analyzing the state of trade cooperation is to assess the dynamics of main indicators (exports, imports, foreign trade balance). For example, Sayed S. M. Ankawi, based on the dynamic series of Ukraine's exports and imports in trade with the Middle East countries, developed short-term forecasts of changes in these indicators using the trend extrapolation method<sup>81</sup>. However, the results of such analysis and the forecast developed on its basis are of a general nature and do not allow conclusions to be drawn regarding the improvement of the current government trade policy to deepen relations.

A more thorough analysis of Ukraine's trade with the Middle East was conducted by H. Duhinets and Kh. Z. Omran using cluster analysis.

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<sup>80</sup> Enverov R.R. Development of Ukrainian-Turkish economic relations in the process of regional integration. Dissertation for PhD of Economics. Specialization 08.00.02 – World Economy and International Economic Relations. Lviv: Ivan Franko National University, 2014. 240 p., p. 50

<sup>81</sup> Saeed S. M. Ankawi. Directions of development of economic cooperation between Ukraine and the countries of the Middle East. Bulletin of V. N. Karazin Kharkiv National University. Series: "International Relations. Economics. Local History. Tourism". 2014. Vol. 1. Issue 3. # 4. P. 65-68.

Scientists calculated the main indicators of Ukraine's foreign trade with each country located in the Middle East and North Africa region: foreign trade turnover, trade balance, share of the country's exports in Ukraine's exports and imports, trade intensity index. These indicators were used for cluster analysis of Ukraine's trade cooperation with partner countries from the Middle East and North Africa in 2011 and 2021. Based on the constructed dendrogram (using the Ward method), scientists divided the set of partner countries into four groups, of which Turkey and Egypt were identified as the most promising trading partners, which were separate clusters<sup>82</sup>. It is advisable to apply a similar approach at the first stage of our study to identify the Middle East countries with which Ukraine trades most actively.

To conduct a comprehensive assessment of the effectiveness of foreign economic bilateral relations of countries, it is advisable to supplement the research methods considered above with international trade indicators used by international financial organizations. As R. Enverov notes, “international trade is the dominant component of Ukrainian-Turkish relations”, which must be assessed using the following indices: “revealed comparative advantage index (RCA)); trade complementarity index (TC); trade intensity index (TI); intra-industry trade index (IIT); trade specialization index (TS)<sup>83</sup>”. The use of these indicators for the study of bilateral cooperation will allow a qualitative assessment of mutual trade between countries, identify the main threats and dangerous changes, and, on this basis, substantiate the prospects for the development of relations between partner countries.

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<sup>82</sup> Duhinets H., Omran Kh. Z. Trade relations of Ukraine with the countries of the Middle East and North Africa. *Journal of European Economics*. 2022. V. 21. №4(83). P. 482-498.

<sup>83</sup> Enverov R.R. Development of Ukrainian-Turkish economic relations .... p. 51

An important component of the study of a country's trade with a partner country is the assessment of comparative advantages. The presence of significant advantages of one country over another in bilateral trade in the relevant commodity groups allows us to identify the goods in the production of which each country specializes and which form the basis of trade relations. To identify comparative advantages in trade between two countries, the RCA index is used, which is calculated for each commodity group according to the four-digit classification of goods by the formula:

$$RCA_{ijt} = \frac{(x_{ijt}/X_{jt})}{(x_{iwt}/X_{wt})} \quad (1.1)$$

where:  $x_{ijt}$  – export of  $i$ -th product from the country  $j$  for the period  $t$ ;  $x_{iwt}$  – amounts of the world export of  $i$ -th product for the period  $t$ ;  $X_{jt}$  – general amount of export of products of the country  $j$  for the period  $t$ ;  $X_{wt}$  – general world export of products for the period  $t$ <sup>84</sup>.

Based on the ratio of the components of the RCA index, certain limits of this indicator have been determined, which allow determining the degree of specialization of the country in the manufacture and export of the corresponding product. Thus, if the calculation results in "values of this index ranging from 0 to 1, then this indicates an insufficient level of specialization of the country in the production of a certain product to ensure a high level of competitiveness in the market of the corresponding product in the partner country, and if the index is greater than 1, the country specializes in the production of this product and is competitive in its export to the market of the partner country"<sup>85</sup>.

<sup>84</sup> Verico K. How to measure bilateral economic relations? Case of Indonesia – Australia. LPEM Working Paper. 2020. Vol. 04 (056). P. 1-11.

<sup>85</sup> Mytsenko I., Babets I. Strategic priorities for increasing the efficiency of Ukraine's foreign trade in context of global challenges: monograph. Kropyvnytskyi: CUNTU, Polygraph-Service, 2023. – 350 p., p. 137

By comparing the advantages of the country's export potential (RCA index value) with the import structure of the partner country, it is possible to substantiate the economic feasibility of mutual trade in certain goods. In particular, high values of the RCA indices for the same commodity groups of two countries trading with each other confirm the inexpediency of trade in these goods.

To assess the compliance of the export structure of one country with the import structure of the partner country, the trade complementarity index is used. The study of the complementarity of foreign trade of two countries can be carried out at the following levels: macro level - assessment of the complementarity of the economies of the partner countries; meso level - assessment of inter-sectoral complementarity; micro level - assessment of the complementarity of enterprises.

The trade complementarity index is determined by the formula:

$$TC_{kj} = 100 - \frac{\sum |m_{ik} - x_{ij}|}{2}, \quad (1.2)$$

where:  $m_{ik}$  – share of  $i$ -th product in general amount of import of the  $k$  country;  $x_{ij}$  – share of  $i$ -th product in general amount of export of the  $j$  country.

The value of the complementarity indicator ranges from 0 to 100 and is determined by the degree of correspondence of the import structure of one country to the export structure of the partner country.

The exchange of similar products between countries does not allow partner countries to fully realize the potential of cooperation, at the same time, differences in the structural characteristics of the countries' foreign trade, provided that they are complementary, contribute to strengthening the potential of strategic partnership.

The trade intensity index is used to analyze regional trade and assess the effectiveness of trade between countries:

$$TI_{ij} = \frac{x_{ij}/X_i}{x_{wj}/X_w}, \quad (1.3)$$

where:  $x_{ij}$  – amount of export from the  $i$  country to the  $j$  country;  $x_{wj}$  – amount of the world export to the  $j$  country;  $X_i$  – general amount of export of the  $i$  country;  $X_w$  – general world amount of export.

If the value of the trade intensity index is greater than 1, then the potential for cooperation between countries is used effectively, if the indicator is less than 1, then the potential for mutual trade is not used to its full extent.

Analysis of intra-industry trade in similar goods allows us to assess the similarity of two national economies in terms of production volumes and structure, technological development, price levels and consumption structure. A high value of the intra-industry trade index in similar goods indicates a significant degree of similarity between partner countries and is a prerequisite for strategic partnership.

For a separate industry, the intra-industry trade index is calculated by the formula:

$$IIT^{ij} = 1 - \frac{|E_{ij}^k - M_{ij}^k|}{(E_{ij}^k + M_{ij}^k)}, \quad (1.4)$$

where,  $E_{ij}^k$  and  $M_{ij}^k$  – export of the  $i$  country to the  $j$  country respectively and import of the  $j$  country from the  $i$  country of  $k$  type of industrial products.

For two partner countries, the intra-industry trade indicator is defined as the Grubel-Lloyd index <sup>86</sup>:

$$IIT^{ij} = 1 - \frac{\sum |E_k^{ij} - M_k^{ji}|}{\sum (E_{ij}^k + M_{ij}^k)}, \quad (1.5)$$

where  $E_k^{ij}$  – amount of export of  $k$  product from the  $i$  country to the  $j$  country,  $M_k^{ji}$  – amount of import of  $g$  product from the  $j$  country to the  $i$  country.

The value of the Grubel-Lloyd index varies from 0, which means the absence of intra-industry trade, to 1, which indicates the highest level of integration of foreign trade of partner countries in industrial products.

The assessment of the mutual comparative competitiveness of the production of goods of partner countries is carried out using the trade specialization index, which is calculated as follows:

$$TS_{ij} = \frac{E_{ij} - M_{ij}}{E_{ij} + M_{ij}}, \quad (1.6)$$

where:  $E_{ij}$  – amount of export of a certain product from the  $i$  country to the  $j$  country,  $M_{ij}$  – amount of import of this product from the  $j$  country to the  $i$  country.

The value of the trade specialization index varies in the range from -1 to 1. Positive values of this indicator confirm the presence of a competitive advantage and specialization of countries in the production of a certain product, and the gradual approach of the value to 1 indicates an increase in comparative advantage. The results of calculating the above indicators for partner countries can serve as a database for grouping countries in order to determine the prerequisites for deepening foreign trade relations of individual

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<sup>86</sup> Holoven V. P. Diversification of foreign trade in Ukraine. Magisterium. 2004. №14. p. 64-70, p. 68

countries, for example, as in our study - Ukraine and the countries of the Middle East.

Grouping of countries is carried out using cluster analysis, which allows "to identify patterns in statistical populations, the units of which are described by a relatively large set of characteristics"<sup>87</sup>. As a result of cluster analysis, we will obtain a division of the population of countries into several groups that have similar qualitative and quantitative characteristics according to the criterion of topological distance between the corresponding characteristics.

The effectiveness of using the potential of economic cooperation of countries is assessed on the basis of the construction and calculation of a gravity model, which involves determining the optimal vector of foreign economic policy of countries<sup>88</sup>.

The gravity model is described by the expression:

$$X_{ij} = k \frac{Y_j^\alpha \times Y_i^\beta}{r_{ij}^\gamma}, \quad (1.7)$$

where:  $X_{ij}$  – intensity of product flow between the  $i$  and  $j$  countries;  $k$  – coefficient of dependence ("gravity") of the studied countries,  $Y$  – a certain measure of the "significance" of a country (for example, its population, annual GDP, etc.),  $r_{ij}$  – distance from one country to another,  $\alpha$ ,  $\beta$ ,  $\gamma$  – power exponents, which are parameters of the model.

The logarithm of formula 1.7 allows us to construct a linear regression model (formula 1.8), which allows us to assess the dependence of export and import volumes between countries in bilateral trade on the

<sup>87</sup> Pluta V. Comparative multivariate analysis in economic research. Methods of taxonomy and factor analysis. M. : Statistics, 1980. 151 p., p. 7

<sup>88</sup> Filipenko A. Integration prospects of Ukraine: bigravitational model. Economy of Ukraine. 2005. № 6. P. 11-22.

GDP and population of these countries, as well as the distance between partner countries:

$$\ln X_{ij} = \alpha_1 + \alpha_2 \ln(GDP_i + GDP_j) + \alpha_3 \ln Pop_j + \alpha_4 \ln Dist_{ij} + \sum \alpha_5 Dum_{ij}, \quad (1.8)$$

where:  $X_{ij}$  – export value from the  $i$  country to the  $j$  country and import from the  $j$  country to the  $i$  country;  $GDP$  – gross domestic product of countries;  $Pop_j$  – population of the country  $j$ ;  $Dist$  – geographical distance between countries;  $Dum_{ij}$  - dummy variables characterizing the foreign economic relations of countries.

We will assess the impact of foreign trade with partner countries on economic growth in Ukraine based on regression analysis. To do this, we will build a model of the dependence of Ukraine's economic growth on trade volumes with countries in the Middle East region, with which trade intensity is high. The linear regression model is based on the functional dependence of Ukraine's economic growth on the indicators of exports and imports of goods in trade with these countries:

$$Y_{ukr} = f(Exp_1; Imp_1; Exp_2; Imp_2; Exp_j; Imp_j), \quad (1.9)$$

where  $Y_{ukr}$  – dependent variable, which is described by indicators of economic growth of Ukraine ( $GDP_{ukr}$ ), GDP per capita ( $GDPpc_{ukr}$ ), GDP index to the previous year ( $Index\_GDP_{ukr}$ );  $Exp_j$  – amount of export of goods from Ukraine to the  $j$  country of the Middle East;  $Imp_j$  – amount of import from the  $j$ th Middle Eastern country to Ukraine.

The generalization of the methodological approaches to the study of trade cooperation of countries considered above allows us to outline the following logical and structural sequence of assessing the current state of Ukraine's foreign trade with the countries of the Middle East as a basis for

substantiating strategic priorities and means of further development of trade exchange: analysis of the dynamics of the main indicators of Ukraine's foreign trade with partner countries; conducting a cluster analysis and grouping of partner countries by priority of trade cooperation; regression analysis based on the gravity model and the model of the dependence of Ukraine's economic growth on the volume of trade with partner countries; detailed analysis of Ukraine's bilateral cooperation with leading partner countries by determining comparative advantages and trade complementarity.

### **1.5. Methodology for assessing a country's position in the global services market**

Global transformations and the transition of many countries to a post-industrial economy have led to an increase in the role of trade in services as an important factor in economic growth and improving the competitive positions of countries in the international market. In this regard, special attention should be paid to the analysis of the state of foreign trade in services, the assessment of the country's positioning relative to other states and the identification of promising directions for deepening trade in key sectors for the national economy. This requires the use of appropriate methods for studying the dynamics of exports and imports of services, as well as the assessment of structural changes in this area.

In domestic scientific literature, the most commonly used approach is to analyze the geographical structure of exports and imports of services, highlighting the main partner countries. Changes in the structure of trade in services by type are assessed, and the structural characteristics of

foreign trade in services of Ukraine and the leading countries of the global services market are compared<sup>89</sup>.

Krasnoded T. and Popova T. note that research on foreign trade in services should be carried out using the same indicators that are used in assessing foreign trade in goods: volumes of exports and imports of services, foreign trade turnover of services, balance of foreign trade in services, ratio of coverage of exports of imports of services, share of the country or type of service in total volumes of exports and imports<sup>90</sup>. It is also important to study the structural features of trade in services by their types.

For example, the allocation of services that have the largest share in exports allows you to identify sectors that are competitive in the foreign market. On the other hand, a low share of certain services in exports may indicate limited demand for them from foreign consumers. Analysis of the structure of exports by type of services helps to identify promising areas for increasing their supply in international markets. Based on an assessment of the structure of imports of services, it is possible to identify types of services for which domestic demand is not fully satisfied due to various reasons, such as a lack of qualified labor resources, the absence of the necessary infrastructure or technologies.

Analysis of the dynamics of the share of main types of services in total exports over a period of 20-40 years allows assessing structural changes and identify sectors whose importance in exports has increased significantly. For example, scientists have found a significant increase in exports of educational

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<sup>89</sup> Fedorova N.E., Ohorodnyk R.P., Ziubanov H.V. Ukraine in the global services market: place and development prospects. Problems of a systemic approach in economics. 2020. Issue 3(77)-1. P. 26-34.

<sup>90</sup> Krasnoded T. L., Popova T. V. Ukraine's place in the global services market. Eastern Europe: economy, business, management. 2019. Issue 4 (21). P. 30-36.

services in Australia from 1970 to 2018, which occurred due to changes in migration policy and increased demand for education from China and India<sup>91</sup>. Thus, the dynamics of the structure of service exports not only shows the strengthening or weakening of the country's competitive position, but also reflects changes in domestic policies aimed at stimulating external demand for certain types of services.

Peterson J. and Barras R. proposed three indicators to assess the competitive position of a country in trade in services: the observed export share, the adjusted export share, and the RCA index (revealed comparative advantage)<sup>92</sup>. The observed export share is a well-known indicator in various studies and statistical datasets that shows the share of a country in the n-group of countries exporting a certain type of service, for example, the share of a country's transport services exports in world transport exports:

$$OES = \frac{X_{ij}}{\sum_{j=1}^n X_{ij}} \times 100 \quad (1.10)$$

where:  $OES$  – observed share of exports;  $X_{ij}$  – export of the country  $j$

of the product  $i$ ;  $\sum_{j=1}^n X_{ij}$  – general amount of export of the product  $i$ .

However, it is worth noting that this approach, although very popular, does not properly reflect the competitive position of a country. They formally argue that a relatively large country (in terms of its GDP) can have a high export share simply because it is large. Similarly, an economy that is relatively open (measured as the ratio of a country's total exports to its GDP)

<sup>91</sup> Rickards P. The International Trade in Services. <https://www.rba.gov.au/publications/bulletin/2019/mar/pdf/the-international-trade-in-services.pdf>

<sup>92</sup> Peterson J., Barras R. Measuring International Competitiveness in Services. The Service Industries Journal. 1987. Vol. 7 (2). P. 131-142.

will also have a high export share. Since, on the one hand, there is no random relationship between size and the competitiveness of a particular product, and, on the other hand, the openness factor is not based on specialization, since it is an aggregate measure, the observed export share index may give inappropriate results.

In order to eliminate this drawback, it is advisable to use an indicator called the adjusted export share:

$$AES = \frac{\frac{X_{ij}}{\sum_{i=1}^m X_{ij}}}{\sum_{j=1}^n \left( \frac{X_{ij}}{\sum_{i=1}^m X_{ij}} \right)} \times 100 = \frac{r_{ij}}{\sum_{j=1}^n r_{ij}} \times 100 = \frac{r_{ij}}{n\bar{r}_{ij}} \times 100 \quad (1.11)$$

where:  $AES$  – adjusted export share;  $r_{ij}$  – share of the country  $j$  in the export of the product  $i$  in its export of  $m$  products (or the degree of export concentration);  $\sum_{j=1}^n r_{ij} = n\bar{r}_{ij}$  – average degree of export concentration for  $n$  group of countries on the whole.

This index reflects the share of a specific country's exports of the product  $i$  in its export of  $m$  products, in other words, the degree of export concentration (for example, Ukrainian exports of transport services in relation to all exports of services) in relation to the sum of the shares of the product  $i$  in the export of  $m$  products of  $n$  countries. Thus, the average degree of export concentration for the entire group (for example, the sum of the shares of transport services in total world exports of services). Since the degree of export concentration shows the extent to which a country's exports are dominated by a particular product, it thus measures the specialization and competitiveness of the country in that product.

To calculate the index of revealed comparative advantages, the following formula is used::

$$RCA_{Ai} = \frac{\left( \frac{X_{Ai}}{\sum X_{Aj}} \right)}{\left( X_{wi} / \sum X_{wj} \right)} \geq 1. \quad (1.12)$$

where:  $X_{Ai}$  – export of the product  $i$  of the country  $A$ ;  $\sum X_{Aj}$  – general export of the country  $A$ ;  $X_{wi}$  – world export of the product  $i$ ;  $\sum X_{wj}$  – general world export.

Country  $A$  has a proven comparative advantage in the product  $i$ , if its export ratio of the product  $i$  to the general export of all products exceeds the same ratio for the world as a whole. If a country has an apparent comparative advantage for a particular product ( $RCA > 1$ ), it is considered a competitive producer and exporter of that product compared to a country that produces and exports that product at or below the world average. A country with an apparent comparative advantage in product  $i$  is considered to have strong exports of that product. The higher a country's RCA for product  $i$ , the higher its export capacity in product  $i$ <sup>93</sup>.

When studying trade in services, scientists use tools for mathematical forecasting and modeling the dynamics of exports and imports of services for both a single country and for world trade as a whole. Thus, Dernova I. used a “linear trend model of world export volumes”, applying extrapolation of the dynamic series for 2010-2022<sup>94</sup>.

In order to determine Ukraine's prospects in the international services market, scientists use short-term forecasting of export volumes, imports,

<sup>93</sup> Revealed Comparative Advantage. <https://unctadstat.unctad.org/EN/RcaRadar.html>.

<sup>94</sup> Dernova I.A. The global services market: current state and development trends. *Economy and society*. 2023. Issue 50. <https://doi.org/10.32782/2524-0072/2023-50-45>.

and the structure of services by type based on the exponential smoothing method (Holt-Winters method)<sup>95</sup>.

The Holt method is a statistical forecasting method used to analyze and forecast time series, especially when data exhibits trends and/or seasonality. This method allows making future predictions by taking into account trends and changes in the time series.

The basic idea of the Holt method is to extend the exponential smoothing method to include trend. It uses two parameters: a smoothing level (alpha) to weight the update of observations, and a trend coefficient (beta) that determines the rate of change of the trend over time.

This algorithm involves smoothing the level and trend values using an exponential, with different smoothing parameters:

$$\begin{cases} \Omega_t = \alpha \cdot Y_t + (1 - \alpha)(\Omega_{t-1} - T_{t-1}) \\ T_t = \beta \cdot (Q_t - Q_{t-1}) + (1 - \beta)T_{t-1} \\ Y_{t+p} = \Omega_t + pT_t \end{cases} \quad (1.13)$$

where: « $\Omega_t$  – forecast value of the indicator for the current moment in time,  $T_t$  – determining the trend of values;  $Y_t$  – time series value;  $Y_{t+p}$  – "forecast value for t periods in the future"<sup>96</sup>.

In the above system of equations, the first expression describes the smoothed time series of the general level, the second expression is used to estimate the trend, and the third one determines the forecast of the change in the time series for p periods ahead<sup>97</sup>.

Therefore, the Holt forecasting procedure can be summarized as a sequence of four steps:

<sup>95</sup> Fedorova N.E., Ohorodnyk R.P., Ziubanov H.V. Ukraine in the global services market ...

<sup>96</sup> Vasyliiev O.S., Lylka O.S. Using the Holt method for time series analysis. Problems of informatization and management. 2010. №3(31). P. 26-29.

<sup>97</sup> ibid

1. Initialization: determining initial values for the level and trend.
2. Level update: using exponential smoothing to update the level value.
3. Trend update: using exponential smoothing to update the trend value.
4. Forecasting: using the obtained level and trend values to forecast future values.

Thus, to assess the country's position in the international services market, it is advisable to apply a set of methods considered above in the following sequence: (1) determining dynamic and structural changes in the country's foreign trade in services; (2) assessing the country's place in the world market by the main types of services based on statistical information; (3) determining the country's competitive position in the world market for services by calculating the index of identified comparative advantages; (4) forecasting the country's foreign trade indicators in the main types of services for the short term using trend extrapolation based on exponential smoothing.

## **CHAPTER 2. GLOBAL TRENDS IN INTERNATIONAL TRADE IN THE POST-PANDEMIC PERIOD**

### **2.1. The Covid-19 pandemic as a factor in shaping new conditions for international trade**

The COVID-19 pandemic in 2020 has dramatically changed the global economic landscape, challenging the process of internationalization that was previously considered the foundation of global economic cooperation. The closure of economies, restrictions on movement of people, and the introduction of border controls have called into question the benefits of liberalizing trade, capital flows, and investment. The weaknesses of globalization, especially in the context of interdependent supply chains, have become apparent as production processes have been disrupted by labor shortages, transportation restrictions, and disruption of global value chains (GVCs).

The complete or partial closure of borders has caused significant difficulties in international trade, in particular in the transportation of goods. This has affected not only production and consumption, but also export-import transactions, including critical resources such as medicines and spare parts. The restrictions have also negatively affected foreign direct investment (FDI), reducing the level of global economic integration. The fragmented production processes on which global supply chains are built have suffered losses, creating challenges to maintaining sustainable production in many industries.

The impact of the pandemic has highlighted the extent to which the world's economies depend on each other. At the same time, the pandemic has become an impetus for countries to rethink their economic models and seek new ways to achieve economic resilience, including through the

diversification of supply chains and the development of domestic markets<sup>98</sup>.

The COVID-19 pandemic has posed serious challenges to international trade and the economy, causing a sharp decline in macroeconomic indicators and a change in global economic structures. In particular, international institutions predicted a decline in world GDP by 4.3% in 2020, a significant reduction in international trade in goods (by 5.6%) and services (by 15.4%)<sup>99</sup>, as well as a drop in foreign direct investment (FDI) flows by 30-40%<sup>100</sup>. Although these forecasts indicated a deep crisis, the situation began to improve from mid-2020 due to the gradual opening of national economies. However, it was expected that a return to 2019 levels would take time, as well as the need for structural reforms, in particular increasing the proximity of production facilities to sales markets.

The studies also noted that the pandemic had both short-term and long-term consequences for international trade. L. Gruszczynski divided the impact into two periods: in the short term, there was a sharp decline in trade, especially in the first half of 2020<sup>101</sup>, but in the long term, business will return to normal with some structural changes<sup>102</sup>. This involved

<sup>98</sup> Kersan-Škabić, I. The COVID-19 pandemic and the internationalization of production: A review of the literature. *Development Policy Review*. 2022. Vol. 40. e12560. 10.1111. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8239906/>

<sup>99</sup> UNCTAD. Impact of the COVID-19 pandemic on global FDI and GVCs: Updated analysis. *Global Investment Trend Monitor*. 2020. No. 35. [https://unctad.org/system/files/official-document/diaiciainf2020d3\\_en.pdf](https://unctad.org/system/files/official-document/diaiciainf2020d3_en.pdf); UNCTAD. Trade and development report 2020. From global pandemic to prosperity for all: Avoiding another lost decade. [https://unctad.org/system/files/official-document/trd2020\\_en.pdf](https://unctad.org/system/files/official-document/trd2020_en.pdf); World Trade Organization. COVID-19: Measures affecting trade in goods. (2021, July 2). [https://www.wto.org/english/tratop\\_e/covid19\\_e/trade\\_related\\_goods\\_measure\\_e.htm](https://www.wto.org/english/tratop_e/covid19_e/trade_related_goods_measure_e.htm).

<sup>100</sup> UNCTAD. World investment report 2020. <https://unctad.org/webflyer/world-investment-report-2020>.

<sup>101</sup> Hayakawa, K., & Mukunoki, H. The impact of COVID-19 on international trade: Evidence from the first shock. *Journal of the Japanese and International Economies*. 2021. Vol. 60. 101135; Bekkers, E., & Koopman, R. B. Simulating the trade effects of the COVID-19 pandemic: Scenario analysis based on quantitative trade modelling. *World Economy*. 2022. Vol. 45(2). P. 445-467; Vidya, C. T., & Prabheesh, K. P. Implications of COVID-19 Pandemic on the Global Trade Networks. *Emerging Markets Finance and Trade*. 2020. Vol. 56(10). P. 2408–2421.

<sup>102</sup> Gruszczynski, L. The COVID-19 pandemic and international trade: Temporary turbulence or paradigm shift? [Special issue]. *European Journal of Risk Regulation*. 2020. Vol. 11(2). P. 337–342

companies adapting to the new conditions of globalization and adjusting their supply chain strategies.

The negative impact of the pandemic varied across sectors of the economy. Hayakawa and Mukunoki noted that the production of durable goods suffered the most, while the production of medical goods increased. Beckers and Koopman, using quantitative analysis, modeled three recovery scenarios: V-shaped (optimistic), U-shaped (semi-optimistic), and L-shaped (pessimistic). Their projections indicated a possible reduction in international trade of 8–20%.

Changes in trade policy have been another important consequence of the pandemic. While protectionism was expected to increase, the focus has been less on import tariffs and more on export restrictions aimed at meeting domestic needs, especially medical equipment and medicines. Such changes could lead to shortages of certain goods on the global market. Prolonged lockdowns of non-essential economic activity could also lead to regionalization of global value chains and reduced FDI flows, which would affect the pattern of international trade in the future.

Pauwelyn J. studied export restrictions, in particular on medical masks, medicines and other medical goods. The scientist notes that in April 2020, governments of 75 countries introduced bans or restrictions on the export of medical devices and medicines, which led to lively discussions about international agreements and the possibility of establishing export barriers. Despite the fact that over the past 70 years, liberalized trade has contributed to the development of national economies (since the signing of the GATT), the COVID-19 pandemic has forced

many countries to change this policy<sup>103</sup>. Restrictions were introduced to ensure domestic needs and curb price increases. The situation in the EU was particularly notable, where individual countries could introduce export restrictions in order to protect the health and lives of citizens, despite general trade policies<sup>104</sup>.

Evenett S. and colleagues analyzed changes in trade flows at the beginning of the COVID-19 pandemic, noting the intensification of trade policies in February-March 2020 and the differences in measures between countries. The main restrictions concerned the export of medical products and food products. The scientists also critically assessed the restrictions imposed on the export of medical goods and medicines, proposing alternative approaches to trade policy.

The pandemic has created adverse conditions for international trade through the introduction of barriers and economic lockdowns, leading to a significant reduction in trade volumes. Immediate government actions have been aimed at creating a “new normal”, including short-term protectionist measures, such as restrictions on exports of essential goods and COVID-19-related products.

Globalization has faced challenges of regionalization and nationalization as countries have focused on manufacturing self-sufficiency and import substitution strategies. Bonadio B. et al. examined the economic consequences of the pandemic for 64 countries and 33 economic sectors, finding that "real GDP could decline by 29.6% in the

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<sup>103</sup> Pauwelyn J. Export restrictions in times of pandemic: Options and limits under international trade agreements. *Journal of World Trade* 2020. Vol. 54(5). P. 727–747.

<sup>104</sup> Evenett, S. J., Hoekman, B., Rocha, N., & Ruta, M. The Covid-19 vaccine production club: Will value chains temper nationalism? Policy Research Working Paper. 2021. No. 9565. World Bank. <https://openknowledge.worldbank.org/handle/10986/35244>

case of international production and by 30.2% in the case of renationalization of supply chains."<sup>105</sup>

The shift to domestic resources (if available) will not be able to completely avoid the reduction in global trade, as national economies also suffer losses from the restriction of their functioning. Local economic models are characterized by high levels of protectionism, lower economic activity and reduced incomes. OECD experts used the METRO model to analyze two options for the development of the global economy: (1) fragmentation of production within global value chains (GVCs), and (2) more localized production with less dependence on foreign suppliers<sup>106</sup>. The study's findings suggest that local economies with less international trade, production fragmentation, and integration show significantly lower levels of economic activity and income, which can slow down the economy and reduce GDP. While fragmented international production is subject to shocks, such as during the COVID-19 pandemic, their negative impact on GDP, consumption, and production is more pronounced in localized economies. The shift to a localized economic model could reduce global welfare and real GDP by more than 5% on average<sup>107</sup>.

Arriola, C., et al. argue that reduced international cooperation will reduce the efficiency and stability of national economies. They assessed these indicators in 22 countries, comparing scenarios of maintaining international ties and introducing localization. The researchers concluded that "exports tend to be concentrated in a few countries, while imports are

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<sup>105</sup> Bonadio, B., Huo, Z., Levchenko, A. A., & Pandalai-Nayar, N. Global supply chains in the pandemic. NBER Working Paper. 2020. No. 27224. <https://www.nber.org/papers/w27224>.

<sup>106</sup> OECD. Shocks, risks and global value chains: Insights from the OECD METRO model. (Jun 29, 2020). <https://www.oecd.org/trade/documents/shocks-risks-gvc-insights-oecd-metro-model.pdf>.

<sup>107</sup> OECD. Shocks, risks and global value chains....

more diversified. This creates risks for firms that depend on international supply chains, as they may be exposed to country-specific risks.<sup>108</sup>,

The analysis of scientific sources shows that internationalization remains the only alternative, although future international cooperation may be more regionalized. Under the influence of the pandemic, significant changes in the structure of global value chains may occur. Verbeke A. studied the impact of COVID-19 on global value chain management (GVC), identifying areas that became more active during the pandemic, in particular, investments in risk management and contracting. He concluded that “in times of large-scale uncontrolled risks, companies will adapt their management systems to mitigate new challenges and ensure stable operations”.<sup>109</sup>

Kano L. and Hoon Oh, C. suggested that global value chains (GVCs) are likely to undergo changes in the form of localization and diversification after the pandemic, although they do not expect significant changes in the principles of GVC governance. In their opinion, future changes will reflect existing trends, such as renewed protectionism, de-citization and digitalization. They also note that these processes will lead to adjustments in governance procedures to increase reliability and overcome knowledge about governance, geographical coverage and heterogeneity of GVC participants<sup>110</sup>.

Since the beginning of the pandemic, there has been a significant increase in trade in COVID-19-related goods, including protective

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<sup>108</sup> Arriola, C., Guilloux-Nefussi, S., Koh, S.-H., Kowalski, P., Rusticelli, E., & van Tongeren, F. Efficiency and risks in global value chains in the context of COVID-19. OECD Economics Department Working Paper. 2020. No. 1637. OECD Publishing. 10.1787/3e4b7ecf-en.

<sup>109</sup> Verbeke, A. Will the COVID-19 pandemic really change the governance of global value chains? *British Journal of Management*. 2020. Vol. 31(3). P. 444–446.

<sup>110</sup> Kano, L., & Hoon Oh, C. Global value chains in the post-COVID world: Governance for reliability. *Journal of Management Studies*. 2020. Vol. 57(8). P. 1773–1777.

clothing, sterilization products, oxygen equipment, medical equipment and supplies. Many countries have imposed export restrictions on these goods since March 2020. According to the WTO, 276 countries around the world have imposed restrictions on trade in these goods. The EU, in particular, has imposed 11 such measures, and its member states have imposed 21 national restrictions. According to WTO estimates, trade in medical goods increased by 16% in the first half of 2020 compared to the same period in 2019, with the largest increase in trade in medical masks (84%), with China being the leading exporter<sup>111</sup>.

The EU had a trade surplus in COVID-19-related goods, while most other countries had deficits. Intra-EU trade in such goods was around 50%, indicating a reliance on imports from outside the EU and the risk of shortages of some products. The main suppliers of medical supplies were Switzerland, protective equipment - China, and diagnostic equipment – the US. The largest increase in EU imports compared to the first half of 2019 was observed in trade in protective clothing (187%) and sterilization products (73%)<sup>112</sup>.

Thus, the COVID-19 pandemic has significantly complicated the work of national producers and international trade due to numerous restrictions, such as border closures, reduced consumer demand, increased national egoism and uncertainty about travel. The “new normal” has been focused on national interests, such as vaccination. An analysis of scientific sources shows that renationalization is not promising for the future functioning of GLSV. Instead, GLSV should focus on diversification and

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<sup>111</sup> World Trade Organization. COVID-19: Measures affecting trade in goods...

<sup>112</sup> EU trade in COVID-19 related products. Statistics Explained Eurostat. (2021, March). [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=EU\\_trade\\_in\\_COVID-19\\_related\\_products#Per\\_capita\\_trade\\_largest\\_in\\_Ireland.2C\\_Belgium.2C\\_the\\_Netherlands\\_and\\_Slovenia](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=EU_trade_in_COVID-19_related_products#Per_capita_trade_largest_in_Ireland.2C_Belgium.2C_the_Netherlands_and_Slovenia).

regionalization to ensure the sustainability of supplies. The pandemic has pushed these trends to the fore, and they may continue to develop in the future.

The COVID-19 pandemic has disrupted production along GVCs and the transportation of intermediate goods, leading to significant losses for many multinational corporations and a decline in global GDP overall. Protectionism in trade policy, particularly in the field of medical devices, has also intensified. The pandemic has sparked new discussions about the cost of global production and possible losses from localization. In the new environment, global value chains require a trade-off between efficiency and sustainability, reducing their length and focusing on regional connections. At the same time, internationalization and GVCs have demonstrated their ability to overcome the challenges of the pandemic by adapting to new global market conditions.

The Covid-19 pandemic is considered one of the most profound crises of the last decade, the consequences of which have been devastating for the economies of many countries and will be felt in the coming years. While globalization has created many benefits for the world economy, it has also become a source of systemic risks and threats in the supply chains of raw materials and finished goods to countries, multinational corporations and small firms. The crisis caused by the Covid-19 pandemic is an extraordinary example of such a risk, which has caused widespread and persistent shortages of certain products or services without alternatives or substitution, and has also led to a weakening of globalization processes.

Countries have adopted different regulatory mechanisms in response to the pandemic. For example, China has imposed strict regional restrictions, Sweden has adopted a more liberal approach to regulating

economic and social processes, and the United Kingdom has changed course several times during the crisis<sup>113</sup>. It is difficult to assess which public policies have been more effective in terms of post-pandemic recovery and further development in the long term. Therefore, scholars and experts are conducting evidence-based research to identify the most effective ways to combat systemic risks such as the Covid-19 pandemic.

Countries exchange goods and services through imports and exports in the international trading system, the resilience of which in times of crisis is an extremely important condition for the economic development and stability of countries. In this context, scholars define the resilience of international trade in terms of resilience, which means “the ability of countries to withstand disruptions in international trade and to recover from disruptions.”<sup>114</sup> This definition encompasses two distinct aspects of resilience - the ability to withstand a crisis and the ability to quickly overcome its consequences.

The Covid-19 pandemic has had a significant negative impact on all aspects of human life, “changing the conditions for business and destroying international trade”.<sup>115</sup> The Covid-19 pandemic is seen as a phenomenon characterized by complexity and uncertainty, affecting government policies, the health system, the behavior of firms and the decisions of individuals, but at the same time being affected by regulatory measures implemented in different countries.<sup>116</sup> Some authors have used the term “chaordic”, emphasizing the chaotic-ordered nature of the

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<sup>113</sup> IMF (2021) Policy responses to Covid-19. URL: <https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19#top>

<sup>114</sup> Mena C., Karatzas A., Hansen C. International trade resilience and the Covid-19 pandemic. *Journal of Business Research*. 2022. Vol. 138. P. 77-91.

<sup>115</sup> Verma S., Gustafsson A. Investigating the emerging COVID-19 research trends in the field of business and management: A bibliometric analysis approach. *Journal of Business Research*. 2020. Vol. 118. P. 253-261.

<sup>116</sup> Pappas N., Glyptou K. Accommodation decision-making during the COVID-19 pandemic: Complexity insights from Greece. *International Journal of Hospitality Management*. 2021. Vol. 93. p. 102767.

pandemic as a global threat<sup>117</sup>. Although the complexity and uncertainty of the Covid-19 pandemic have affected the business environment worldwide, these effects have not been uniform across countries. The foreign trade of some countries has been seriously affected, while in others it has remained relatively resistant to crisis phenomena. It is this resistance to the challenges of an extremely complex and uncertain environment in the context of a pandemic that scientists describe as “resilience”.

Resilience can be considered at many levels, from the micro level to large-scale macrosystems, such as the national or even global economy or society as a whole<sup>118</sup>. While there are differences in the conceptualization of resilience at different levels, all approaches address the ability of a system to withstand disruptions, and scholars are conducting research to identify the underlying factors in the resilience of systems and their ability to recover.

Researchers identify two key capabilities of resilient systems: reliability and responsiveness. Reliability is defined as the ability of a system to continue functioning despite internal or external disturbances<sup>119</sup>. This means that the system should be robust and stable during crises. Responsiveness, on the other hand, refers to the system’s ability to respond to disturbances, recover to its original state, or adapt to a new, more desirable state<sup>120</sup>. Although these two characteristics are interdependent,

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<sup>117</sup> Pappas N. COVID19: Holiday intentions during a pandemic. *Tourism Management*. 2021. Vol. 84. p. 104287.

<sup>118</sup> Cacioppo J.T., Reis H.T., Zautra A.J. Social resilience: The value of social fitness with an application to the military. *American Psychologist*. 2011. Vol. 66 (1). P. 43.

<sup>119</sup> Bode C., Hübner D., Wagner S.M. Managing financially distressed suppliers: An exploratory study. *Journal of Supply Chain Management*. 2014. Vol. 50 (4). P. 24-43.

<sup>120</sup> Christopher M., Peck H. Building the resilient supply chain. *The International Journal of Logistics Management*. 2004. Vol. 15 (2). p. 1-14.

sometimes increasing reliability can weaken the system's ability to respond to change, and vice versa<sup>121</sup>.

Global supply chains have expanded significantly in recent decades in response to increasing levels of globalization. This has led to increased interdependence between companies and countries, improving supply chain efficiency through innovative manufacturing practices, including just-in-time<sup>122</sup>. However, this interdependence has also made supply chains vulnerable to disruption<sup>123</sup>.

A country's logistics infrastructure plays a critical role in ensuring smooth functioning of international trade. The main factors influencing logistics performance are quality of transport infrastructure, efficiency of customs procedures and the level of technological integration<sup>124</sup>. These factors have a major impact on a country's economic growth and the efficiency of its supply chains<sup>125</sup>. Weak logistics infrastructure can increase vulnerability to external shocks, as has happened during the COVID-19 pandemic. A survey of port authorities found that many ports were facing falling demand, labor shortages and capacity constraints<sup>126</sup>.

One of the key issues affecting the distribution of vaccines was the lack of adequate infrastructure for storage at the required temperature

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<sup>121</sup> Melnyk S.A., Closs D.J., Griffis S.E., Zobel C.W., Macdonald J.R. Understanding supply chain resilience. *Supply Chain Management Review*. 2014. Vol.18 (1). P. 34-41.

<sup>122</sup> Christopher M., Holweg M. "Supply Chain 2.0": Managing supply chains in the era of turbulence. *International Journal of Physical Distribution and Logistics Management*. 2011. Vol. 41 (1). p. 63-82.

<sup>123</sup> World Economic Forum (2019). *Outbreak Readiness and Business Impact Protecting Lives and Livelihoods across the Global Economy*. (January, 2019). P. 1–22. <https://www.weforum.org/whitepapers/outbreak-readiness-and-business-impact-protecting-lives-and-livelihoods-across-the-global-economy>.

<sup>124</sup> Ekici Ş.Ö., Kabak Ö., Ülengin F. Linking to compete: Logistics and global competitiveness interaction. *Transport Policy*. 2016. Vol. 48. P. 117-128.

<sup>125</sup> Kurth M., Kozłowski W., Ganin A., Mersky A., Leung B., Dykes J., Linkov I. Lack of resilience in transportation networks: Economic implications. *Transportation Research. Part D: Transport and Environment*. 2020. Vol. 86. 102419.

<sup>126</sup> Notteboom T., & Pallis, T. 2020. IAPH-WPSP Port economic impact barometer half year report: A survey-based analysis of the impact of COVID-19 on world ports in the period April to September 2020. URL: <https://biblio.ugent.be/publication/8675723/file/8675725>.

conditions in some countries<sup>127</sup>. A developed logistics system, on the contrary, contributes to the recovery of the economy by ensuring the timely delivery of goods to the necessary places.

The pandemic has created supply and demand instability, which has led to pressure on logistics systems and shortages of medical supplies<sup>128</sup>. As researchers Notteboom and Pallis have pointed out, port activity is derived from the demand for goods, so changes in demand directly affect port operations<sup>129</sup>. This phenomenon also extends to other elements of national logistics systems, such as roads, airports, and customs. Therefore, the ability of the logistics system to cope with fluctuations in demand is an important factor in the resilience of a national economy.

Another important factor affecting the resilience of international trade is a country's financial system. Financial resilience includes a country's ability to support its economy through national aid packages, access to credit, or the use of personal savings<sup>130</sup>. Richer countries are also better able to secure critical resources such as vaccines and medical equipment, making them less vulnerable to global crises. In low-income countries, the pandemic has particularly exposed inequalities in access to these resources, exacerbating its disproportionate impact on these countries<sup>131</sup>.

During the COVID-19 pandemic, governments in different countries have implemented a variety of strategies that can be classified as

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<sup>127</sup> Wight, A. Expert warns cold chain infrastructure overhaul needed for Covid-19 vaccine rollout. *Forbes*. 2020. URL: <https://www.forbes.com/sites/andrewwight/2020/11/15/health-expert-from-zimbabwe-warns-of-covid-19-vaccine-cold-chain-challenges/?sh=57061c682055>.

<sup>128</sup> Shih W.C. Global supply chains in a post-pandemic world *Harvard Business Review*. 2020. Vol. 98 (5). P. 82-89.

<sup>129</sup> Notteboom T., & Pallis, T. 2020. IAPH-WPSP Port economic impact barometer....

<sup>130</sup> Chowdhury R., Luhar S., Khan N., Choudhury S.R., Matin I., Franco O.H. Long-term strategies to control COVID-19 in low and middle-income countries: An options overview of community-based, non-pharmacological interventions. *European Journal of Epidemiology*. 2020. Vol. 35 (8). P. 743-748.

<sup>131</sup> Mena C., Karatzas A., Hansen C. International trade resilience...

containment, health, economic, and social measures. Depending on these approaches and the level of preparedness, scientists have divided countries into several groups based on their resilience to the impact of the pandemic and their ability to resume international trade.

“Reliable and responsive” policies (New Zealand, South Korea, Iceland, Norway) – these countries have demonstrated a high ability to counteract the impact of the pandemic thanks to developed logistics, infrastructure, and strict measures early in the crisis. They were able to quickly stabilize the economy and maintain low mortality rates<sup>132</sup>.

"Tough but Fragile" Policies (Ukraine) – Although these countries implemented strict restrictions, weak healthcare and logistics infrastructure caused trade instability. Ukraine, despite the strict measures, suffered significant economic losses<sup>133</sup>.

"Non-intervention principle" (Sweden) - countries that chose less stringent measures were able to maintain trade stability, but this led to high mortality, which called into question the effectiveness of such an approach<sup>134</sup>.

"Procrastination" (Brazil, Indonesia) – governments in these countries delayed implementing tough measures, which initially helped stabilize trade. However, as the pandemic worsened, trade suffered significantly<sup>135</sup>.

"Early victims" (Belgium, Portugal, France, the Netherlands, Italy) are advanced economies that were hit hard at the beginning of the

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<sup>132</sup> ibid

<sup>133</sup> ibid

<sup>134</sup> ibid

<sup>135</sup> ibid

pandemic due to high mortality rates and limited resources. Their economies have taken a serious hit<sup>136</sup>.

"Late victims" (Argentina, Russia, USA) are countries that were significantly affected by the pandemic later, due to which trade remained stable in the first months, but later suffered a blow due to severe restrictions<sup>137</sup>.

"Never had a chance" (Morocco, Tunisia, Guatemala, Peru) - countries with low incomes, weak infrastructure and limited capacity for economic recovery and trade. They had an extremely difficult time confronting the pandemic<sup>138</sup>.

The pandemic has shown that the sustainability of international trade depends not only on economic and logistical factors, but also on the effectiveness of policies and institutional capacities of countries.

Thus, the Covid-19 pandemic has become an unexpected and significant external factor that has negatively affected the economies of many countries around the world. Due to the lack of experience in responding to similar global phenomena, countries have developed and implemented restrictive and regulatory measures based on their own understanding of the situation and the speed of the virus's spread. Accordingly, the speed and quality of the government's response, combined with the level of national income, the development of medical infrastructure and the degree of globalization in the conditions of the pandemic, have become the main factors determining the stability of the economy and the resilience of foreign trade.

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<sup>136</sup> Mena C., Karatzas A., Hansen C. International trade resilience...

<sup>137</sup> *ibid*

<sup>138</sup> *ibid*

## **2.2. Dynamic transformations of international trade in the context of the pandemic**

The COVID-19 pandemic has had a profound impact on global economies and societies, causing significant disruptions to international trade. The crisis has exposed vulnerabilities in global supply chains and accelerated certain trends that were already brewing.

Supply chain disruptions. The pandemic has shown that the “just-in-time” system that dominated global trade is vulnerable to crises. Many countries and companies have begun to diversify and localize their supply chains to reduce future risks. In particular, regionalization has become one of the ways to ensure supply stability, which allows reducing dependence on international partners in critical areas.

Changing consumer behavior. Quarantine measures and social distancing have driven the rapid growth of e-commerce. Consumers have increasingly used online platforms for shopping, leading to a rapid increase in e-commerce penetration. This shift requires businesses to adopt new distribution and marketing strategies to meet changes in consumer demand.

Digitalization of trade. The pandemic has been a catalyst for the widespread adoption of digital solutions in global trade. Contactless transactions, remote working and the use of blockchain technologies to ensure supply chain transparency have become key aspects of the new business environment. Organizations such as UNCTAD note that the pandemic has accelerated the process of digitalization, which contributes to the continuity of cross-border operations.

Global inflation and geopolitical factors. While the global economy began to recover in 2021 after an initial shock, inflation driven by rising energy prices and the Russia-Ukraine war have become new challenges that are slowing down the recovery. This is putting additional pressure on supply chains and international trade.

As a result, the COVID-19 pandemic has not only caused temporary changes in international trade, but has also changed its structure, accelerating digitalization, regionalization and a reorientation towards new supply chain models.

The COVID-19 pandemic has triggered a global economic downturn, forcing countries to reconsider their international trade strategies and cooperation. To ensure stability and support economic recovery, many countries have begun to form new trade alliances and enter into regional agreements. Some of the most important agreements that emerged during this period are the Regional Comprehensive Economic Partnership (RCEP) and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP).

The Regional Comprehensive Economic Partnership (RCEP) is the world's largest trade bloc, established in 2020. It includes 15 countries in the Asia-Pacific region, including China, Japan, South Korea, Australia and ASEAN members. The bloc aims to facilitate trade by reducing tariffs and strengthening economic cooperation between countries. Participation in RCEP allows countries in the region to increase their mutual trade, particularly in the areas of electronics, textiles and agriculture, which are critical for the recovery from the pandemic.

The Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) brings together 11 countries in the Pacific region, including Canada, Japan, Australia and Vietnam. The agreement provides for the reduction of trade barriers and the opening of new markets for members. Importantly, the agreement is expanding: in 2021, the UK began negotiations to join the CPTPP, demonstrating a desire to strengthen trade amid economic uncertainty.

The pandemic shock caused a sharp decline in global trade. In the first half of 2020, global trade fell by 16%, exceeding even the economic downturn during the 2008 global financial crisis. The decline in trade was

particularly noticeable due to disruptions in supply chains, restrictions on international transport and closures of factories.

However, since the beginning of 2021, global trade has started to recover rapidly. Growth in 2021 reached 12.8% and in 2022 – 5.5%, returning to pre-pandemic levels. However, in the second half of 2022, global trade growth slowed again due to new risks such as inflation and geopolitical conflicts.

According to forecasts for 2023, global trade was expected to grow by 1.1%, which is significantly lower than the annual average before the pandemic. Reasons for this slow growth include the effects of inflation, rising energy prices, and ongoing disruptions in global supply chains, which remain affected by geopolitical factors such as the war in Ukraine.

Thus, the COVID-19 pandemic has not only led to an economic downturn, but has also changed the structure of international trade, necessitating the strengthening of trade alliances and a rethinking of economic strategies to ensure resilience in the face of global uncertainty (Figure 2.1).

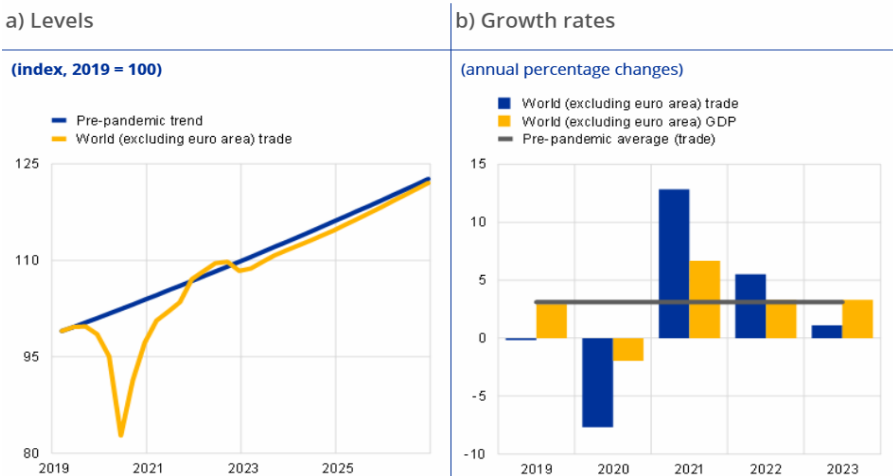


Fig. 2.1. Key global trade trends in 2019-2023.<sup>139</sup>

<sup>139</sup> Attinasi M. G., Boeckelmann L., Hespert L., Linzenich J. and Meunier B. Global trade in the post-pandemic environment. URL: [https://www.ecb.europa.eu/press/economic-bulletin/focus/2024/html/ecb.ebbox202401\\_01~d1c3b1b0a5.en.html](https://www.ecb.europa.eu/press/economic-bulletin/focus/2024/html/ecb.ebbox202401_01~d1c3b1b0a5.en.html).

Rapid growth in the world trade in 2021 and early 2022 was largely driven by economic factors that emerged in response to the COVID-19 pandemic (Figure 2.2). The main drivers of this recovery were the revival of economic activity following the initial shock caused by the pandemic, as well as changes in consumer trends.

The main drivers of world trade growth:

1. Shift in demand from services to goods. In response to containment measures such as quarantine and social distancing, consumers have shifted their spending. As contact services (travel, restaurants, entertainment) have become less accessible, demand has shifted to goods, especially those that contribute to improving comfort at home (electronics, furniture, etc.). This shift has increased global demand for goods, which has been reflected in an increase in world trade. Goods have a greater impact on international trade compared to services due to the need for transportation and supply of raw materials.

2. Fiscal support and government stimulus. Many countries have implemented large-scale fiscal support programs to mitigate the economic impact of the pandemic. This has included direct payments to the population, support for small and medium-sized enterprises, and investment in infrastructure. Thanks to such support, consumers have been able to continue purchasing goods despite the restrictions, which has supported the growth of economic activity.

3. Rising inventories due to supply disruptions. In 2022, many companies faced supply chain challenges due to delivery delays and shortages of key materials such as semiconductors. As a result, companies

increased their inventories to protect themselves against future disruptions. This led to a temporary increase in demand for goods and supported global trade levels, despite the ongoing pandemic.

Obstacles to further growth:

- Supply disruptions. While demand for goods has been growing, logistical challenges, including port congestion, container shortages, and delivery delays, have hindered further trade growth. This has increased delivery times and increased transportation costs.

- Normalization of demand. As inventories recovered and supply chains normalized, demand for some categories of goods declined. This contributed in part to the slowdown in trade growth in the second half of 2022.

- Recovery of services and international travel. As pandemic restrictions eased, the services sector, especially international tourism and transportation, gradually began to recover. This also contributed to improved trade in these sectors.

Thus, while the pandemic has posed serious challenges to the global economy, it has also stimulated a temporary revival in global merchandise trade. This recovery in trade was driven by both consumer shifts and government support measures, but was limited by supply disruptions and changes in the structure of global demand.

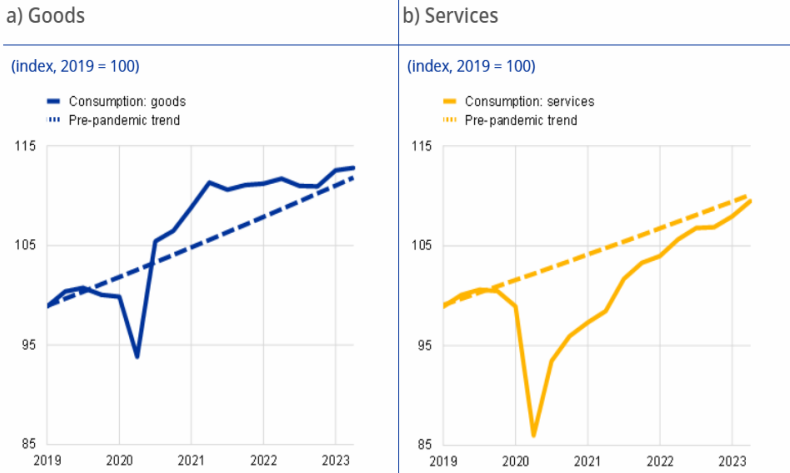


Fig. 2.2. Main trends in global consumption of goods and services (excluding the euro area)<sup>140</sup>

Further decline in the world trade in 2023 reflects a less trade-friendly structure of global economic activity and the increasing impact of the aforementioned one-off factors. First, real GDP growth has slowed more in advanced economies, where domestic demand is more import-intensive, than in emerging market economies.

Second, while private consumption has rebounded sharply, private investment has remained weak, reflecting a combination of tighter monetary policy, greater uncertainty amid heightened geopolitical tensions, and the unwinding of pandemic-related fiscal support measures. Estimates based on import demand dynamics suggest that about half of the decline in world trade since 2022 can be explained by these weaker fundamentals, including weak investment dynamics that turned negative in the last quarter of 2022 (Figure 2.3).

<sup>140</sup> Attinasi M. G., Boeckelmann L., Hespert L., Linzenich J. and Meunier B. Global trade in the post-pandemic...

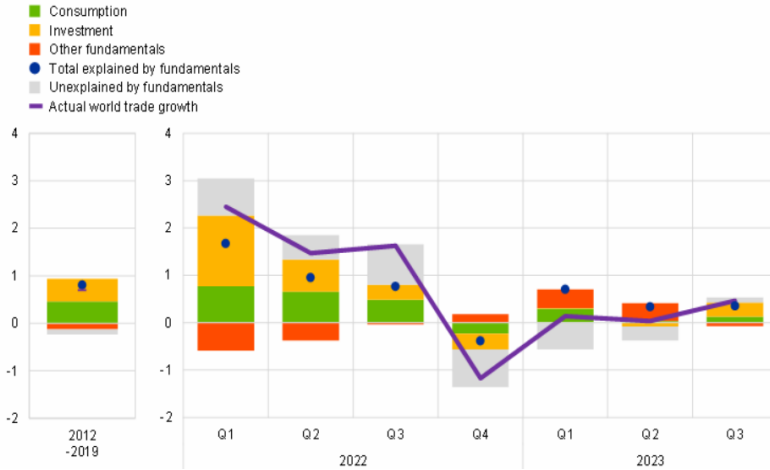


Fig. 2.3. Contribution of factors to world trade growth (quarterly percentage changes, percentage points)<sup>141</sup>

In addition to the role of fundamentals, other factors were also at work in early 2023 (having intensified in late 2022). This negative impact of factors is related in particular to the fact that demand has started to shift from commodity-intensive goods to services due to the full easing of pandemic containment measures (Figure 2.2), which has further affected trade momentum. This shift in consumption is also consistent with the observed moderation in global manufacturing activity. Since the manufacturing sector is very intensive, the sharp slowdown in production is associated with a more pronounced decline in world trade than in global GDP. Manufactured goods account for 81% of total world imports of goods and services, but only 20% of global value added (with services accounting for 19% and 80%, respectively). The driving forces of these changes can be illustrated by the structural decomposition of world trade, which scientists developed based on the vector autoregression model (Figure 2.4).

<sup>141</sup> Attinasi M. G., Boeckelmann L., Hespert L., Linzenich J. and Meunier B. Global trade in the post-pandemic...

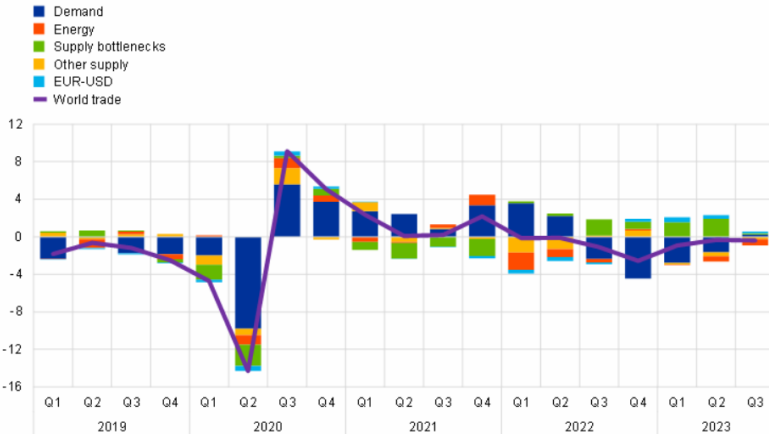


Fig. 2.4. Shock decomposition of world trade growth (quarterly percentage change in deviation from the average for 2012-2019, pps)<sup>142</sup>

The initial trade collapse is explained by a sharp drop in demand in the first half of 2020, followed by a period of demand growth, somewhat dampened by supply bottlenecks that emerged throughout 2021. The shock from supply bottlenecks turned from negative to positive in early 2022 as supply disruptions gradually normalized, supporting trade even as demand began to decline and the energy supply shock set in. The fall in domestic demand then caused a marked slowdown in global trade, especially in the fourth quarter of 2022. The demand contribution to global trade gradually recovered throughout 2023, with pandemic-related factors generally normalizing.

Global trade growth is projected to recover over the forecast horizon, with trade flows expected to be more in line with fundamentals (Figure 2.3) and closer to the long-term trend (Figure 2.1A). Now that supply bottlenecks and the inventory cycle have generally returned to normal, inventory accumulation is expected to develop in a manner more consistent with historical norms. Moreover, the available survey data on service sector

<sup>142</sup> Attinasi M. G., Boeckelmann L., Hespert L., Linzenich J. and Meunier B. Global trade in the post-pandemic....

output point to a significant slowdown compared with the strong growth recorded in the first half of 2023, suggesting that the momentum from post-pandemic reopening has largely dissipated<sup>143</sup>. This means that the structure of consumer demand is gradually normalizing and the return to service consumption is almost complete – as also evidenced by the consumption of goods and services, the volumes of which are approaching pre-pandemic levels (Figure 2.2). The Eurosystem staff macroeconomic forecasts from December 2023 foresee a gradual recovery in world trade growth (excluding the euro area) to 3.0% in 2024 (from 1.1% in 2023), which is broadly in line with the long-term unitary elasticity of world trade to world GDP<sup>144</sup>. This also implies that trade levels will gradually return to pre-pandemic levels by the end of the forecast horizon (Figure 2.1, A). The trade forecasts are also consistent with those of similar institutions, which point to a normalization of the outlook for world trade from 2024. For example, in 2024, the annual growth rate of world trade is forecast by the International Monetary Fund (IMF) to be 3.5%, the OECD to be 2.7%, the World Trade Organization (WTO, trade in goods only) to be 3.3%, the European Commission to be 3.0% and the World Bank to be 2.8%<sup>145</sup>.

The balance of risks to global trade is therefore assessed as broadly balanced. Trade in goods and services could continue to grow, in particular due to the increased use of digital services, including those related to artificial intelligence. At the same time, the implementation of policies aimed at restoring production (especially of critical goods and technologies) in the context of increasing trade tensions, in particular between the United States and China, could reduce trade volumes. Overall,

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<sup>143</sup> Attinasi M. G., Boeckelmann L., Hespert L., Linzenich J. and Meunier B. Global trade in the post-pandemic...

<sup>144</sup> *ibid*

<sup>145</sup> IMF, 2023. World Economic Outlook: Navigating Global Divergences. October 2023. <https://www.imf.org/en/Publications/WEO/Issues/2023/10/10/world-economic-outlook-october-2023>.

the fragmentation of trade along political spheres of influence could negatively affect trade, even as cyclical factors normalize.

### 2.3. Changing the structure of international trade under the influence of the pandemic

2020 saw one of the largest declines in trade and output since World War II. The decline in both global industrial production and merchandise trade in the first half of 2020 was similar to the declines that occurred during the global financial crisis (Figure 2.5). However, global production and merchandise trade began to recover in 2020. Trade continued to grow strongly in 2021, offsetting some, but not all, of the losses accumulated as a result of the steep declines observed earlier.

Initial expert forecasts at the start of the pandemic of a double-digit decline in global merchandise trade in 2020 have not materialized. Since around mid-2020, global trade has recovered at an extremely rapid pace to pre-pandemic levels.

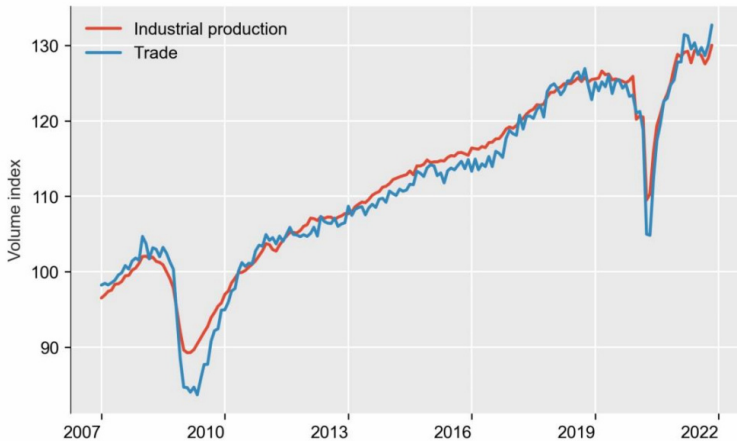


Fig. 2.5. World trade and industrial production volumes seasonally adjusted (2010=100)<sup>146</sup>

<sup>146</sup> OECD, 2022. International trade during the COVID-19 pandemic: Big shifts and uncertainty. <https://www.oecd.org/coronavirus/policy-responses/international-trade-during-the-covid-19-pandemic-big-shifts-and-uncertainty-d1131663/>

However, the relatively positive performance of overall international trade is characterised by significant differences across products, economic sectors and geographical structure of trade. A sharp decline in international trade volumes in early 2020 was not uniform across all products, and the growth and post-pandemic period have also been unevenly reflected in different components of the global trading system. The impact of the pandemic on trade in specific goods, services and the geographical structure of trade has been diverse, with the crisis in individual sectors and supply chains being much deeper than during the global economic crisis of 2008-2009.

In 2020, trade in services declined more significantly and recovered more slowly than trade in goods (Figure 2.6).

However, it is worth noting that trade in tourism services fell sharply, but trade in digital services, such as telecommunications and information technology services, was successful. Overall, the value of services exports in OECD countries fell by -16.7% in 2020, twice as much as the value of goods exports, which fell by -8.2%. This was also one of the factors that ensured relatively large adjustments in output compared to trade, as services account for a larger share of the economy than their weight in international trade.

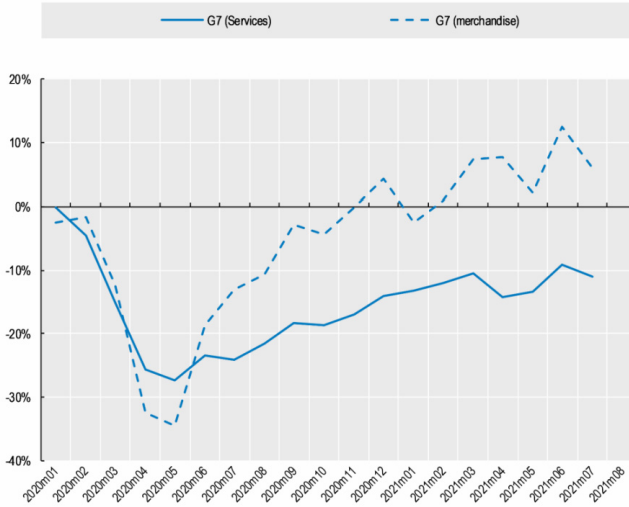


Fig. 2.6. Exports of services and goods of G7 countries compared to the same period in 2019.<sup>147</sup>

Trade in some goods and services has declined sharply, while trade in others has increased significantly. The product structure of trade in goods has changed significantly: trade in goods such as fuel, aircraft, cars, mechanical equipment, and steel has declined, while trade in other goods has increased (e.g., protective equipment and pharmaceuticals, food, household appliances, and electronics) (Figure 2.7).

As the figure shows, the fluctuations in the impact of the pandemic on trade across product categories in 2020 were not only larger than during the global financial crisis, but also larger than at any other time in the past two decades. The changes in trade patterns caused by the COVID-19 pandemic in one year were of the same magnitude as those typically observed over 4–5 years.

<sup>147</sup> OECD, 2022. International trade during the COVID-19 pandemic: Big shifts and uncertainty. <https://www.oecd.org/coronavirus/policy-responses/international-trade-during-the-covid-19-pandemic-big-shifts-and-uncertainty-d1131663/>

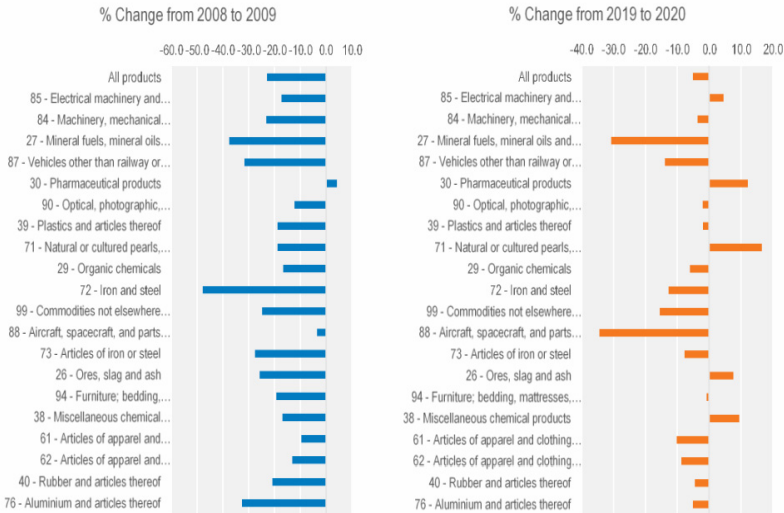


Fig. 2.7. Changes in world trade of the 20 largest commodity groups <sup>148</sup>

Some international supply chains were negatively affected in the early months of the pandemic due to extraordinary demand (for example, for personal protective equipment), but the statistics also show that some key supply chains remained resilient and played an important role in the economic recovery in late 2020. For example, trade in parts and components used in the production of passenger cars declined more slowly and recovered more quickly than trade in finished passenger cars (Figure 2.8). This suggests that demand for cars fell sharply in 2020, and accordingly production and supply also fell significantly. At the same time, corporations and other participants in global networks continued to replenish stocks of components, hoping that demand would soon recover.

<sup>148</sup> Arriola, C., P. Kowalski and F. van Tongeren. The impact of COVID-19 on directions and structure of international trade. OECD Trade Policy Papers. 2021. No. 252. OECD Publishing, Paris, <https://dx.doi.org/10.1787/0b8eaafe-en>.

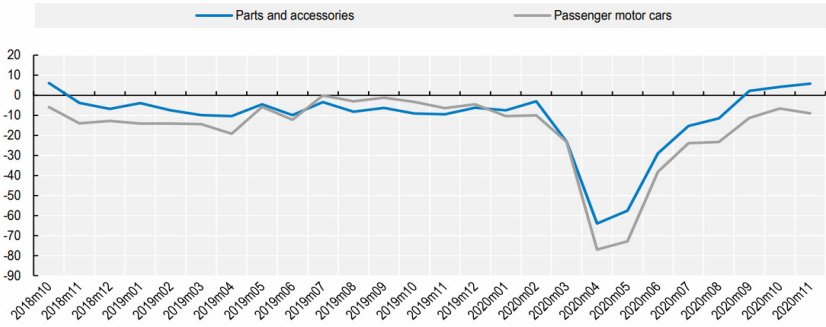


Fig. 2.8. Annual growth rate of exports of passenger cars, automotive parts and accessories (% to the previous year)<sup>149</sup>

Another example is the semiconductor industry, where supply shortages have caused disruptions in downstream sectors of the value chain during the COVID-19 pandemic. Statistics indicate that the semiconductor trade is expanding rapidly overall. In 2020, the export value of the top 10 producers of this product increased by 11.5% compared to 2019, and in January-April 2021 it increased by 26.3% compared to the same period in 2020. While some leading suppliers previously had negative export growth rates, the situation improved in 2020 and the growth rate became positive over the year.

Overall, the cumulative value of semiconductor exports by the top ten exporters during the pandemic, from January 2020 to April 2021, was 17.3% higher than would normally be expected based on 2019 trends<sup>150</sup>.

Asia became the center of supply chain development in 2020, with demand for goods from China expanding significantly. The distance traveled by imported products also continued to increase in 2020, largely as China and other Asian countries filled supply gaps due to lockdowns and

<sup>149</sup> Arriola, C., P. Kowalski and F. van Tongeren. The impact of COVID-19 on directions....

<sup>150</sup> Arriola, C. Efficiency and risks in global value chains in the context of COVID-19. URL: [https://www.oecd-ilibrary.org/economics/efficiency-and-risks-in-global-value-chains-in-the-context-of-covid-19\\_3e4b7ecf-en](https://www.oecd-ilibrary.org/economics/efficiency-and-risks-in-global-value-chains-in-the-context-of-covid-19_3e4b7ecf-en).

changes in demand. These developments occurred in the context of significant challenges to the functioning of the international transport sector.

China's manufacturing output fell sharply in January 2020, but it recovered much faster than production in other parts of the world. This helped meet demand from other countries for household appliances and certain medical products and led to a sharp recovery in exports. Manufacturing in the United States and the eurozone recovered later, and the gap with pre-pandemic output was not closed in 2021. While import dynamics in the eurozone are closely linked to manufacturing, imports in the United States grew more than industrial production, suggesting that there are important macroeconomic factors contributing to this imbalance. The United States' aggregate export gap has been negative for a long time and was around 8% in November 2021, while the import gap was closed in May 2021 and was seen growing at 1.8% in November, as imports significantly exceeded pre-pandemic levels.

Emerging Asia's exports have been growing since China's recovery, although not at a similar pace. Latin America has managed to maintain some of its pre-crisis export volumes, largely driven by primary products. But Africa and the Middle East have recovered much more slowly, with production and exports lagging far behind pre-pandemic trends, while imports have remained at their previous levels for a long time. As a result, China's share of global exports rose from 12% in December 2019 to 15% in January 2021, before declining to 13% in November 2021. As China's economy recovered relatively early in 2020, China's share of global imports rose sharply in 2020, but then declined as imports from other countries also began to recover over time.

The narrowing of trade gaps has also been uneven across product categories. Of the 10 most popular pre-pandemic commodities, only four have seen a significant reduction in their trade gaps by the end of April 2021. Precious metals and stones, as well as pharmaceuticals, which have seen increased demand worldwide, have seen significant increases in trade volumes during the pandemic, rising by 23% and 16% respectively in July 2021 compared to the same period in the previous year. Trade in electrical machinery, electronic equipment and plastics has seen a decline in negative gaps since mid-2020, while in October 2020 and February 2021, respectively, there was a simultaneous increase in trade volumes (due to increased consumer demand) and an increase in prices for these commodities. In contrast, the trade value gap in mineral fuels and oils in 2021 was still -21%, and the gap in the value of trade in cars and organic chemicals also remained negative (-8.4% and -1%, respectively). Some of the growth in the value of trade was due to price increases, so the positive dynamics of trade in not all commodity groups in Figure 2.9 is related precisely to the increase in the volume of trade in goods in physical terms.

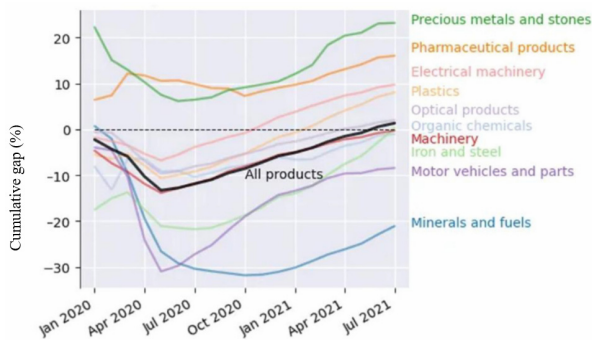


Fig. 2.9. Gap in total trade value during 2020-2021 for the 10 most popular products in 2019 <sup>151</sup>

<sup>151</sup> OECD, 2022. International trade during the COVID-19 pandemic...

Maritime shipping is central to trade in goods. More than 85% of EU imports from China, including iron and steel products, furniture and bedding, toys, games and sports equipment, are transported by sea. Moreover, even for goods such as electronic and optical products, which are sometimes delivered by air, the share of deliveries by sea exceeds 40%<sup>152</sup>.

International container shipping, a vital part of global supply chains, continued to recover in late 2020 and into 2021. However, both bulk and container freight rates began to rise from mid-2020 and by mid-2021 had reached their highest levels since the global financial crisis. Record-high freight rates have supported shipping companies' revenues and profits. Container freight rates grew particularly rapidly throughout 2021, but towards the end of the year, forward rates were lower than spot prices, suggesting that the negative impact of the pandemic had eased.

Although crude oil prices started to rise after reaching a pandemic-induced trough and caused inflationary pressures, this was not the main reason for the large-scale increase in sea freight rates. First, the increase in sea freight rates began despite very low fuel prices in the second quarter of 2020, which were at levels last recorded in the early 2000s. Second, although crude oil prices returned to 2018-2019 levels in 2021, shipping costs are much higher than in the pre-pandemic period. This suggests that vessel capacity constraints, insufficient containers available at the right port at the right time, and bottlenecks in sea and coastal logistics have been the main factors driving the increase in sea freight rates. This growing

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<sup>152</sup> OECD, 2022. International trade during the COVID-19 pandemic...

pressure on sea freight rates has also been contributed to by the ongoing and regionally uneven recovery of air freight<sup>153</sup>.

In the European Union, the COVID-19 pandemic has had a more negative impact on trade volumes in products traditionally transported by sea than in goods traditionally exported by air. European Union exports recorded the smallest negative gaps or the largest positive gaps in trade in products traditionally exported by air (precious metals, optical instruments, pharmaceuticals and electronics). The largest negative gaps were recorded for products not normally exported by air, such as mineral fuels (99% exported by sea), vehicles (85% by sea and another 10% by rail) or plastics (77% by sea and only 17% by air)<sup>154</sup>.

International trade volumes recovered significantly in 2021 after a sharp decline in 2020. Despite the strong growth in global trade flows, the accumulated losses had not yet been recovered by the end of 2021, but the gap was expected to narrow in the first quarter of 2022. While overall trade flows are now above pre-pandemic levels, the impact of the pandemic on trade by specific goods, services and trading partners is very diverse and poses threats to the functioning of individual economic sectors and supply chains. At the end of 2021, significant imbalances remained between trading partners and products, including a widening merchandise trade surplus in Asia and a widening merchandise trade deficit in the United States, as well as in Africa.

It is currently difficult to assess which of the structural changes that have taken place in 2020 and 2021 will be short-term and which will lead to long-term shifts or require long-term adjustments through policy

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<sup>153</sup> *ibid*

<sup>154</sup> OECD, 2022. International trade during the COVID-19 pandemic...

instruments. According to expert forecasts, the significant shift in consumer spending towards durable goods, as well as the decline in demand for services that require personal interaction, is unlikely to persist in the long term. On the other hand, it can be expected that the significant momentum towards large-scale digitalization, which has been observed in both the professional sphere and personal life, will have a lasting impact on the structure of demand for products and services and the way international trade transactions are conducted.

The unprecedented heterogeneity of changes in trade flows across products, origins and destinations suggests high uncertainty and adjustment costs for national economies, and provides additional incentives for consumers, companies and governments to adopt new or intensify existing risk-reduction strategies. Some firms are forced to review the resilience and reliability of their supply chains and may decide to shorten the distance from factories to consumers or to internalize larger segments of their value chains within their own corporate structures (e.g., a subsidiary supplies components rather than an external firm). This may contribute to the resilience of some supply chains, but it may also have negative impacts on productivity and may not necessarily enhance the systemic resilience and stability of the global economy.

## **2.4. Growth of international trade and supply chains in the global market after the pandemic**

Two years of global pandemic have led to a significant decline in international trade, and the pre-crisis supply chain structure has become unstable, affecting all regions of the world. Emerging economies have suffered the most economic losses due to the restrictions on business activity caused by the pandemic. Countries that had invested in joining the international value chain, producing textiles, machine parts, electronic components and agricultural products, have found themselves in a difficult situation during the pandemic. Bananas have piled up in seaports due to a shortage of containers and cartons; auto parts manufacturers have failed to fulfill service agreements due to late arrival of components to assembly plants; and new micro-enterprises in e-commerce have struggled due to increased transportation costs.

But a crisis can also be a catalyst for change, and the sheer scale of this pandemic presents an unprecedented opportunity for reform. Large companies, recognizing the fragility of their production processes, have been forced to rethink their operations. Managers at all levels should consider spreading risk across multiple production sites, increasing the number of component suppliers, reducing the distance between production and assembly plants, and bringing production closer to customers.

At the beginning of the pandemic, factories in many parts of the world were idle due to quarantine measures and staff shortages, while transportation operations slowed significantly due to increased cross-border restrictions, port closures, and other logistical disruptions. The global manufacturing model, based on remote suppliers operating on a just-in-time delivery model, has proven ineffective in the face of pandemic

disruptions. Shortages of pandemic-fighting supplies such as face masks, ventilators, and other essential equipment have led to a recognition of the need to rethink the production and distribution model that was overly dependent on foreign manufacturers and suppliers<sup>155</sup>. However, as the pandemic spread, global value chain operations have adapted to new challenges. Value chains with manufacturing processes located in East Asia have rebounded relatively quickly to meet the growing global demand for medical products and home office equipment<sup>156</sup>.

As global trade rebounded from the initial impact of the pandemic, new challenges emerged for global value chains. In 2021, value chains proved ill-equipped to meet the sudden surge in demand due to below-average investment levels and as operations continued to face supply and logistics disruptions due to repeated lockdowns. Port congestion, increased shipping times, and container shortages along some major shipping routes increased trade costs and made value chain operations more difficult through 2021. In addition, a global semiconductor shortage significantly impacted global manufacturing, particularly in the automotive and electronics sectors. However, by the end of 2021, as the global economy stabilized, many of the challenges affecting global value chains began to abate<sup>157</sup>.

Despite the challenges posed by the pandemic, the restructuring of global production processes has been less widespread than initially expected and has largely followed long-term trends driven by technological change (robotics, automation and digitalization); increasing

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<sup>155</sup> Gereffi G. What does the COVID-19 pandemic teach us about global value chains? The case of medical supplies. *Journal of International Business Policy*. 2020. Vol. 3(3). P. 287–301.

<sup>156</sup> Brenton P., Ferrantino M. J. and Maliszewska M. *Reshaping Global Value Chains in Light of COVID-19: Implications for Trade and Poverty Reduction in Developing Countries*. World Bank. Washington, 2022.

<sup>157</sup> *Global Value Chain Development Report 2021: Beyond Production*. WTO. URL: [https://www.wto.org/english/res\\_e/booksp\\_e/00\\_gvc\\_dev\\_report\\_2021\\_e.pdf](https://www.wto.org/english/res_e/booksp_e/00_gvc_dev_report_2021_e.pdf).

protectionism and regionalization; and the need to achieve sustainable development goals. Global efficiency and cost-cutting strategies remain a key objective for global companies. Economies of scale, geographic location of resources, long-term investments in production capacities and the significant investments required to create new trade and logistics infrastructure can make significant changes to current global production models costly. There has been much discussion about reshoring and non-shoring, but there is little evidence to suggest systemic changes in the organization of global production. On the contrary, the early successes of East Asian economies in mitigating the economic consequences of the pandemic may have led to greater dependence in global value chains on manufactured goods originating in East Asia.

Evidence that offshoring practices persist is found in the latest European Union trade statistics. On average, around 70% of imports of intermediate inputs for the European Union's manufacturing industry come from the European Union, while East Asia accounts for around 15%. These figures vary considerably across sectors. For example, the motor vehicle industry is highly localized in the European Union, with around 85% of trade in intermediate inputs originating from Member States. In contrast, the communications equipment sector is much more dependent on offshoring, with around 45% of trade in intermediate inputs originating from Member States. The dynamics of the ratio between these two statistics in 2020 and 2021 show the dependence of value chains in the European Union on suppliers from East Asia (Figure 2.10).

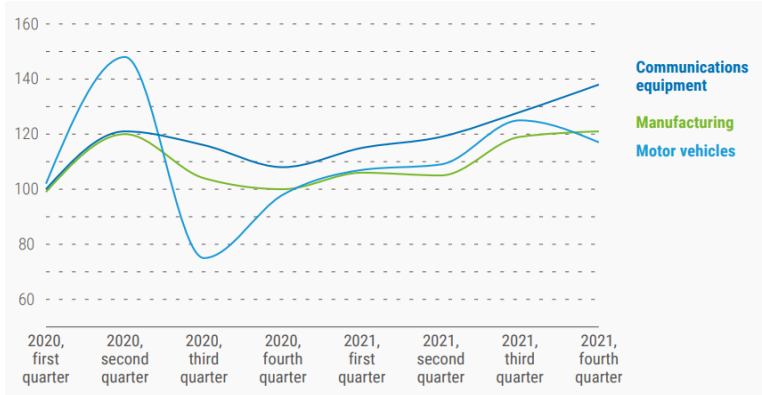


Fig. 2.10. Ratio of intermediate receipts from East Asia to receipts from the European Union (2019=100%)<sup>158</sup>

This dependence has increased during the pandemic and by the fourth quarter of 2021 was on average around 20% higher than the pre-pandemic level in 2019 (except for the automotive sector in the third quarter of 2020, which reflects backorders). This trend is observed both in sectors that already rely on suppliers from East Asia (e.g. communications equipment) and in sectors with value chains that operate predominantly within the European Union (e.g. motor vehicles).

The pandemic has affected global value chains to varying degrees, largely depending on the configuration of the supply chain, as measured by length and geographical distribution, which provides an assessment of the risks of network reconfiguration.<sup>159</sup> Length is measured by the number of cross-border intermediate production steps; and geographical distribution reflects the degree of participation in production processes in different countries. Network restructuring aimed at increasing resilience can be

<sup>158</sup> UNCTAD, 2022. The Impact of the COVID-19 Pandemic on Trade and Development: Lessons Learned. [https://unctad.org/system/files/official-document/osg2022d1\\_en.pdf](https://unctad.org/system/files/official-document/osg2022d1_en.pdf).

<sup>159</sup> UNCTAD (2020). World Investment Report 2020: International Production beyond the Pandemic. United Nations publication. Sales No. E.20.II.D.23. [https://unctad.org/publication/world-investment-report-2020\\_](https://unctad.org/publication/world-investment-report-2020_)

traced as a broad diagonal shift from long and concentrated configurations to short and distributed configurations. This shift is possible through reshoring or near-shoring (reducing exposure to length) and diversification (reducing exposure to geographical distribution). The most vulnerable sectors include value-intensive industries (e.g. automotive, electronics, machinery and equipment, textiles and clothing), which account for around 20% of new investment across all sectors, but almost 50% if we consider investment in manufacturing alone. They tend to be the backbone of industrialization strategies in emerging economies and play a larger role in international production and development than their size might suggest. The move to reconfiguration of the production network in these industries could have important development implications.

Within the medium-impact cluster, two groups (food and beverages; and chemicals) are characterized by long but regionally diversified production networks. These are regional processing industries, typically organized into regional value chains, that replicate at a local scale the long and vertically specialized global value chain model. The other group has shorter and more concentrated global supply chains, in which operations are distributed but the bulk of the value is shared among a few locations. This structure corresponds to more knowledge-intensive industries, such as pharmaceuticals, as well as service industries, which are characterized by several high-value-added centers and many operational spokes. Low-impact industries are either advanced industries that depend on natural resources, leading to dispersed production (e.g. extractive and processing industries and agro-based industries), or proximate services with lower value added that are important for local operations or delivery (e.g. service industries such as transport and logistics and retail and wholesale). These

activities tend to have short value chains and value added created by location-dependent assets. The set of value chain-intensive industries, i.e. the set most vulnerable to supply chain risks, is also characterized by the highest economic barriers to reusing or restructuring production networks. All of these industries have highly profitable production networks, as also demonstrated by the capital and labor intensity of typical investment projects (Table 2.1).

Table 2.1

Risk levels and corresponding business indicators by industry and economic sector<sup>160</sup>

Risk level	Industry / Sector of the economy	Share of cross-border investments in total value. %		Capital intensity: average investment size. Million USD		Labour intensity: average number of jobs per \$1 million investment	
		2015-2019	2020-2021	2015-2019	2020-2021	2015-2019	2020-2021
High	Automobile	8	5	58	54	4.6	3.9
	Electronics	6	14	45	85	4.3	2.2
	Machine building	1	1	15	12	5.8	5.4
	Textile industry	3	2	16	17	6,7	5,7
Average	Business services	9	17	19	21	3.8	3.4
	Chemical industry	7	6	67	76	1.8	1.6
	Financial services	3	3	25	24	2.6	2.4
	Food industry	3	3	43	42	3.6	3.1
Low	Pharmaceutical	2	3	36	46	2.4	1.8
	Agroindustry	0	0	43	44	5,2	4,3
	Mining industry	4	2	405	208	0,7	1.0
	Transport, logistics	5	5	57	44	1.9	2.2

Capital-intensive industries, such as automobiles and electronics, exploit economies of scale created by concentrated and specialized production centers that optimize operational efficiency and reduce costs. Labor-intensive industries, such as textiles and clothing, exploit different wage rates in different countries to minimize production costs. The

<sup>160</sup> UNCTAD, 2022. The Impact of the COVID-19 Pandemic on Trade and Development: Lessons Learned. [https://unctad.org/system/files/official-document/0sg2022d1\\_en.pdf](https://unctad.org/system/files/official-document/0sg2022d1_en.pdf)

physical movement of fixed assets entails significant costs associated with redundant production sites and financial costs associated with the creation of new capacity, especially for more capital-intensive activities. In general, network restructuring measures to increase resilience expose multinational enterprises in value-intensive industries to significant and potentially disproportionate cost pressures. Some industries that face less extreme cost-benefit trade-offs (e.g. industries characterized by relatively lower investment levels, such as machinery and equipment) are likely to undergo some reconfiguration.

The pharmaceutical industry may also face business and policy pressures to relocate. In general, most industries are unlikely to embark on a systematic and large-scale process of network restructuring in the absence of political pressure or incentives to do so. The question of how much the pandemic has accelerated the reconfiguration of the global value chain is not yet definitively answered by experts, as comprehensive data is lacking. However, based on data from new investment projects, experts have compared the pre-pandemic period (up to 2020) with the pandemic period (2020–2021), and have not found a clear pattern between the two periods<sup>161</sup>. Among high-risk industries, in the automotive sector, the share of new projects and the average size of companies' investments decreased; in electronics, the share of new projects increased and the average size of investments almost doubled. Among medium-risk industries, in the chemical and pharmaceutical industries, the average size of investments increased; a trend likely due to the pandemic demand for pharmaceuticals. Among low-risk industries, in transport, logistics and mining, the average value of investments decreased significantly, and in mining, the share and value of new projects almost halved. Regarding the labor-intensive nature of investments, the general decline in almost all industries (except transport, logistics and mining) may signal worrying consequences for developing countries in terms of job creation through foreign investment.

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<sup>161</sup> UNCTAD, 2022. The Impact of the COVID-19 Pandemic on Trade and Development....

The pandemic has taught both governments and companies valuable lessons on how to make production networks more resilient. Many governments have raised awareness of the risks associated with international dependence. Operations in the value chain are largely driven by a desire for efficiency, but policymakers tend to have broader goals. Supporting domestic production has often been a priority during the pandemic, as evidenced by the number of “buy local” initiatives. The rationale for such policies is to ensure the availability of essential products, as well as to improve employment opportunities domestically. Reshoring can be seen as an appropriate strategy to mitigate the risks associated with over-reliance on foreign suppliers, not only in the context of the global economic shock, but also in the current context of changing geopolitics. In addition, social concerns, such as job creation, have increased during the pandemic, adding to the argument for moving some industries closer to consumers<sup>162</sup>. However, reshoring can lead to efficiency losses for the firm by using less competitive suppliers, thereby reducing international competitiveness. Governments are increasingly trying to combine reshoring policies with nearshoring, involving the realignment of supply chains towards geographically closer countries. Nearshoring can reduce efficiency losses while providing some diversification. Nearshoring can also reduce the risks associated with over-reliance on distant suppliers and mitigate the effects of rising transportation costs. As trade policy increasingly becomes a foreign policy tool, discussions about realigning supply chains to include geopolitically closer countries have become more frequent. Trade tensions between some of the world’s largest economies and rising protectionism were increasing uncertainty even before the pandemic, and the pandemic has created new geopolitical tensions. Strengthening ties with neighboring countries, although leading to a loss of efficiency, can mitigate the risks associated with a possible increase in restrictive trade policies for economic

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<sup>162</sup> Using trade to fight COVID-19: Manufacturing and distributing vaccines. OECD Policy Responses to Coronavirus. 2021. <https://www.oecd.org/coronavirus/policy-responses/using-trade-to-fight-covid-19-manufacturing-and-distributing-vaccines-dc0d37fc/>

and geopolitical reasons. Nearshoring and friendshoring can be supported by trade facilitation and trade agreements aimed at deeper integration between EU members<sup>163</sup>.

Despite the disruptions caused by the pandemic, changes in global supply chain operations have not manifested themselves in the form of short-term emergency restructuring, but will facilitate a longer-term gradual rebalancing. Since sunk costs do not affect new investments, the business case for rebalancing is more robust than restructuring. Greater focus on sustainability will not fundamentally change the way businesses make strategic choices. Location decisions will still be driven by financial costs and benefits. However, rebalancing is likely to change the relative weight of the two sides of the equation, as multinationals are expected to forgo some cost efficiencies in order to achieve greater sustainability. A cost-benefit analysis based on business considerations demonstrates the complexity of reconfiguring multinationals' international production networks in response to the pandemic<sup>164</sup>.

In the short term, supply chain restructuring (i.e. repositioning, relocating, and diversifying) can only become a reality as a result of political pressure or specific policy interventions, and in cases where incentives or subsidies change the economic equation. Any such intervention will prioritize supply chains of essential goods and strategic growth sectors. In the absence of political drivers, most multinational enterprises are likely to focus on improving supply chain risk management practices that do not involve reconfiguring production networks. Thus, the direct impact of the shift to more resilient supply chains on FDI patterns is expected to be limited<sup>165</sup>.

The long-term implications of the search for increased resilience will be more significant. Long-term considerations will be part of a broader

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<sup>163</sup> European Union (2021). Post COVID-19 value chains: Options for reshoring production back to Europe in a globalized economy. [https://www.europarl.europa.eu/thinktank/en/document/ EXPO\\_STU\(2021\)653626](https://www.europarl.europa.eu/thinktank/en/document/ EXPO_STU(2021)653626).

<sup>164</sup> UNCTAD, 2022. The Impact of the COVID-19 Pandemic on Trade and Development....

<sup>165</sup> UNCTAD, 2022. The Impact of the COVID-19 Pandemic on Trade and Development....

transformation process that had already begun before the pandemic, in particular through trends related to technology, policy and resilience. As resilience considerations become part of the driving forces and determinants of investment, it is likely that there will be a gradual rebalancing of international production networks towards higher levels of diversification and regionalisation and, quite possibly, less use of offshoring<sup>166</sup>.

Increasing the resilience of global value chains and trade also depends on well-functioning trade logistics. The pandemic provides several lessons in this area. Disruptions have heightened the need for risk management and preparedness in transport and distribution networks. Prioritizing risk management and preparedness, developing and implementing risk management and business continuity strategies, building strong relationships with key partners (e.g. ports, shippers and inland transport providers) and ensuring visibility into the extended supply network, as well as using digital technologies, data and predictive models to anticipate and plan for change, are increasingly recognized as critical to ensuring more resilient and sustainable supply chains<sup>167</sup>.

Therefore, rationalization of the product range, reduction of process complexity and increased dependence on cyclical supply chains, which are usually more localized and reliable, have also become effective means of overcoming the negative impact of the pandemic on supply chains. The pandemic has accelerated the automation of logistics activities, reducing its vulnerability to future epidemiological risks. Logistics complexes and equipment have become more adapted to functioning in pandemic conditions, taking into account the need to ensure social distancing and sanitation.

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<sup>166</sup> *ibid*

<sup>167</sup> UNCTAD (2021). Review of Maritime Transport 2021 (United Nations publication. Sales No. E.21. II.D.21. <https://www.un-ilibrary.org/content/books/9789210000970>).

## CHAPTER 3. SPECIFICS OF INTERNATIONAL TRADE DEVELOPMENT UNDER THE INFLUENCE OF INDUSTRY 4.0

### 3.1. The concept of Industry 4.0 and its impact on the economic development of countries

Industry 4.0 represents the fourth industrial revolution, which is fundamentally changing traditional manufacturing processes through the introduction of digital technologies and automation. This approach aims to integrate the physical and digital components of production through cyber-physical systems (CPS) and the industrial Internet of Things (IoT). Industry 4.0 increases the flexibility and adaptability of manufacturing systems, allowing companies to respond quickly to market changes and compete more effectively on a global scale.

Key aspects of Industry 4.0 include artificial intelligence, additive manufacturing, robotics, cloud computing and other advanced technologies that enable more efficient and interconnected production management. This not only allows enterprises to make more informed decisions, but also promotes the efficiency of all production activities, which in turn expands opportunities for international trade and attracting foreign investment.<sup>168</sup>

Industry 4.0 was initiated in Germany as a strategy to support and develop the industrial sector in a globalized world. Due to its advantages, this approach is rapidly spreading around the world, becoming a catalyst for the transformation of industrial production at a global level. The Fourth Industrial Revolution, also known as Industry 4.0, is the next stage in the

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<sup>168</sup> Tim Y, Pan SL, Bahri S, Fauzi A. Digitally enabled affordances for community-driven environmental movement in rural Malaysia. *Information Systems Journal*. 2018. Vol. 28 (1). P. 48-75

development of industrial production systems. It is based on the integration of the latest technologies such as the Internet of Things (IoT), artificial intelligence, big data, cyber-physical systems and cloud computing. Industry 4.0 aims to create "smart" factories where machines, systems and people communicate with each other in real time, ensuring an extremely high level of automation, flexibility and personalization of production.

Due to Industry 4.0, production systems are able not only to produce products according to individual orders, but also to adapt to changes in demand almost instantly. This allows combining high productivity with an individualized approach, which significantly increases the quality of the final product and meets consumer needs. Thus, the path of development of industrial production systems can be divided into four key stages, each of which contributed to significant technological progress and changes in production methods: (1) the first industrial revolution - mechanization and the beginning of industrial production; (2) the second industrial revolution - electrification and mass production; (3) the third industrial revolution - digitalization and automation of production processes; (4) the fourth industrial revolution (Industry 4.0) – the integration of intelligent technologies and the creation of "smart" production systems.

In the context of the fourth industrial revolution, the economies of most countries are undergoing significant changes due to the introduction of new information and communication technologies (ICT). The basis of this revolution is the intelligent automation of cyber-physical systems with decentralized control and extended connectivity, which provides the functionality of the Internet of Things (IoT). As a result of these changes, classic hierarchical automation systems are reorganized into self-

organizing cyber-physical production systems, which allows for flexible mass production on demand and adaptability to changes in product quantities.

The concept of Industry 4.0 was first introduced at the Hanover Fair in 2011 and has since become a central topic of discussion in the research, academic and industrial communities, especially in Germany. The main idea of Industry 4.0 is to harness the potential of new technologies and concepts, such as the availability and widespread use of the Internet and IoT, the integration of technical and business processes, digital mapping and the virtualization of the real world. One of the key elements of this concept is "smart" factories, which include "smart" industrial production facilities and "smart" products<sup>169</sup>.

An important aspect of the introduction of Industry 4.0 is not only digitalization, but also the need to find new opportunities to increase the profitability of industrial production, since traditional methods are almost exhausted. For example, production costs have decreased significantly due to the introduction of "just-in-time" methods, lean production concepts, as well as outsourcing production to countries with lower costs. In this context, Industry 4.0 offers promising solutions that can contribute to a further reduction in production costs by 10-30%, logistics costs by 10-30%, and quality management costs by 10-20%<sup>170</sup>.

Thus, Industry 4.0 is not only a new stage of technological development, but also an economically viable strategy that allows optimizing industrial production in the conditions of the modern global

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<sup>169</sup> Rojko A. Industry 4.0 Concept: Background and Overview. *International Journal of Interactive Mobile Technologies*. 2017. Vol. 11(5). pp. 77–90.

<sup>170</sup> Bauernhansl T., Krüger J., Reinhart G., Schuh G. Wgp-Standpunkt Industrie 4.0. *Wissenschaftliche Gesellschaft für Produktionstechnik Wgp e. v.*, 2016. [https://www.ipa.fraunhofer.de/content/dam/ipa/de/documents/Presse/Presseinformationen/2016/Juni/WGP\\_Standpunkt\\_Industrie\\_40.pdf](https://www.ipa.fraunhofer.de/content/dam/ipa/de/documents/Presse/Presseinformationen/2016/Juni/WGP_Standpunkt_Industrie_40.pdf).

economy. Industry 4.0 truly opens up new horizons for industry, surpassing all previous industrial revolutions due to the integration of the real and virtual worlds. It is based on the use of advanced technologies such as artificial intelligence, deep learning, smart factories and automation, which allow creating autonomous systems capable of learning and operating without human intervention.

In addition to the main advantages already mentioned, scientists<sup>171</sup> highlight several other important reasons for adopting the Industry 4.0 concept.

1. Shorter time to market for new products: Thanks to integrated and flexible manufacturing processes, new products can move through all stages of development and manufacturing more quickly, which provides companies with a competitive advantage.

2. Improved customer responsiveness: The use of technology allows you to respond quickly to customer needs, providing personalized products and services, which increases customer satisfaction.

3. The ability to mass produce on demand: Industry 4.0 allows you to produce personalized products on a large scale without significantly increasing the overall cost of production, combining the advantages of mass production and personalization.

4. A more flexible and friendly work environment: introduction of smart technologies and automation of work processes makes work environment more flexible, reducing the burden on employees and increasing their productivity and job satisfaction.

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<sup>171</sup> Rojko A. Industry 4.0 Concept....

5. More efficient use of natural resources and energy: due to smart resource management, energy consumption and waste are reduced, making production more environmentally sustainable.

The Fourth Industrial Revolution is also changing the perception of the limits of human capabilities, encouraging the development of autonomous systems that can independently perform complex tasks previously only available to humans. It is important to note that Industry 4.0 is not limited to automation and robotics, but encompasses a wider range of smart technologies that cover all aspects of production process management<sup>172</sup>. Thus, the global business environment is already actively using these futuristic technologies with high added value, and although the limits of their impact are not yet fully understood, we can already speak of their ability to radically change the economic landscape of the future.

Industry 4.0 is significantly transforming industrial production by virtualizing the physical production environment and facilitating closer interaction between machines and between humans and machines in real time. This is achieved through automation, connectivity, and the application of machine learning, which together improve the interconnection at all stages of the production process and provide a number of advantages for the organization of production. One of the key advantages of Industry 4.0 is the increase in the efficiency of production processes. The widespread use of advanced technologies at different stages of the supply chain helps to optimize it, which leads to time and cost savings, increased productivity, process flexibility and product quality.

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<sup>172</sup> Mohiuddin M., Md. S. Al Azad, S. Ahmed, S. Ed-Dafali and M. N. Hasan Reza. Evolution of Industry 4.0 and Its Implications for International Business. <https://www.intechopen.com/chapters/80058>

This, in turn, strengthens the overall reliability of the company, increases its value and competitiveness in the market.

Industry 4.0 also contributes to the optimization of the value chain by transforming every aspect of the production process: from logistics, management issues, to networks and the overall structure of firms in the network. This allows companies to integrate and interact with different participants in the supply chain more effectively, using up-to-date data in real time. The collection and use of real-time data provides improved internal and external communication, which allows for optimization of processes even in an international context<sup>173</sup>. For example, multinational corporations can significantly speed up the exchange of information between the head office and branches in different countries, which contributes to more effective control over the organization and access to information at any time.

Thus, the impact of Industry 4.0 occurs at every stage of the value chain, ensuring qualitative changes in industrial production (Figure 3.1), which increases the competitiveness of enterprises in both domestic and foreign markets, and also contributes to the acceleration of the country's economic growth.

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<sup>173</sup> Mohiuddin M., Md. S. Al Azad, S. Ahmed, S. Ed-Dafali and M. N. Hasan Reza. Evolution of Industry 4.0....

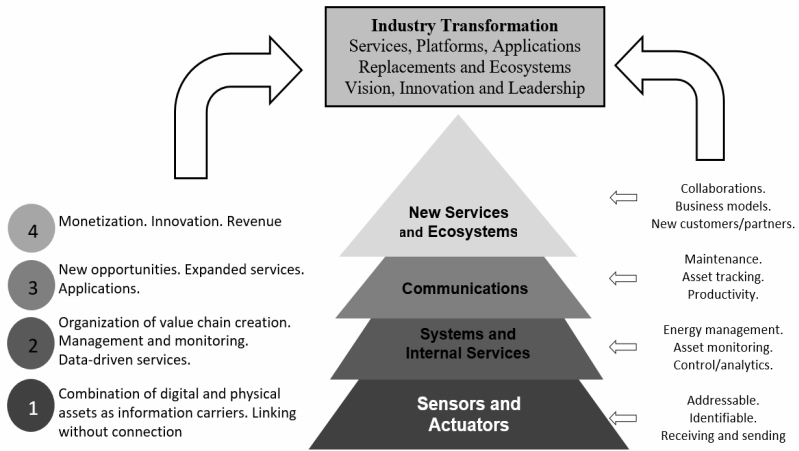


Fig. 3.1. Stages of industrial development under the influence of Industry 4.0<sup>174</sup>

Data plays a central role in improving processes and technologies within Industry 4.0, particularly in the development of artificial intelligence (AI) and automation. When used properly, data becomes a key resource for organizations, allowing them to better respond to customer requests, more accurately predict future needs, and improve production processes.

The main benefits of using data in Industry 4.0:

1) improved responsiveness to customer requests due to data analytics, companies can respond faster and more accurately to changes in demand, adapting their production and logistics processes to meet customer needs;

2) optimization of production methods – data analysis allows you to identify bottlenecks and shortcomings in production processes, which

<sup>174</sup> Rojko A. Industry 4.0 Concept....

helps make decisions about their elimination and contributes to increasing efficiency and reducing opportunity costs;

3) improved management and control – due to the use of adapted software that analyzes production and cost data, companies can more accurately manage their resources, respond quickly to changes and quickly adapt to new conditions;

4) comparison of suppliers and materials – data can be used to analyze the performance of different suppliers and materials, which allows companies to choose the best options for their needs and optimize costs;

5) rapid response to errors and changes – due to constant data collection and analysis, organizations can quickly identify and correct errors in the production process, which reduces risks and improves product quality;

6) adaptation to inventory levels – data helps companies effectively manage inventories, ensuring the required level of materials and products, which reduces the risks of shortages or surpluses.

AI uses data to learn from past mistakes and successes, which contributes to continuous improvement of production processes. Machine learning, a key element of AI, allows systems to automatically adapt to new conditions and perform tasks more efficiently. Data is used to improve interactions between different participants in the supply chain, from suppliers to customers, and between customers and employees. This enables smoother and faster communication, which makes it easier to fulfill orders and adapt to changes in processes. Industry 4.0 promotes the development of vertically integrated smart factories, smart products and intelligent services that cover all aspects of the production process, from logistics to marketing. This vertical network allows for better allocation of

resources and increases the efficiency of the company's work, providing personalized and customer-oriented solutions<sup>175</sup>.

Overall, most companies recognize that Industry 4.0 and its innovations contribute to increased efficiency and profitability, providing competitive advantages in today's marketplace<sup>176</sup>.

Industry 4.0 provides companies with a significant competitive advantage, impacting their profitability through the efficient use of resources and optimization of all stages of the production process. This concept is based on four key components<sup>177</sup>:

1. Vertically integrated intelligent manufacturing systems use deep data integration to rapidly adapt production processes to changes in demand and inventory levels. These systems, driven by cyber production systems (CPS) and smart sensor technologies (SST), provide autonomy and automation to organizations. The goal of vertical integration is not only to efficiently use resources, but also to meet specific customer needs by ensuring flexibility in production. Through such integration, companies can communicate in real time with partners around the world, constantly adjusting their global supply chain.

2. Horizontal integration through a new generation of global value chain networks contributes to the creation of an integrated, transparent value network that provides high flexibility and speed of response to challenges and failures. This model allows companies to achieve better global optimization and efficiency thanks to CPSs that constantly monitor and resolve logistical issues. Horizontal integration allows you to modify

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<sup>175</sup> Deloitte AG. Industry 4.0: Challenges and solutions for the digital transformation and use of exponential technologies. 2014. URL: <https://www2.deloitte.com/content/dam/Deloitte/ch/Documents/manufacturing/ch-en-manufacturing-industry-4-0-24102014.pdf>

<sup>176</sup> Kasim T, Haracic M, Haracic M. The improvement of business efficiency through business process management, economic review. Journal of Economics and Business. 2018. Vol.16(1). P. 31-43.

<sup>177</sup> Deloitte AG. Industry 4.0: Challenges and solutions....

and adapt products to meet customer requirements at any stage of the value chain.

3. End-to-end engineering throughout the value chain covers all stages of the product life cycle, ensuring the integration and coordination of production systems at each stage. This component helps optimize the connection between production systems and product development, which allows adapting faster to changes in market requirements. Deep data integration is the basis of this process, providing accurate and timely information for decision-making at all levels.

4. Acceleration through exponential technologies. The use of the latest technologies, such as artificial intelligence, machine learning, and the Internet of Things (IoT), helps accelerate production processes and increase their efficiency. Exponential technologies allow companies to quickly introduce innovations and adapt to new conditions, which increases their competitiveness in the global market.

Thus, Industry 4.0 allows companies not only to increase efficiency and profitability, but also provides the flexibility necessary to adapt to constantly changing market conditions. This provides a higher level of control and optimization at all stages of production, which ultimately increases the overall competitiveness of the company.

Industry 4.0 gives companies a better competitive advantage. This has a strong impact on the profitability of the company. This is partly due to the cost reduction from the efficient use of resources. In addition, we can see the benefits of Industry 4.0 through its four main components: “vertical network of smart manufacturing systems; horizontal integration through a new generation of global value chain networks; end-to-end

engineering throughout the value chain; acceleration through exponential technologies”<sup>178</sup>.

Vertically integrated smart manufacturing uses deeply integrated data to quickly direct production in a specific direction based on customer demand and inventory levels. Production is controlled by cyber production systems (CPS) and smart sensor technologies (SST), which automate the organization, making it autonomous. The goal of a vertically integrated system is to efficiently use resources and meet specific, individual customer requirements. These advanced systems allow companies to communicate in real time with their supply chain partners around the world, from manufacturers to customers and suppliers, and to continuously adjust their global supply chain.

Horizontal integration through a new generation of global value chain networks is a new value network model that provides integrated transparency, a high level of flexibility for faster response to problems and failures, and promotes better global optimization<sup>179</sup>. Similar to the vertical integration model, horizontal integration works through a CPS to record and continuously solve all logistical problems (traceability, availability, warehouse management and production). Therefore, processes are more flexible at each stage of the value chain, and product modification and adaptation to customer requirements can be made at any level.

The third key characteristic of Industry 4.0 is interdisciplinary end-to-end design across the entire value chain and throughout the entire product life cycle<sup>180</sup>. It consists of developing integrated and coordinated manufacturing systems across the product lifecycle, optimizing the

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<sup>178</sup> Deloitte AG. Industry 4.0: Challenges and solutions...

<sup>179</sup> Deloitte AG. Industry 4.0: Challenges and solutions...

<sup>180</sup> *ibid*

connection between manufacturing systems and product development. The foundation of this component is also the deep integration of data used at every stage of the value chain.

Acceleration through exponential technologies is a key advantage of Industry 4.0, providing flexibility, individualization and cost savings in industrial processes. This is achieved through a constantly expanding range of innovative solutions that allow companies to adapt more effectively to rapid changes in market conditions.

An important aspect of the implementation of Industry 4.0 is the observance of certain prerequisites. Scientists identify three key conditions for the successful implementation of this concept in the industrial production system<sup>181</sup>:

- ensuring a smooth production process even during the transition to new technologies in order to avoid downtime and failures;

- gradual investments are important from the point of view of the fact that most industrial processes cannot be changed by one-time investments, it is necessary to ensure the possibility of gradual implementation of new technologies;

- the implementation of Industry 4.0 requires effective protection of intellectual property and guaranteeing data security, as they become critically important for the functioning of systems.

Despite the complexity and comprehensiveness of the concept of the fourth industrial revolution, three main aspects can be distinguished that make it unique:

- 1) Industry 4.0 covers the entire value chain, which includes not only production, but also all business functions of the enterprise, from suppliers

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<sup>181</sup> Rojko A. Industry 4.0 Concept.....

to customers, which allows for an integrated and efficient organization of all processes;

2) Industry 4.0 involves constant monitoring and control of the condition of "smart" products throughout their entire life cycle, which allows improving preventive maintenance processes and collecting data for analyzing product reliability;

3) Industry 4.0 integrates the Internet of Things into the industrial environment, providing real-time data collection, which creates challenges in processing and analyzing large volumes of data, and also requires an appropriate level of cybersecurity.

Industry 4.0 is not only a technical but also a strategic approach to organizing production processes that affects all aspects of business, providing competitive advantages and increasing efficiency in modern market conditions. In modern industrial economies, productivity growth has slowed down over the past two decades. However, one technological trend that has the potential to restore productivity growth is the fourth industrial revolution, or Industry 4.0. It is characterized by the introduction of technological innovations that replace human decision-making with systems of intelligent interconnected objects. There is a significant development of technologies such as artificial intelligence and 3D printing, which expand the range of new applications and stimulate improvements in core technologies. This trend can significantly change production processes, research and development, business models and organizational structures of companies in many industries.

Industry 4.0 is based on the information and communication technologies of the third industrial revolution, but stands out for its breadth of application, impact on the economic system, speed of development and

the ability to automate intelligent tasks. It provides automation and autonomous decision-making in production, leading to the creation of fully autonomous, rapidly adaptable, self-organizing production facilities and the ability to produce individual products on a mass scale.

The benefits of Industry 4.0 include:

1) flexible mass production, which provides the ability to adapt production processes to changes in demand and produce personalized products without compromising efficiency;

2) real-time optimization of value chains, which provides improved coordination and optimization through the integration of smart technologies and contributes to cost reduction and efficiency improvement;

3) the use of new technologies opens up opportunities for the creation of innovative services and business models.

Industry 4.0 and Logistics 4.0 are shaping a new framework for increasing industrial productivity, surpassing the efficiency of previous industrial structures. These technologies are facilitating the transition from vertical centralized structures to more flexible approaches, where smart technologies are at the heart of all processes. This calls into question the outsourcing and offshoring strategies that were previously key to reducing costs<sup>182</sup>.

It is also worth noting that Industry 4.0 has significantly changed manufacturing processes through the introduction of smart factories equipped with IoT devices and sensors. This allows for the collection and analysis of data in real time, which optimizes production schedules,

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<sup>182</sup> Kohler D., and Weisz J. D. Industrie 4.0, une révolution industrielle et sociétale. Futuribles. 2018. Vol. 424. P. 47-68.

improves quality control and predictive maintenance. Automation and robotics increase efficiency, reduce errors and facilitate faster adaptation to customer requirements, which contributes to increased productivity and customer satisfaction<sup>183</sup>.

One of the key concepts of Industry 4.0 is “mass customization” – manufacturing that allows products to be tailored to individual customer preferences without compromising efficiency. This strengthens companies’ competitive advantages, as personalized products better meet consumer needs<sup>184</sup>.

Another important component is the use of digital twins, which are virtual copies of physical assets or processes. They allow for the modeling, control, and optimization of production systems, which further increases the productivity and efficiency of production processes, opening up new horizons for industrial development<sup>185</sup>.

Industry 4.0 is changing the structure of the workforce and increasing skill requirements. Automation and artificial intelligence technologies have the potential to replace some repetitive tasks, raising concerns about job losses. However, research shows that while some manufacturing processes may be automated, new tasks and opportunities will emerge that require higher levels of skills, such as data analysis, problem solving and creative thinking<sup>186</sup>.

Retraining and upskilling initiatives are essential to address these challenges. Collaboration between industry, government and educational

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<sup>183</sup> Lu, Y., Xu, L. D., & Li, S. Internet of Things (IoT)-Enabled Industrial Automation Systems. *IEEE Transactions on Industrial Informatics*. 2017. Vol. 10(2). P. 1437-1447.

<sup>184</sup> Bretthauer, G., Neumaier, P., & Thoben, K.-D. Industry 4.0 as a Driver for Servitization in Manufacturing Companies. *Procedia CIRP*. 2016. Vol. 47. P. 50-55.

<sup>185</sup> Fawna H. The Impact of Industry 4.0 on the Economy. *International Journal of Science and Society*. 2023. Vol. 5(3). P. 125-133.

<sup>186</sup> The Future of Jobs Report 2018. World Economic Forum. URL: <https://www.weforum.org/publications/the-future-of-jobs-report-2018>.

institutions can provide educational programs and courses that will equip workers with the skills they need to succeed in the digital economy<sup>187</sup>. Lifelong learning is becoming mandatory to adapt to the new requirements of Industry 4.0 and ensure a skilled workforce.

Industry 4.0 creates new opportunities for innovative business models. Servitization, i.e. the shift from selling goods to providing services, is becoming more common. Thanks to the Internet of Things and data analytics, companies can provide value-added services such as predictive maintenance, remote monitoring and personalized experiences<sup>188</sup>. Moving to service-oriented models helps strengthen customer relationships, creates consistent revenue streams, and increases customer satisfaction.

Platform business models emerging from Industry 4.0 bring together different actors such as suppliers, manufacturers and customers, facilitating collaboration, information sharing and co-creation of value<sup>189</sup>. Such platforms create more efficient and flexible business ecosystems, allowing companies to leverage shared resources and expertise.

The introduction of Industry 4.0 technologies contributes to economic growth and increases competitiveness. Increased productivity and efficiency lead to lower costs, allowing companies to offer competitive prices while maintaining profitability. Improved quality control and customization capabilities increase customer satisfaction and

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<sup>187</sup> Bauer, W., Wallner, G., & Voigt, K.-I. Industry 4.0: Managing the Digital Transformation. *International Journal of Innovation Management*. 2018. Vol. 22(08). 1850064.

<sup>188</sup> Porter, M. E., & Heppelmann, J. E. A Manager's Guide to Augmented Reality. *Harvard Business Review*. 2017. Vol. 95(1). P. 46-54.

<sup>189</sup> Parker, G. G., Van Alstyne, M. W., & Choudary, S. P. Platform Ecosystems: How Developers Invert the Firm. *MIS Quarterly*. 2019. Vol. 43(1). P. 321-332.

brand loyalty, which contributes to market expansion and revenue growth<sup>190</sup>.

Industry 4.0 stimulates innovation and opens up new markets and industries. Startups and small businesses can use digital technologies to strengthen their competitive positions in global markets. The digital economy creates opportunities for entrepreneurship, job creation, and economic diversification. Through the use of new technologies, implementation specifics, and underlying principles, Industry 4.0 has a positive impact on a country's economic growth (Figure 3.2). Enterprises that adapt their production processes to the requirements of the Fourth Industrial Revolution increase productivity, production efficiency, and product competitiveness. This, in turn, increases the added value in industry and contributes to accelerating economic growth.

The drive for productivity growth in a context of slow growth has led to the transition to Industry 4.0, which requires a transformation of supply, production and transportation models. Building on the same technologies, Logistics 4.0 offers integrated models where information flows in multiple directions within planning processes, business ecosystems and global value chains. Industry 4.0 opens up new opportunities for the growth of international trade through globalized production networks, involving numerous industrial, commercial and service companies in the value creation process.

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<sup>190</sup> Jürgens, U., Meissner, D., & Rüßmann, M. Industry 4.0 as an Enabler of Circular Economy: A Comprehensive Review. *Procedia CIRP*. 2017. Vol. 61. P. 15-20.

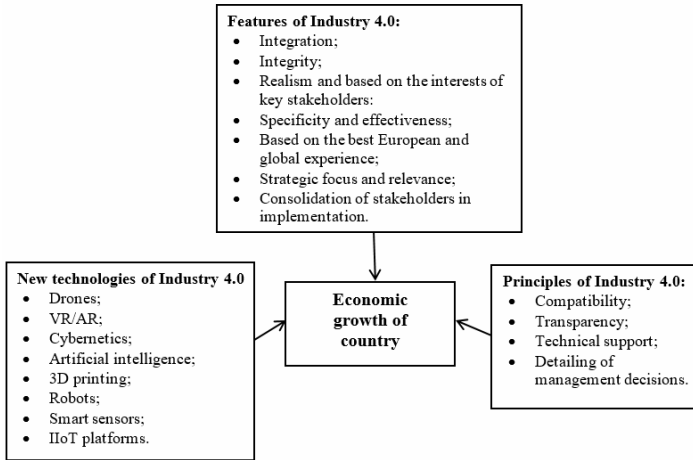


Fig. 3.2. The impact of Industry 4.0 on the country's economic growth<sup>191</sup>

Although Industry 4.0 holds great promise for the economy and society, its implementation also raises concerns about possible negative economic and social consequences. One of the main concerns is the impact on employment and jobs. Scientists believe that robotics and digitalization at all levels could lead to significant job losses<sup>192</sup>. Industry 4.0 will also impact international trade, leading to a restructuring of global value chains<sup>193</sup>. Digital technologies are expected to transform supply chain logistics, increasing the efficiency of production and marketing management over long distances in real time. The differences in the ability of different regions and countries to implement these technological changes could significantly affect the international division of labor and

<sup>191</sup> Fawna H. The Impact of Industry 4.0 on the Economy. *International Journal of Science and Society*. 2023. Vol. 5(3). P. 125-133

<sup>192</sup> Brynjolfsson E., Mitchell T., and Rock D. What Can Machines Learn, and What Does It Mean for Occupations and the Economy? *AEA Papers and Proceedings*. 2018. Vol. 108. P. 43-47.

<sup>193</sup> Tjahjono B., Esplugues C., Ares E., and Pelaez G. What does industry 4.0 mean to supply chain? *Procedia Manufacturing*. 2017. Vol. 13. P. 1175-1182.

employment growth in Europe and other parts of the world.<sup>194</sup> Developing countries may struggle to implement Industry 4.0 if their manufacturing capacity is weak. To do this, they need to diversify their production into technologically advanced sectors.

The state plays a key role in promoting promising sectors, strengthening innovation systems, aligning science, technology and information (STI) policies with other socio-economic policies, and ensuring the participation of various stakeholders in this process. Governments should also promote access to high-quality internet and the development of digital skills in businesses, including small and medium-sized enterprises. In addition, they should create the necessary conditions for the deployment of Industry 4.0 in manufacturing. Such conditions include the development of national strategies for the coordinated implementation of Industry 4.0, the establishment of a multi-stakeholder mechanism to facilitate this process, and the expansion of international cooperation to accelerate the transfer of technology and know-how.

To facilitate the implementation of Industry 4.0, governments should raise awareness among the private sector, stimulate investment and provide financing for these initiatives. Policymakers in developing countries should take into account changes in trade patterns and global value chains, as well as their impact on the workforce. Workers who cannot be trained or retrained and lose their jobs should be supported through strengthened social protection mechanisms.

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<sup>194</sup> Dachs B., Kinkel S., Jager A. Bringing it all back home? Backshoring of manufacturing activities and the adoption of Industry 4.0 technologies. *Journal of World Business*. 2019. Vol. 54(6). P. 101-117.

### **3.2. Industry 4.0 as a factor in the development of international trade in the context of global challenges**

The introduction of Industry 4.0 technologies to manage trade flows across global value chains could well affect industrial location patterns and the international division of labor. From the perspective of developed countries, this impact on location has been mainly seen in terms of the increased opportunities it offers for relocating production located in developed countries. Indeed, logistics 4.0 technologies allow many steps in the supply chain to be reduced or implemented at lower costs. As a result, labor costs, which have been a key driver in the search for comparative advantage, promise to become less important compared to the advantages of proximity to markets. This could contribute to the relocation of labor-intensive activities to developed countries at the expense of developing countries. Moreover, as China has become the world's single largest producer of manufactured goods since the 2000s, there are concerns that due to the rapid adoption of robots and other advanced automation technologies in China, Chinese manufacturers will not adopt the previous model, in which multinational corporations from developed countries gradually moved more labor-intensive parts of the production process to lower-wage countries<sup>195</sup>.

Industry 4.0 opens up both huge opportunities and challenges for the industry and international trade. It helps not only to modernize the production process and self-initiated execution, but also allows managers to take over the management of the production process worldwide by creating a flexible global supply chain.

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<sup>195</sup> Hollweg C. Global value chains and employment in developing economies. Chapter 3. pp 63-81 in Global value chain development report 2019. Technological innovation, supply chain trade, and workers in a globalised world. OECD, World Trade Organisation, Geneva, 2019.

The fourth industrial revolution is changing various types of business activities, considering their main components and their contribution to the business environment. Industry 4.0 is the implementation of cyber-physical systems to create smart factories using IoT, big data, cloud computing, artificial intelligence and communication technologies for real-time information exchange between human-machine and machine-to-machine. communication that rethinks the global value chain.

Scientists identify five key drivers of Industry 4.0: digitalization, optimization and customization of production, automation and adaptation, interaction and collaboration between people and machines, high-value-added offerings, and automatic data exchange and communication<sup>196</sup>. The Fourth Industrial Revolution has contributed to a critical transformation of the international business environment at different stages of the organization, such as human resources, financial systems, management, organizational structure or production processes.

These key drivers are manifested through the introduction of cyber-physical systems, the Internet of Things, smart factories, smart technologies, cloud computing and big data. The latest industrialization architecture is focused on achieving new goals and faces completely different challenges that will intensify in a global perspective. Industry 4.0 offers the opportunity to restructure the manufacturing industry, especially those sectors that are declining in countries with high production costs, and allows maintaining a strong industrial base in developed countries<sup>197</sup>. This may create additional opportunities to stop the negative trends of declining production volumes in developed countries. Industry 4.0 allows national

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<sup>196</sup> Horváth D, Roland Z.S. Driving forces and barriers of Industry 4.0: Do multinational and small and medium-sized companies have equal opportunities? *Technological Forecasting and Social Change*. 2019. Vol. 146. P. 119-132.

<sup>197</sup> Blanchet M. *Industrie 4.0: Nouvelle donne industrielle, nouveau modèle économique*. CAIRN. 2016. Vol. 82. P. 37-53.

economies to respond to key challenges of the global environment by improving competitiveness, ensuring flexibility of production processes and resilience in the face of fluctuations in global supply and demand, and regionalization of production<sup>198</sup>.

Therefore, Industry 4.0 can be seen as a set of solutions aimed at transforming the international industrial sector in order to strengthen competitive positions and increase market share, especially in an unstable business environment. This ambitious goal is achieved through the implementation of smart technologies and factories that allow for effective response to global market fluctuations, increasing competitiveness and ensuring flexible management necessary to implement the changes envisaged by Industry 4.0.

The interconnected network plays a central role in the Fourth Industrial Revolution. The Internet opens up new opportunities for small companies, enabling them to actively participate in global trade and promoting greater inclusion. This allows more products to be exported to wider markets, often by new and small businesses. Research shows that a 10% increase in Internet use in an exporting country increases the volume of goods traded between two countries by 0.4%. A similar increase in Internet use in both partner countries leads to a 0.6% increase in the average value of bilateral trade in one product<sup>199</sup>.

The transformation associated with Industry 4.0 has the potential to lead to significant changes in traditional business models, opening up new ways of creating value. These changes are expected to transform existing

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<sup>198</sup> *ibid*

<sup>199</sup> Papachashvili N. Industry 4.0 and its Impact on the International Trade. IV International Scientific and Practical Conference "Strategic Imperatives of Modern Management" (SIMM-2018). Kiev, Ukraine. 2018. pp. 444-453. <http://ir.kneu.edu.ua/bitstream/2010/24244/1/444-453.pdf>.

value chains. Industry 4.0 impacts three key aspects of the operations of small and medium-sized enterprises (SMEs): value creation, value capture and value proposition<sup>200</sup>.

The Fourth Industrial Revolution will fundamentally change global value chains, transforming not only practices but also the goals of business. The goal is no longer just financial profit, but also the desire to increase efficiency, create and sustain global competitive advantages, introduce new ways of production, stimulate innovation and automation, and modernize production processes. The opportunities provided by Industry 4.0 are transforming modern business levels and activities thanks to its key drivers. A characteristic feature of Industry 4.0 is the emergence of new business models that are actively developing. One such model is the so-called "expectation". This model combines the experience that a company has accumulated through the production processes of its total offer and encourages companies to create consulting services (both for products and processes), as well as to develop new platform models<sup>201</sup>.

Product platformization involves a company using its know-how and manufacturing capabilities to create digital products that meet customer needs using a cloud platform. Process platformization, in turn, reflects the application of smart factory concepts and internal processes to transform these capabilities into a digital platform. Value creation in this case results from an integrated solution that combines digital products with corresponding IT services<sup>202</sup>.

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<sup>200</sup> ibid

<sup>201</sup> Wekinga J, Stöcker M. Leveraging industry 4.0 – A business model pattern framework. *International Journal of Production Economics*. 2020. №225. 107588.

<sup>202</sup> ibid

Thus, "expectancy" demonstrates how Industry 4.0 is changing traditional business models, highlights the complexity of implementing them in organizations, and shows how these changes affect current business activities. The Internet of Things (IoT) is a key element of Industry 4.0, as it provides connectivity to the Internet of devices that use deep learning technologies to transform ordinary machines into smart objects. These devices can perform a variety of functions, such as wear detection, monitoring production process performance, planning production capacity, and managing inventory in real time. Cloud computing also plays an important role by enabling interaction between computers and the Internet, which solves the problems associated with storing large amounts of data, reducing costs and providing the necessary capacity for their storage.

Cyber-physical systems (CPS) are another critical component of Industry 4.0. They bring people, software, and machines together in a single system of interaction, increasing the level of network interaction between them. The main goal of CPS is to exchange key information for strategic decision-making by creating a virtual relationship between production processes, machines, and the virtual world. This allows for real-time monitoring and evaluation of production efficiency, corrections, and rapid strategic decision-making. CPS also facilitates the integration of autonomous machines and collaboration between people and cyber systems, which increases overall production efficiency.

Autonomous robots, equipped with artificial intelligence and deep learning capabilities, are one of the most sophisticated elements of Industry 4.0. They can adapt to the work environment, make changes to improve it, and make decisions aimed at solving problems. This allows

them to partially replace human resources, which can bring significant benefits to companies by increasing productivity and efficiency.

Enterprise Resource Planning (ERP) systems are also the foundation of Industry 4.0<sup>203</sup>. Software such as "System Applications and Products in Data Processing" (SAP) helps companies better manage their processes, increase efficiency, and integrate operations to increase information flows and collaboration between the company and its partners. ERP systems help improve information exchange between departments, streamline workflows, better manage supply chains, and integrate data in real time. This ensures standardization of business processes, improves order management, and accuracy in inventory management<sup>204</sup>.

The introduction of various Industry 4.0 drivers, such as the Internet of Things (IoT), Cyber-Physical Systems (CPS), Internet of Service (IoS), and Enterprise Resource Planning (ERP), is leading to the creation of smart factories. These factories integrate all modern tools and models in their production system, which contributes to the globalization of production and the expansion of the global supply chain. Due to this integration, production activities can be transferred to different countries, but smart technologies allow companies to change the configuration of their production network regardless of national borders and distance.

Smart factories are becoming cost-effective, agile, and resilient, delivering the highest level of efficiency that can be achieved. This new technological prowess is changing the drivers of global production networks, reducing the importance of physical distance, and reconfiguring the global value chain. As a result, a new global division of labor may

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<sup>203</sup> Haddara M, Elragal A. The readiness of ERP systems for the factory of the future. *Procedia computer science*. 2015. Vol. 64. P. 721-728.

<sup>204</sup> Gärvalla M, Ternai K. The impact of industry 4.0 to the ERP approach. *SEFBIS Journal*. 2019. Vol. 13. P. 56-59.

emerge, redistributing production activities across different centers in both developed and emerging markets.

In recent decades, global trade has been characterized by high volatility due to geopolitical instability and natural disasters. In this environment, companies must improve the efficiency of managing production and sales in external markets, developing strategic goals for growth, risk management, and the global supply chain over different time frames: short, medium, and long.

Manufacturing firms need to develop new multi-faceted and interdisciplinary approaches to address the challenges that may arise from supply chain disruptions. The use of advanced technologies such as artificial intelligence and business analytics can be useful for analyzing large amounts of data, tracking supply chain movements in real time, and improving the ability to quickly change its configuration. Increasing competitiveness and achieving success in global markets in the context of the spread of Industry 4.0 depends on the ability of the industry to adapt to the rapidly changing business environment both domestically and internationally.

As a result of the use of various drivers (IoT, CPS, Internet of Service, ERP), smart factories will be created, which integrate all smart tools and models in their production model. This integrated system will contribute to the globalization of production and the expansion of the global supply chain. At the same time, some types of production activities may be transferred to other countries, but at the same time, new intelligent technology will allow companies to change the configuration of their production network, regardless of national borders and distance. As a result, the production model of smart factories becomes cost-effective, flexible to market changes and sustainable, which will reflect the highest

level of efficiency that can be achieved. This new technological prowess will change the drivers of global production networks, reduce the importance of physical distance, and reconfigure the global value chain. A new global division of labor will likely emerge, redistributing production activities, bringing together different centers from both developed and emerging markets.

In recent decades, global trade has been characterized by high volatility due to geopolitical instability and natural disasters. In this environment, companies must improve the efficiency of production and sales management in foreign markets, developing strategic goals for growth, risk management and global supply chain in the short, medium and long term. Manufacturing firms need to develop new multilateral and interdisciplinary approaches to solve problems that may arise from current and future supply chain disruptions. The use of advanced technologies such as artificial intelligence and business analytics can be useful for analyzing large-scale data and tracking supply chain movements in real time, as well as for improving the ability to change the configuration of the supply chain at short notice. Increasing competitiveness and achieving success in global markets in the context of the spread of Industry 4.0 is determined by the industry's ability to adapt to the rapidly changing business environment both within the country and abroad.

Digital technologies significantly reduce the costs of cross-border trade, covering a wide range of aspects such as information costs, transportation costs, logistics, border crossing, operational costs and costs related to trade policy. Thanks to Industry 4.0 technologies, the exchange of reliable information is greatly simplified, which allows you to quickly and efficiently find goods and services, as well as optimal manufacturers. This also facilitates easier establishment of contacts with manufacturers,

verification of their reliability and product quality, conducting trade negotiations, signing contracts, organizing transportation, storage and transshipment of goods, carrying out cross-border clearance and payment transactions.

The World Trade Organization (WTO) and other international organizations are actively supporting solutions aimed at developing digital trade. Comparing trade barriers for goods and services and the geographical directions of trade flows allows us to determine which of them require special attention to increase trade turnover. Analyzing the structure of costs for trade in goods, we can see that transport costs account for the largest share, while border crossing costs are the smallest. According to the data, transport costs account for 39% of total costs, information and transaction costs – 21%, other costs – 12%, logistics costs – 11%, trade policy barriers – 11%, and border costs – only 5%.

In the case of trade in services, the situation is somewhat different: the largest share of costs is occupied by information and transaction costs, and the smallest by border crossing costs. Overall, the share of trade costs for services is distributed as follows: information and transaction costs are 31%, other costs are 23%, transport costs are 18%, trade policy barriers are 14%, logistics costs are 11%, and border costs are only 3%<sup>205</sup>.

Scholars predict that the potential for services production in advanced economies will encourage the lowering of barriers to trade in this segment of post-industrial markets. At the same time, high border costs can be effectively reduced through the use of digital technologies, which should be followed by improvements in logistics, transport, information and transaction policies. Policies applied in this context should

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<sup>205</sup> World Trade Report 2018. The future of world trade: how digital technologies are transforming global commerce. Geneva: World Trade Organization, 2018.  
[https://www.wto.org/english/res\\_e/publications\\_e/world\\_trade\\_report18\\_e.pdf](https://www.wto.org/english/res_e/publications_e/world_trade_report18_e.pdf).

control the protectionist tendencies of emerging economies, while stimulating the development of financial sectors in these markets. In the case of advanced post-industrial markets, further liberalization of services markets is recommended<sup>206</sup>.

The changes that may occur in international trade as a result of the introduction of technologies and innovations in the context of Industry 4.0 will lead to transformations in several aspects:

1) a change in the nature of trade. It will become predominantly digital, which will contribute to reducing trade costs, increasing transparency and security of transactions;

2) an increase in the volume of trade. Reducing costs and new opportunities for companies to create products and services for new markets will lead to an increase in the volume of international trade;

3) changing the commodity and geographical structure of trade. Digital technologies will contribute to the expansion of the participation of new regions and sectors in the global economy;

4) changing the influence of comparative advantage factors. Innovations will affect the structure of trade, reducing the role of traditional comparative advantage factors.

The Internet plays a key role in this transformation, as it greatly expands the possibilities for companies to create new products and services and enter new markets. It reduces the transaction costs associated with interaction, data processing and coordination, which simplifies the participation of companies in global trade. In addition, digital markets provide tools to increase consumer trust in suppliers, reducing the costs of searching and compiling data, which is especially important for international trade.

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<sup>206</sup> Żukrowska K. Technologies 4.0 and their impact on the international trade. Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu. 2019. Vol. 63(4). P. 52-66.

The Internet also facilitates the link between a country's international trade volume and the number of broadband users. Broadband usage continues to grow, positively impacting the trade-to-gross domestic product (GDP) ratio in both low- and high-income countries. For example, over the past five years, the ratio has grown by an average of 1.7 percent in low-income countries and 6.9 percent in high-income countries<sup>207</sup>.

In 2023, the value of Industry 4.0 products and services will increase to \$310 billion, with a compound annual growth rate of 37% (Figure 3.3). The key components of Industry 4.0 that are driving this high growth rate are hardware connectivity, cloud platform and analytics, applications, cybersecurity, and system integration. Enabling technologies include additive manufacturing, augmented and virtual reality, collaborative robots, connected machine vision, drones, and unmanned vehicles.

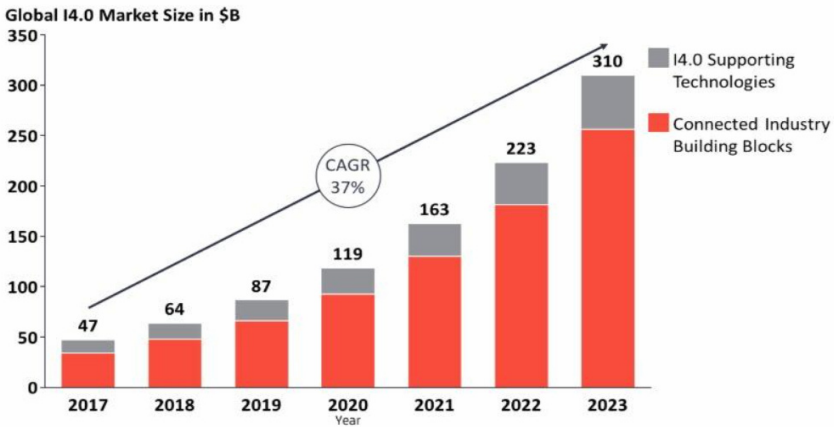


Fig. 3.3. Dynamics of the global Industry 4.0 market size (USD billion)<sup>208</sup>

<sup>207</sup> Khan A. The Emergence of the Fourth Industrial Revolution and its Impact on International Trade. *Journal of Social Sciences and Humanities*. 2024. Vol.11(1). e2024007.

<sup>208</sup> Industry 4.0: Impacts on Trade, Labor and Productivity <https://www.prodensa.com/industry-4-0-impacts-on-trade-labor-and-productivity>.

Information and communication technologies (ICTs), which are used to standardize and automate global trade procedures, are a key topic in discussions on digital trade facilitation. Many regional trade agreements include provisions for the digital exchange of trade-related information and data. An analysis of e-trade activities within these agreements has shown that the adoption of paperless procedures has more than doubled since 2005, and modern agreements often go beyond the WTO Trade Facilitation Agreement, strengthening trade facilitation and the use of ICTs in trade processes, with the possible exception of electronic payments<sup>209</sup>.

According to the Second Global Trade Facilitation Survey and Paperless Trade Implementation Report, the adoption of more sophisticated paperless trade measures is still in its infancy. For example, the establishment of a single digital window for access to trade documents has been implemented in about 60% of national economies, but few countries have fully functional systems. The global adoption rate of cross-border paperless trade is only 33%, which is significantly lower than other measures. The adoption of paperless and cross-border paperless measures increased by 7.8 and 9.3 percentage points, respectively, from 50.8% to 58.6% and from 25% to 34.3%<sup>210</sup>.

There is also a close link between online trade and global trade: modern preferential trade agreements (PTAs), such as the Trans-Pacific Partnership and the Japan-Mongolia Economic Partnership Agreement, contain legal provisions on consumer protection, net neutrality, data localization, cybersecurity, data protection, malware control and intellectual property protection on the Internet. These provisions aim to facilitate e-commerce and ensure cross-border data flows. In the digital

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<sup>209</sup> Duval, Y., & Mengjing, K. Digital trade facilitation: Paperless trade in regional trade agreements. ADBI Working paper 2017, no. 747.

<sup>210</sup> *ibid*

economy, trade is also linked to a number of issues related to Internet policy. From this perspective, the legal wording in trade agreements needs to be adjusted, as issues of cybersecurity, privacy and data protection can both facilitate and constrain the development of e-commerce<sup>211</sup>.

New methods of trade, such as e-commerce, present both opportunities and challenges for traders and policymakers. On the one hand, they enable small and medium-sized enterprises (SMEs) to grow from small domestic players to large global exporters. On the other hand, certain laws and commercial restrictions can prevent e-commerce initiatives from reaching their full potential. Based on discussions with industry associations and surveys of Canadian IT companies specializing in exports, Dong W. et al. note that such firms invest more in human capital than in physical assets due to the increasing role of knowledge-based manufacturing, which provides stable sales growth and an optimistic long-term outlook<sup>212</sup>.

Online platforms play an important role in providing information to exporters, importers, producers and consumers, and in establishing contacts between them. By closing the knowledge gap about the quality of goods and the reliability of their suppliers, platforms help to increase trust and confidence between partners. Many platforms act as intermediaries between buyers and sellers, ensuring that goods match descriptions and protecting buyers from unscrupulous sellers<sup>213</sup>. Through reviews and recommendations, as well as user interaction through feedback, these platforms are becoming increasingly popular and are attracting a wide audience. This consumer behavior provides important competitive

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<sup>211</sup> International trade, internet governance and the shaping of the digital economy. United Nations Economic and Social Commission for Asia and the Pacific. 2017. <https://repository.unescap.org/handle/20.500.12870/1322>.

<sup>212</sup> Dong, W., Fudurich, J., & Suchanek, L. The digital economy: Insight from a special survey with IT service exporters. Discussion paper Bank of Canada. №. 2016-2021.

<sup>213</sup> Tan, S. W. Digital Trade Europe and Central Asia. ADB Working paper. 2017. no. 751.

advantages in a global context, regardless of geographical distance. Many SMEs and organizations from developing countries will play a greater role in international trade as communication costs decrease. Their market share will grow along with the increase in the number and popularity of online platforms that publish prices and product data, facilitating competition in favor of customers. Global online marketplace platforms such as Google, Amazon, Facebook, Apple, Alibaba, eBay, Flipkart and Route connect buyers and sellers from all over the world<sup>214</sup>. Thanks to lower transaction costs, greater transparency, and ease of data search, Internet sites are now the largest and most influential marketplaces for international trade. E-commerce and promotion systems created by large multinational corporations are becoming the backbone of the global trading environment<sup>215</sup>.

Intra-corporate supply chains handle most international flows of goods and services. To do this, the parent and subsidiaries of multinational corporations need perfect coordination and tracking. To function effectively, these companies need to exchange information with terminal operators, transport companies, carriers, customs brokers, insurance companies and other parties involved in these processes. Without timely information, ICT equipment, cloud computing, big data and the Internet of Things (IoT), they would not be able to operate smoothly, and the costs of interaction would be much higher<sup>216</sup>.

Transport and logistics costs remain a significant barrier to international trade. Despite innovations such as container shipping,

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<sup>214</sup> Weber, J., & Gneuss, M. Digital Geschäftsmodellinnovationen: Controlling in der digitalen Transformation, Internationaler Controller Verein. <https://www.icv-controlling.com>

<sup>215</sup> Grochal-Brejdek, M., & Szymura-Tyc, M. The Internationalisation Process of an E-Commerce Entrepreneurial Firm: The Inward-Outward Internationalisation and the Development of Knowledge. *Entrepreneurial Business and Economics Review*. 2018. Vol. 6(4). P. 103-123.

<sup>216</sup> Gravili, G., Benvenuto, M., Avram, A., & Viola, C. The influence of the Digital Divide on Big Data generation within supply chain management. *The International Journal of Logistics Management*. 2018. Vol. 29(2). P. 592-628.

multimodal transportation, GPS and modern modes of transport, these costs still account for a significant portion of total trade costs. The introduction of emerging technologies such as robotics, artificial intelligence (AI), the Internet of Things (IoT) and 3D printing is expected to significantly reduce costs in this area. Companies are already optimizing logistics routes by combining robots with IoT to select storage and transshipment locations. Packaging and co-packing processes can be fully automated, resulting in significant savings. Autonomous vehicles can revolutionize the transportation industry by providing more affordable, fast, safe and reliable transportation. This is especially important for supply chains that operate on a just-in-time basis and require rapid movement of goods.

In addition, the use of 3D printing can significantly reduce transportation and logistics costs, allowing companies to locate production lines closer to customers. Production can be concentrated in one place, where sequential steps are controlled by algorithms, which will reduce the number of components and materials that need to be transported. This will reduce the volume of cargo and the frequency of transportation. The geography of value chains will no longer be dictated by low labor costs in developing countries, thanks to automation, robotization and the use of AI in manufacturing. Transnational corporations are already moving some of their production from developing countries to their own countries to avoid tariffs, barriers and costs of crossing borders. This will also reduce the time it takes to produce and deliver products to consumers, as well as adapt products to individual customer needs<sup>217</sup>.

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<sup>217</sup> Strange, R., & Zucchella, A. Industry 4.0: global value chains and international business. *Multinational Business Review*. 2017. Vol. 25(3). P. 174-184.

Electronic systems based on IoT and blockchain technologies can reduce the costs associated with documenting transactions in accordance with customs regulations, sanitary and veterinary standards, environmental legislation, product quality and licensing. Automated online translation systems will help eliminate language barriers. By automating information management and data processing, companies will be able to avoid conflicting laws, claims and redundant procedures, which will make it easier to detect waste and fraud. Smart contracts will make it possible to automate payments, verification and certification of procedures. Cross-border payments are already becoming a reality thanks to e-commerce and mobile financial services. Payment systems such as Amazon Pay in the US, PayPal in the UK and Alipay in China allow you to avoid banking intermediaries, saving time and money. Digitization of payments eliminates the costs of banking services and currency conversion. The use of cryptocurrencies could further reduce the costs of financial transactions, but this will depend on the monetary policies of countries, the stability of cryptocurrencies, and their acceptance as a form of payment<sup>218</sup>.

Existing exporters and importers will be able to increase their share of cross-border flows, but opportunities will also open up for new entrants who were previously unable to participate in global trade due to high costs. This applies in particular to small and medium-sized enterprises (SMEs), organizations of all sizes from developing countries, and individuals.

In addition to telecommunications and energy infrastructure, the comparative advantages that countries derive from developed trade infrastructure, such as ports, railways and customs terminals, may lose their significance in the future. Economic growth and the development of a

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<sup>218</sup> Brown, G., & Whittle, R. Algorithms, Blockchain & Cryptocurrency: Implications for the Future of the Workplace. Emerland Publishing, 2020

commercial sector that is heavily dependent on digital technologies will require modern digital infrastructure. Computer networks, cloud services and cryptocurrency mining require large amounts of energy. A large market will also become increasingly important in the digital age, as in technology-intensive areas, economies of scale are associated with access to a large information base. The size of the domestic market of large countries provides such opportunities better than the markets of smaller countries<sup>219</sup>.

Countries with strong institutions and fair regulation will become more important in the world of digital trade. Effective institutions that can quickly and effectively implement laws and regulations, such as tax rules, environmental protection, financial transactions, protection of intellectual property, personal data and online privacy, create significant advantages in trade. These factors, together with government initiatives to support Industry 4.0, are an important component of the advantage of developed countries in international trade<sup>220</sup>.

However, demand for gas and oil will support the economies of emerging markets and less developed countries that are rich in mineral resources, especially oil and gas. In the long term, renewable energy sources are expected to become increasingly widespread, and innovations that reduce extraction and waste processing may lead to a decline in reserves of other minerals.

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<sup>219</sup> Agrawal, A., Gans, J., & Goldfarb, A. (Eds.). *The Economics of Artificial Intelligence*. University of Chicago Press, 2019

<sup>220</sup> Androniceanu, A., Kinnunen, J., & Georgescu, I. E-Government clusters in the EU based on the Gaussian Mixture Models. *Administratie si Management Public*. 2020. Vol. 35. P. 6-20

### **3.3. The impact of Industry 4.0 on the structure of international trade**

Structural changes in international trade are occurring due to the increasing digitalization of the economy, as measured by the level of digital intensity of technology use at the company level, as well as by the scale of digital trade at the industry, national or global levels. In general, the digital economy is the application of digital technologies based on the Internet to the production and exchange of goods and services<sup>221</sup>. It is important to note that the digital economy does not exist separately from the traditional economy, as it affects all sectors and types of businesses. Industries are becoming increasingly data-driven, which is leading to changes in their economic structures, blurring the boundaries between industries, and changing the basis of competition.

The level of dependence on digital technologies varies significantly across sectors, allowing them to be ranked by digital intensity. In its 2017 Digital Development Report, the European Commission<sup>222</sup> presented a ranking of digital intensity of sectors based on the proportion of firms in a given sector that use at least seven of 12 key digital technologies (Figure 3.4). According to this ranking, service firms are on average more intensive users of digital technologies than manufacturing firms, although this may be a result of the methodology that focuses on sales rather than production processes. A similar approach was used by the European Center for International Political Economy, which measured data intensity

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<sup>221</sup> Promoting Investment in the Digital Economy. Investment Policy Monitor, special issue, Geneva: UNCTAD, 2017.

<sup>222</sup> Europe's Digital Progress Report 2017, Brussels: European Commission. <https://digital-strategy.ec.europa.eu/en/library/europes-digital-progress-report-2017>

as the ratio of software spending to labor use, resulting in similar rankings<sup>223</sup>.

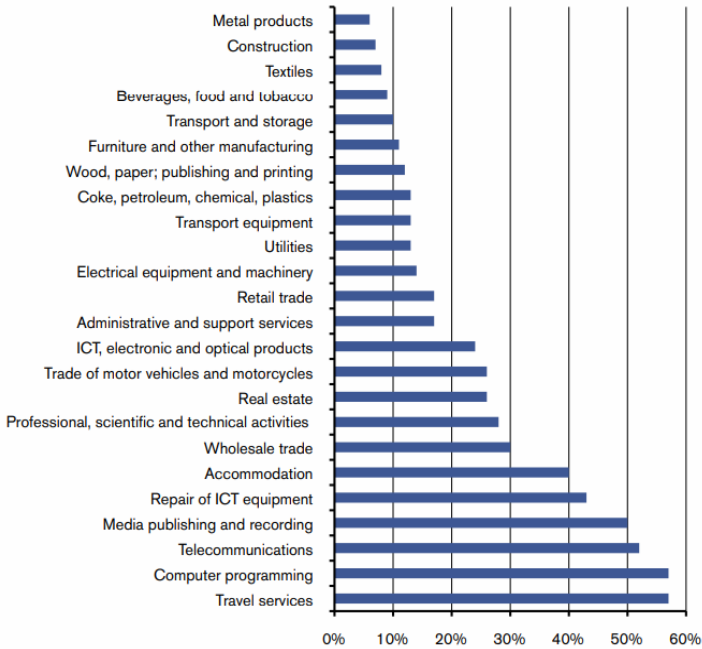


Fig. 3.4. Digital intensity of major sectors of the economy<sup>224</sup>

There is currently no generally accepted classification of digital-intensive sectors that would take into account both the use of digital resources in production and the use of digital technologies in sales. To better understand the level of digitalization in production processes, one can pay attention to the use of industrial robots per employed worker. According to data from the International Federation of Robotics for 2015, the automotive industry is one of the largest users of robots and is likely to benefit significantly from the development of smart robotics. At the same

<sup>223</sup> Ferracane, M. F. and van der Marel, E. Do Data Flows Restrictions Inhibit Trade in Services? Working Paper, Brussels: European Center for International Political Economy, 2018

<sup>224</sup> World Trade Report 2018. The future of world trade: how digital technologies are transforming global commerce. Geneva: World Trade Organization, 2018.

[https://www.wto.org/english/res\\_e/publications\\_e/world\\_trade\\_report18\\_e.pdf](https://www.wto.org/english/res_e/publications_e/world_trade_report18_e.pdf)

time, in sectors that require a high level of dexterity or personal interaction, such as the textile industry or the service sector, jobs are almost non-existent at the current level of technology (Figure 3.5).

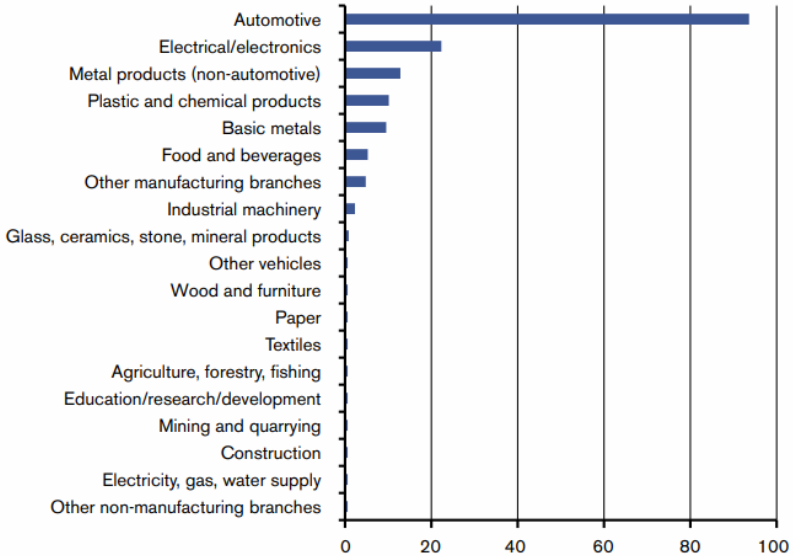


Fig. 3.5. Robot use by industry (number of robots per 1,000 employees)<sup>225</sup>

Digital transformation has given rise to new markets, products and business models, further blurring the distinction between services and goods and may change the way services are delivered, thereby potentially affecting their relative importance. According to UNCTAD, global e-commerce transactions, both domestic and cross-border, were estimated at US\$25 trillion in 2015, up 56% from US\$16 trillion in 2013<sup>226</sup>. E-commerce is dominated by a few large economies, with four countries

<sup>225</sup> World Trade Report 2018. The future of world trade: how digital technologies....

<sup>226</sup> Information Economy Report 2017: Digitalization, Trade and Development. Geneva: UNCTAD, 2017. [https://unctad.org/system/files/official-document/ier2017\\_en.pdf](https://unctad.org/system/files/official-document/ier2017_en.pdf)

(China, Japan, the Republic of Korea, and the United States) accounting for half of the global volume and ten countries accounting for 64% of the total (Figure 3.6).

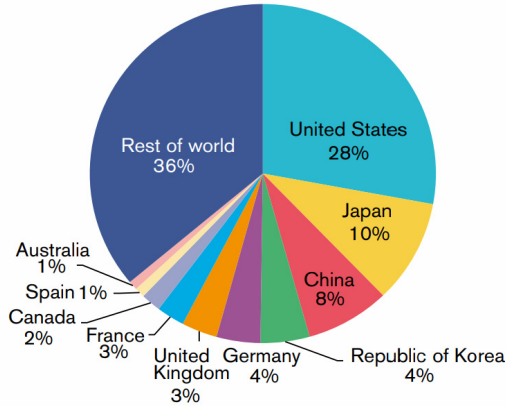


Fig. 3.6. Structure of global e-commerce transactions by value in 2017 <sup>227</sup>

The availability of official data on e-commerce transactions varies considerably between countries, making it difficult to compare them across economies. For example, the U.S. Bureau of Economic Analysis estimates that digital goods and services account for 6.5% of the country's economy. From 2006 to 2016, the digital economy grew by an average of 5.6% annually, 1.5% faster than the overall U.S. economic growth rate<sup>228</sup>. In the European Union, almost a quarter of businesses made sales through e-commerce in 2021 <sup>229</sup>. China is considered the largest e-commerce market in the world, reaching a volume of US\$1,305.2 billion in 2023, which was

<sup>227</sup> World Trade Report 2018. The future of world trade: how digital technologies....

<sup>228</sup> Initial Estimates Show Digital Economy Accounted for 6.5 percent of GDP in 2016. Washington, D.C.: US Bureau of Economic Analysis, 2018

<sup>229</sup> E-sales broken down by web sales and EDI-type sales, 2021 (% enterprises). Eurostat. [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=E-commerce\\_statistics](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=E-commerce_statistics)

double that of 2017 (US\$622 billion), and accounted for over 40% of global e-commerce spending<sup>230</sup>. In the Republic of Korea, domestic e-commerce sales reached US\$94.1 billion in 2023 (17.9% of the country's total retail sales), while cross-border online purchases reached US\$1.9 billion in the same year. Koreans are increasingly shopping on overseas websites because they find it cheaper, even when international shipping and import duties are taken into account. The widespread digital penetration (90% of the population has access to broadband internet and smartphones) is a key driver of the growth of the e-commerce market<sup>231</sup>.

The widespread use of digital technologies leads to a reduction in production and transaction costs, which in turn increases trade volumes and changes its structure. Trade in some goods increases, in others decreases, and in some goods gradually disappears. In recent years, there has been an increase in trade in goods that have high value in terms of transportation, logistics, information, regulation and operations<sup>232</sup>. Trade in time-sensitive goods, such as intermediate goods transferred within supply chains and perishable consumer goods, will also expand. Increased trade transparency and ease of product identification will reduce certification costs, which will contribute to an increase in the share of certified goods in total trade.

The same trend is expected for goods with high information and transaction costs. The reduction of information asymmetry through online platforms, the elimination of intermediaries in transactions, automated transactions and payments implemented using blockchain technology can

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<sup>230</sup> E-commerce in China - statistics & facts. <https://www.statista.com/topics/1007/e-commerce-in-china/#topicOverview>.

<sup>231</sup> Country Commercial Guide. US International Trade Administration. <https://www.trade.gov/country-commercial-guides>

<sup>232</sup> World Trade Report 2018. The future of world trade: how digital technologies....

increase the share of trade in goods that require complex contractual terms. Trade in information technology goods, such as hardware, smartphones, tablets, mobile phones and other knowledge-intensive devices, will continue to grow. Trade in equipment involved in the implementation of modern technologies, such as sensors, cameras and liquid crystal displays, will also increase<sup>233</sup>.

Products that incorporate a digital component (the so-called "digital wrapper") could have a great future. Classic examples include driverless cars, robots with artificial intelligence, smart homes, clothing and shoes with integrated technologies, and radio frequency identification (RFID) technology that allows tracking and adjusting transport routes. Digital components are also being implemented in equipment to improve warehousing efficiency<sup>234</sup>.

Modern technologies such as IoT, cloud computing, big data, 3D printing and online platforms will determine the volume and share of individual products in the structure of global trade. A more diversified offer will meet the growing demand for products that satisfy individual consumer preferences<sup>235</sup>. This process is explained by theories of supply and demand in international trade, such as the similarity of preferences theory, the product diversification theory, and the theory of intra-industry trade<sup>236</sup>. The collection and processing of big data in the "cloud" allows us to classify and use a huge number of elements for mass customization, which shapes consumer preferences. On the other hand, flexible

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<sup>233</sup> Lula, P., Oczkowska, R., Wiśniewska, S., & Wójcik, K. An attempt to estimate the competency gap in the IT sector. *International Entrepreneurship Review*. 2019. Vol. 5(3). P. 95-112

<sup>234</sup> Rymarczyk, J. The impact of industrial revolution 4.0 on international trade. *Entrepreneurial Business and Economics Review*. 2021. Vol. 9(1). P. 105-117

<sup>235</sup> World Trade Report 2018. The future of world trade: how digital technologies....

<sup>236</sup> Rymarczyk, J. Technologies, Opportunities and Challenges of the Industrial Revolution 4.0: Theoretical Considerations. *Entrepreneurial Business and Economics Review*. 2020. Vol. 8(1). P. 185-198.

manufacturing systems with reprogrammed robots allow us to produce small batches or even individual products. An important component of mass customization will be 3D printing, which will allow us to produce personalized products close to consumers based on algorithms obtained via the Internet. This will ensure high product quality, compliance with consumer needs, low transportation and production costs. This, in turn, will reduce most of the costs associated with international trade, which will positively affect its volumes. At the same time, this will change the structure of trade, as the transportation of intermediate goods and finished products will partially decrease along with value chains. However, the flow of raw materials and components is likely to increase, as is the need for 3D manufacturing equipment if it is not available locally. On the other hand, goods that can be digitized are likely to lose their share of trade. For example, books, music on CDs, DVDs, videocassettes, maps, magazines, newspapers and video games are gradually being replaced by electronic services such as e-books, films, magazines and online games.

What could also affect cross-border transfers of finished goods is the sharing economy<sup>237</sup>. As transportation becomes more convenient and cheaper, households are likely to refrain from buying new cars. On the other hand, new demand streams could create hybrid car models that are environmentally friendly, equipped with software and hardware, and driverless cars. We can also expect an increase in the share of small, low-value goods in international trade. High trade costs have made their cross-border movement uneconomical. By significantly reducing these costs, digital technologies will remove a major barrier faced by small and

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<sup>237</sup> World Trade Report 2018. The future of world trade: how digital technologies....

medium-sized enterprises trading relatively small volumes of goods, including international companies, companies from developing countries, and emerging markets. The emergence of new players will stimulate the expansion of international trade, significantly changing its structure.

Digital technologies will reduce the costs of cross-border transfers not only of goods but also of services to the point that they will even determine the provision of services, as they will eliminate the need for spatial proximity between suppliers and consumers. In parallel with the constant growth of their volume and share in the creation of the global product, their importance and share in international trade will increase significantly. The servitization of economic flows across borders will emerge on the wave of the development of the digital structure, thus enabling their electronic online delivery. Numerous services are already provided via Internet Protocol, email and online platforms, allowing companies from different countries to use their comparative advantages<sup>238</sup>. Through communication networks, services can be provided regardless of distance, including sales, marketing, legal, financial, insurance, IT (information technology / information and communication technology), computer, technical and other services related to supporting international trade transactions, as mentioned above. In this area, their share is growing faster than the share of traditional services such as transport and travel, which also use digital services. The use of telerobotics will allow medical services (surgery, psychotherapy) to be provided at a distance; unlike today, when they require personal contact. This contact can be replaced by telepresence or virtual presence in a space different from where the

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<sup>238</sup> *ibid*

individual is actually located. Digital services of this type are already used in various fields of activity, such as business, science and culture. Using this technology, the heads of the parent company of multinational corporations can control their foreign branches or monitor what is happening in their offices when they are not there. Digital technologies support the development of e-learning and the distance delivery of knowledge in the form of courses to tens of millions of people around the world<sup>239</sup>.

The sharing economy could also have a significant impact on cross-border transfers of finished goods. With the increasing convenience and decreasing cost of transportation services, households may begin to forgo purchasing new cars in favor of sharing. This, however, may lead to the emergence of new demand streams, in particular for hybrid cars, environmentally friendly vehicles equipped with advanced software and hardware, as well as autonomous cars. In addition, the share of small consignments of low-value goods in international trade is likely to increase. In the past, high trade costs made the movement of such goods across borders unprofitable. However, digital technologies, which significantly reduce these costs, remove a major barrier for small and medium-sized enterprises, including those from developing countries and emerging markets, allowing them to participate in international trade in small volumes of goods. The emergence of new participants will stimulate the growth of international trade, significantly changing its structure.

Digital technologies are also reducing the costs of cross-border transfers of not only goods but also services, to the point that they are

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<sup>239</sup> Ratten, V. Coronavirus (Covid-19) and the entrepreneurship education community. *Journal of Enterprising Communities: People and Places in the Global Economy*. <https://doi.org/10.1108/JEC-06-2020-0121>.

affecting the very way services are delivered, eliminating the need for spatial proximity between suppliers and consumers. This, in turn, will lead to an increase in the volume and share of services in the creation of a global product and international trade. The servitization of economic flows across borders will gain momentum thanks to the development of digital infrastructure, which will allow services to be delivered online. Many services are already delivered via Internet Protocol, email and online platforms, which allows companies from different countries to exploit their comparative advantages.

Services such as sales, marketing, legal, financial, insurance, IT, computer and technical services that support transactions in international trade can be provided regardless of distance through communication networks. In these areas, the share of services is growing faster than the share of traditional services such as transport and travel, which are also increasingly using digital technologies. The development of telerobotics opens up opportunities for the provision of medical services at a distance, for example, surgery or psychotherapy, replacing personal contact with telepresence or a virtual presence in another space. Digital services of this type are already finding applications in various fields such as business, science and culture. Thanks to these technologies, the heads of multinational corporations can monitor their foreign branches or monitor what is happening in their offices during their absence. Digital technologies also support the development of e-learning and distance learning through online courses for millions of people around the world.

### **3.4. The importance of Industry 4.0 for strengthening competitiveness of countries**

Digitalization, automation and robotics, as well as advanced technologies used in manufacturing and service delivery, are reducing the importance of comparative advantages based on cheap labor in developing countries. On the other hand, the importance of comparative advantages based on highly skilled workers will increase, especially for those whose skills complement new technologies well. The demand for highly skilled workers capable of handling the latest technological processes has already created recruitment and retention challenges in many developing countries in recent years<sup>240</sup>.

The comparative advantage of countries created by well-developed physical infrastructure for trade, such as ports, railways, terminals and customs services, will decrease in importance in the context of the digitalization of cross-border flows characteristic of Industry 4.0, with the exception of telecommunications and energy infrastructure. The latter will remain important for the development of the digital economy and trade. Communication networks, computers, data centers and, in particular, the production of bitcoins will require significant energy resources.

The size of the domestic market, as an important factor of comparative advantage, will become even more important in the digital era. In industries that use digital technologies intensively, economies of scale are mainly related to access to a large information base, which is mainly provided by a large domestic market compared to smaller countries. The digitalization of trade is expected to increase the importance of countries with strong institutions and good regulation. Other factors contributing to trade advantages include sound, clearly formulated and

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<sup>240</sup> Bilan, Y., Mishchuk, H., Roshchuk, I., & Joshi, O. Hiring and retaining skilled employees in SMEs: problems in human resource practices and links with organizational success. *Business: Theory and Practice*. 2020. Vol. 21(2). P. 695-707

stable legal rules in areas such as tax policy, environmental protection, intellectual property protection and data privacy, as well as strong institutions capable of effectively enforcing the law. Combined with public policies that support the Fourth Industrial Revolution, these factors shape the comparative advantages of developed countries in international trade<sup>241</sup>.

The medium-term competitive strategy of countries will be determined by the situation in the oil and gas markets, which is favorable for developing countries with significant reserves of these resources. In the long term, renewable energy sources and new ways of generating them will become more important. The demand for other mineral resources may decrease due to the availability of closed-loop production and waste processing technologies.

However, trade barriers can hinder and slow down the implementation of Industry 4.0 technologies in the world. The main obstacles affecting the competitiveness of countries are the technical difficulties of developing and implementing innovations, high costs of research and development, a shortage of personnel with the necessary qualifications, conservative management regarding innovation risks, the lack of standards and certification opportunities for digital devices, shortcomings in data network security, risks of cyberattacks, uncertainty of economic effects from the implementation of new technologies, and resistance from workers and unions due to possible job losses as a result of automation<sup>242</sup>.

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<sup>241</sup> Androniceanu, A.-M., Georgescu, I., Tvaronavičiene, M., & Androniceanu, A. Canonical Correlation Analysis and a New Composite Index on Digitalization and Labor Force in the Context of the Industrial Revolution 4.0. *Sustainability*. 2020. Vol. 12(17). Article number: 6812

<sup>242</sup> Capitalising on the benefits of the 4th industrial revolution. Brussels: European Commission Directorate-General for Research and Innovation, 2018. <https://op.europa.eu/en/publication-detail/-/publication/cf1793da-184c-11e8-ac73-01aa75ed71a1>

Under the influence of business lobbyists, governments can take decisions that restrict foreign competition in various ways. Strategic trade policies to support domestic industries can lead to barriers to imports of products manufactured using Industry 4.0 technologies, as well as goods that require the use of digital technologies. In addition, the cross-border flow of confidential data can be restricted, as there is a risk that this data could be used by foreign competitors in the field of digital technologies or that it could pose threats to national security, privacy and access to government information in the areas of finance, health, taxation or education. These restrictive measures are necessary to protect confidential information from cyberattacks, protect consumer interests and intellectual property rights, but they can also sometimes be used as part of protectionist policies.

Regulatory barriers to digital trade often include discriminatory provisions on or bans on online sales, restrictions on foreign companies' access to electronic platforms or the provision of digital services, web filtering and blocking, restrictions on online advertising, restrictions on online payments, the implementation of national standards and requirements for registration and testing of Industry 4.0 devices, requirements for the waiver of patent rights and trade secrets, insufficient protection of patent rights, copyright and trade secrets, software piracy, requirements for cooperation with local entities (e.g. through the creation of joint ventures), tariff and non-tariff barriers for ICT products, and restrictions on the participation of foreign companies in government tenders in sectors such as telecommunications and software<sup>243</sup>.

In the face of these challenges, international cooperation, the integration of regional associations and the activities of global

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<sup>243</sup> Ciuriak, D., & Ptashkina, M. The digital transformation and the transformation of international trade. Geneva: International Centre for Trade and Sustainable Development, 2018

organizations such as the World Trade Organization, the Organization for Economic Cooperation and Development, and the International Labor Organization will be crucial for digital development and overcoming regulatory barriers. These international organizations develop and publish recommendations that summarize and systematize the positive experience of leaders in the field of digital trade. However, due to the different level of participation of individual countries in digital trade and their different interests, problems in cross-border digital trade may worsen in the long term<sup>244</sup>.

Industry 4.0 technologies are transforming global trade in both scale and nature. On the one hand, they are increasing the importance of international trade, and on the other, they are accelerating trade processes, simplifying the entire cycle. These changes pose challenges for all countries. How effectively new opportunities will be used depends on the international and national trade environment created.

Industry 4.0 has opened up new opportunities for companies and countries around the world, but at the same time it has led to increasing inequality and geopolitical challenges. Although the global economy has shown high growth rates over the past three years, these changes remain economically unstable. Given the opportunities created by Industry 4.0 and the negative consequences of globalization, leaders are implementing long-term and innovative development measures. Human capital, innovation, technology and flexibility are key factors in achieving economic growth in the context of Industry 4.0. To improve economic growth, countries need to develop and implement competitive strategies based on the use of technology and combining them with other factors of competitiveness.

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<sup>244</sup> The future of global value chains. Science, Technology and Innovation Policy Papers. 2017. No 41. Paris: Organization for Economic Cooperation and Development

The World Economic Forum has begun to take into account Industry 4.0 technologies when assessing the level of competitiveness of countries, as reflected in the published report “Global Competitiveness Index 4.0”. The Global Competitiveness Index 4.0 (GCI 4.0) is calculated based on 12 indicators: institutions, infrastructure, adaptation of information and communication technologies, macroeconomic stability, healthcare, talent, product market, labor market, financial system, market size, company mobility and innovation capacity. As shown in Table 3.1, in 2019 the “GCI 4.0” rating was led by highly developed countries, whose scores differ slightly, which indicates a high level of competition among them.

Table 3.1

Leading countries according to the Global Competitiveness Index 4.0 in 2019<sup>245</sup>

Place	Country	Rating (points)	Change of position relatively to 2018	Perception ICT point/place	Innovation potential, points/place
1	Singapore	84.8	+ 1	87/5	75/13
2	United States	83.7	-1	74/27	84/2
3	Hong Kong (China)	83.1	+4	89/3	63/26
4	Netherlands	82.4	+2	76/24	76/10
5	Switzerland	82,3	-1	79/17	81/3
6	Japan	82,3	-1	86/6	78/7
7	Germany	81.8	-4	70/36	87/1
8	Sweden	81.2	+ 1	88/4	79/5
9	United Kingdom	81.2	-1	73/31	78/8
10	Denmark	81.2	-	83/9	76/11

In the 2019 competitiveness ranking, the top three places among 141 countries were taken by Singapore, the United States and Hong Kong. Compared to 2018, the top five leaders have undergone significant changes. In particular, Singapore rose from second to first place,

<sup>245</sup> Global Competitiveness Report 2019. World Economic Forum. <https://www.weforum.org/publications/how-to-end-a-decade-of-lost-productivity-growth>

displacing the United States, and Hong Kong rose four places, taking third place, which indicates significant progress in increasing competitiveness. It is worth noting that most of the countries that made it to the top ten had high indicators in the adaptation of information and communication technologies and innovation potential.

A regional comparison of the GCI 4.0 revealed significant differences in average levels of competitiveness across regions, as well as in performance within regions. Overall, 17 countries in East Asia and the Pacific had the highest median score (73.9) of any region in the world in 2019. A group of 39 countries in Europe and North America came in second with a median score of 70.9. However, the gap in competitiveness between leaders and underdogs was significantly wider in East Asia and the Pacific (34.7) than in Europe and North America (28.9)<sup>246</sup>.

Thus, while many countries in East Asia and the Pacific have achieved high levels of competitiveness through sustained efforts, some economies still need to accelerate their development to catch up. For example, the Lao People's Democratic Republic's score (50.1) remains about 5 points lower than that of Bosnia and Herzegovina (54.7). Similar levels of variation in competitiveness scores are observed in the Middle East and North Africa, Latin America and the Caribbean, and sub-Saharan Africa (Figure 3.7).

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<sup>246</sup> Global Competitiveness Report 2019....

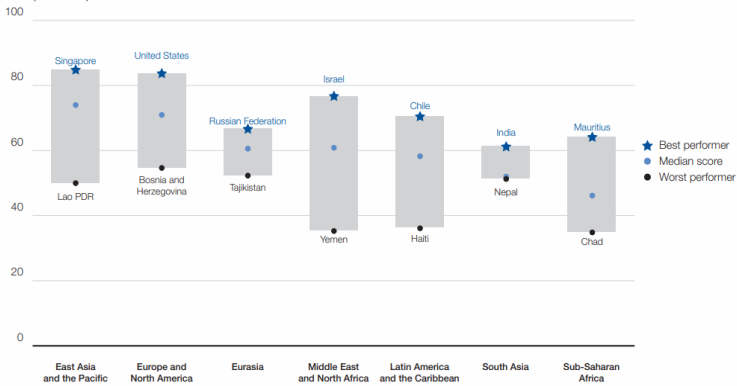


Fig. 3.7. Competitiveness gap within world regions in 2019<sup>247</sup>

Analysis of the countries' positions in the competitiveness ranking, taking into account the factors of Industry 4.0, allows us to conclude that each country has the opportunity to increase the level of competitiveness of its economy through the introduction of information and communication technologies (ICT) and the effective use of innovative potential. However, in modern economies, there are significant differences between countries in terms of competitiveness, and there is a risk of increasing these disparities due to the impact of technological development in the context of Industry 4.0. Although the ability to use technology is an important factor in economic growth, this factor remains limited in many countries due to the incompetence of institutions, insufficiently developed infrastructure and low qualifications of workers.

To successfully adapt their economies to Industry 4.0, countries need to implement holistic innovation strategies, but many have yet to implement such strategies. Countries that strengthen the fundamental components of competitiveness, especially in innovation and digital

<sup>247</sup> *ibid*

technologies, combined with an effective institutional environment, will be more resilient to economic shocks.

Since the World Economic Forum did not conduct an assessment of the competitiveness of countries in 2020-2022 due to the global economic crisis caused by the Covid-19 pandemic, it is worth considering the ranking of countries by the level of digital competitiveness based on the IMD World Competitiveness 2021 report. This ranking reflects the central role of new technologies in transforming government and business processes, as well as in changing interactions in society<sup>248</sup>.

The IMD World Digital Competitiveness (WDC) Ranking analyzes and assesses the degree to which countries have adopted and adopted digital technologies, which are transforming government practices, business models and society as a whole. The WDC ranking methodology defines digital competitiveness according to three key indicators: knowledge, technology and future readiness. The WDC 2021 report highlights the importance of readiness, talent and knowledge as the main components of digital competitiveness. An analysis of the ranking results allows us to identify three general trends:

Continuous development of a knowledge-intensive economy: Countries that occupy leading positions in the ranking actively contribute to the development of an economy capable of exploring, implementing and scaling digital technologies, thereby creating innovations in business, government and their interaction with society.

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<sup>248</sup> IMD World Competitiveness 2021. <https://www.imd.org/centers/wcc/world-competitiveness-center/rankings/world-competitiveness-ranking/>

Future-ready: Leaders of the ranking maintain their digital competitiveness through high readiness for the future, in particular through adaptability and flexibility in conditions of constant change.

The role of talent, training and education: High indicators in the field of talent and education are critical for achieving and maintaining digital competitiveness.

The United States led the global digital competitiveness ranking from 2018 to 2021. This was achieved thanks to high indicators in the categories of knowledge (3rd place) and future-ready (1st place). The US ranked 2nd in the world in terms of scientific concentration, as well as first in terms of adaptability and business flexibility, which significantly affected its overall competitiveness.

In 2021, Hong Kong ranked 2nd, up from 5th in 2020 (Table 3.2). This demonstrates significant progress in strengthening the country's digital competitiveness, particularly through improvements in future-ready and innovation performance.

Hong Kong's progress in the global digital competitiveness ranking is largely driven by improvements in the technology factor, where the country rose from 2nd to 1st place. This improvement was driven by improvements in all sub-factors, including the technology foundation sub-factor, where Hong Kong rose to 1st place. Hong Kong also improved its position in the knowledge factor, rising from 7th to 5th place. Particularly impressive were the results in the areas of learning and education, where Hong Kong rose to 1st place, and in the area of talent, where it rose to 6th place (from 7th). While Hong Kong remains in 10th place in the future readiness factor, it shows growth in adaptive mindsets (rising to 3rd place from 4th) and business agility (rising to 9th place from 14th).

Table 3.2

Leading countries in the IMD Global Digital Competitiveness Ranking 2021<sup>249</sup>

Place	Country	Rating (points)	Change of position relatively to 2020	Scientific concentration, place	Technological base, place	IT integration, place
1	USA	100.00	-	2	9	3
2	Hong Kong	96.57	+3	14	1	17
3	Sweden	95.19	+1	4	13	5
4	Denmark	95.16	-1	17	6	1
5	Singapore	95.14	-3	11	2	7
6	Switzerland	94.94	-	8	11	4
7	Netherlands	93.31	-	16	10	6
8	Taiwan	92.24	+3	19	4	15
9	Norway	91.29	-	22	12	8
10	UAE	90.52	+4	52	5	10

Sweden, in turn, rose to 3rd place (from 4th) thanks to improvements in knowledge (from 4th to 2nd) and future-ready (from 7th to 6th). In terms of scientific concentration, Sweden rose from 6th to 4th, while in the field of training and education it retained 2nd place. In terms of future-ready, the country's main achievements are in improving adaptive attitudes (5th place) and IT integration (4th place).

A comparison of the competitiveness rankings compiled by the World Economic Forum in 2019 and the World Competitiveness Center in 2021 demonstrates the importance of knowledge, technology, and digital transformation in society to ensure the competitiveness of countries in the global economy. The leading positions in competitiveness are occupied by highly developed countries such as the United States, Hong Kong, and Singapore. The improvement in the positions of these countries in the rankings is largely due to the increase in the level of information and communication technologies, digitalization, and scientific concentration, which generally indicates a high level of technological development and effective use of innovation potential. These factors are key to ensuring competitiveness in the conditions of Industry 4.0.

<sup>249</sup> IMD World Competitiveness 2021....

## **CHAPTER 4. MANAGEMENT OF UKRAINE'S FOREIGN ECONOMIC POLICY AND THE MECHANISM OF ITS IMPLEMENTATION IN THE CONTEXT OF GLOBAL CHALLENGES**

### **4.1. Foreign economic policy of a country: essence, means of implementation and importance for the country's economy**

In the context of globalization, to ensure the country's effective participation in the international division of labor, it is necessary to respond promptly and flexibly to changes in the regulation of international trade, the situation in world markets for goods and services, as well as in international capital flows and their profitability. At the state level, strategies and programs are being developed aimed at strengthening the country's position in the global economy by using the advantages of globalization, increasing the international competitiveness of national enterprises and accelerating economic development. In this regard, the role of state policy in the field of foreign economic activity is significantly increasing.

In the process of strengthening their competitive positions in the world market, countries are actively reviewing their goals and looking for optimal models of foreign economic policy that will allow them to achieve the set goals. However, recently, trends have appeared in the global international system that "qualitatively change the foreign policy of the most developed countries in the world and lead to a revision of the principles, theory and practice of international economic relations"<sup>250</sup>. In response to new challenges, most countries are adapting their foreign

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<sup>250</sup> Moldovan A. Zagraniczna polityka gospodarcza UE w obliczu nowych wyzwań: modele, cele i interesy. Przegląd Europejski. 2019. № 2. <https://cejsh.icm.edu.pl/cejsh/element/bwmeta1.element.econ.element-5feac6e7-d3d0-3e99-be64-0ac0cebb447d/c/pdf-01.3001.0013.5820.pdf>

policy, and national interests are becoming an increasingly important factor in shaping international relations. This requires identifying and analyzing key interests that should determine a country's foreign economic policy, as well as developing optimal models of foreign economic policy that will contribute to increasing the efficiency of foreign trade and investment activities in the face of global challenges.

In the scientific literature, different definitions of foreign economic policy are given, depending on the emphasis of researchers. For example, Pismachenko L. defines it as "the activities of state legislative and executive bodies aimed at forming effective economic relations of the state in the international arena."<sup>251</sup> Perepelytsia H. and Potekhin V. offer a similar, but more expanded definition, considering foreign economic policy as "a purposeful programmatic activity of state authorities aimed at determining and implementing the country's external goals by establishing effective cooperation and collaboration with other states in a globalized world."<sup>252</sup>

Hrushchynska N. and Muzychenko M. define foreign economic policy as one that is based on objectively existing comparative and competitive advantages in various sectors of the economy, provides for the priority of national economic interests in the system of methods and forms of regulation of world economic relations, and is also based on means of tariff and non-tariff regulation. This policy is aimed at creating a

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<sup>251</sup> Pismachenko L.M. State management of foreign trade activities in Ukraine: regulation and control: monograph. Donetsk: "Yugo-Vostok, Ltd.". 2008. 366 p., p. 15

<sup>252</sup> Perepelytsia H., Potekhin V. Foreign Policy of Ukraine – 2014: Strategic Assessments, Priorities and Forecasts. Kyiv: Stylos, 2015, p. 326.

competitive market environment and the gradual formation of an export-oriented economy<sup>253</sup>.

Thus, the foreign economic policy of the state is a set of measures, actions and strategies implemented by the government to regulate and develop economic relations with other countries and international organizations. It is aimed at creating favorable conditions for international trade, attracting foreign investment, supporting national exporters, integrating into the global economy and protecting the economic interests of the state in the international arena.

Thus, the foreign economic policy of each state is primarily aimed at realizing national interests, especially in the economic sphere. International trade is considered as one of the tools for achieving economic growth and improving the standard of living in the country. Foreign economic policy should not be limited only to trade policy. In scientific literature, it is considered as an independent direction of foreign policy, which includes not only trade, but also other types of policies related to international relations. For example, Moldawan O. notes that foreign economic policy is a conscious activity of the state aimed at economic exchange with other countries, which, on the one hand, defines specific goals in this area, and on the other hand, selects specific tools and necessary resources (financial, material), which, by their influence on foreign economic turnover, should contribute to the achievement of these goals<sup>254</sup>.

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<sup>253</sup> Hrushchynska N. M., Muzychenko M. P. Development of Ukraine's export potential in modern world economic processes. Current economic problems. 2010. № 7. P. 19–26.

<sup>254</sup> Moldowan A. Zagraniczna polityka gospodarcza UE w obliczu nowych wyzwań....

The main components of the state's foreign economic policy are international trade policy (including export and import policy), investment policy, financial policy and customs and tariff policy (Figure 4.1).

Foreign trade policy covers the regulation of exports and imports using such instruments as customs tariffs, quotas, licenses and other measures that control the import and export of goods and services. An important aspect is also the conclusion of bilateral and multilateral agreements to facilitate trade, reduce tariffs and eliminate barriers. In order to strengthen the country's position in the world market, considerable attention is paid to export development policy. It is aimed at supporting exporters through the provision of financial, information and advisory services that help facilitate access to foreign markets. Export strategies are developed and adopted at the state level to promote export goods and services to international markets.

To ensure economic growth of the national economy and increase the international competitiveness of the country, it is important to implement an effective policy of attracting foreign investment. This policy is aimed at creating favorable conditions for investors, including tax benefits, protection of investor rights, and simplification of administrative procedures.

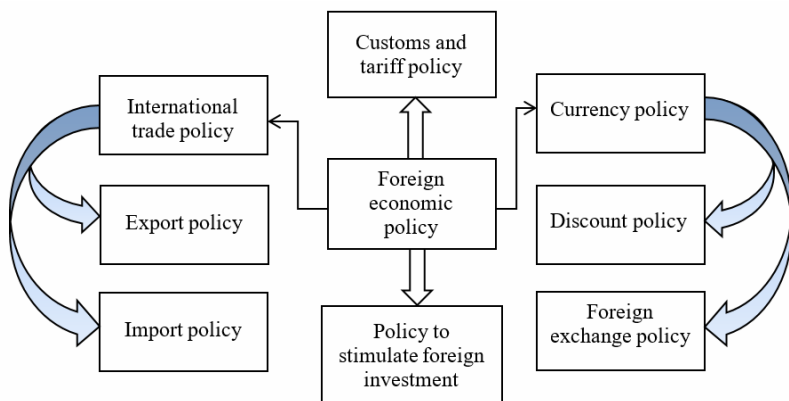


Fig. 4.1. Structure of the state's foreign economic policy <sup>255</sup>

The trade and investment components of foreign economic policy are closely related to the financial policy of the state at the international level. It includes currency policy, which is aimed at regulating exchange rates, managing foreign exchange reserves and implementing measures to ensure the stability of the national currency. To obtain financial support, the country concludes agreements with international financial institutions, such as the IMF and the World Bank.

In the scientific literature, the main emphasis is on state policy in the field of foreign trade, which regulates incoming and outgoing commodity flows in the country and determines the development of export and import components of international trade policy. According to the definition of scientists, "the export policy of the state is the policy of selling goods in foreign markets in relation to which the country has comparative advantages; stimulating the competitiveness of domestic enterprises; increasing the seriality of domestic production of competitive products in

<sup>255</sup> Tytarenko L. International economic policy of Ukraine: current challenges and prospects. Global and national economic problems. 2018. Issue 22. P. 114-118.

order to expand its exports to foreign markets"<sup>256</sup>. Accordingly, the state's export policy encompasses a set of measures and strategies aimed at stimulating the export of goods and services of national production, expanding their presence in international markets, and creating favorable conditions for the development of the country's export potential. This policy is an important element of the foreign economic strategy and is aimed at strengthening the state's economic positions in the global market.

No less important for ensuring the economic development of the country is the import satisfaction of its own needs with goods of foreign production. To accomplish this task, such approaches as "reasoned import substitution policy" and "protectionist measures for goods of foreign production" can be used, and the main instruments are the state policy that regulates imports in order to protect domestic producers in the domestic market from foreign competitors. The task of import policy is "optimal regulation of import flows is a rigid customs and tariff system and the use of non-tariff barriers"<sup>257</sup>.

Thus, the import policy of the state is a set of measures aimed at regulating the import of goods and services from abroad to protect the national economy, provide the domestic market with the necessary resources, promote technological development and maintain the balance of foreign trade. It is an important tool for regulating foreign trade, protecting the national economy and ensuring economic stability. Import policy includes various measures to control import volumes, support domestic production, meet strategic needs and stimulate technological development.

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<sup>256</sup> Melnyk O., Peredalo Kh., Horoshko Yu. Evaluation of the effectiveness of foreign economic activity management based on target indicators. Management and entrepreneurship in Ukraine: stages of formation and development problems. 2021. № 2 (6). P. 72 – 81.

<sup>257</sup> Hrynyova V., Novikova M., State regulation of the economy [Text]: textbook K.: Znannia, 2008. - 398 p.

An effective import policy allows the country to adapt to changes in world markets, protect national interests and promote economic development.

The foreign economic policy of the state, which is aimed at regulating mutual relations between domestic enterprises that export or import products and their foreign partners, also provides for various measures to protect the domestic market. It is closely related to the customs policy, which carries out customs regulation, establishes rules and procedures for customs control, determines customs tariffs and measures to combat smuggling. In addition, within the framework of customs policy, cooperation is carried out with international customs organizations to harmonize customs procedures and standards.

The state's foreign economic policy includes a wide range of instruments used to regulate and develop economic relations with other countries. These instruments are aimed at stimulating exports, regulating imports, attracting foreign investment, protecting the domestic market and ensuring national security. The main instruments of the state's foreign economic policy are divided into tariff and non-tariff.

Tariff instruments include:

Import duty is a tax imposed on goods imported into the country in order to protect domestic production from competition with imports.

Tariffs are duty rates set for the import or export of certain goods.

Non-tariff instruments include:

Quotas – restrictions on the number or volume of goods that can be imported or exported during a certain period.

Licenses are permits required for the import or export of certain goods.

Embargo is a ban on the import or export of certain goods in order to put pressure on another country.

Technical barriers are standards and requirements that must be met for the import of goods, such as certification, safety and product quality.

Subsidies are financial support from the state to national producers to increase their competitiveness in international markets.

These tools allow the state to effectively regulate foreign economic relations, maintain a balance between imports and exports, stimulate national production, protect the domestic market from adverse external influences and promote economic stability and growth (Figure 4.2).

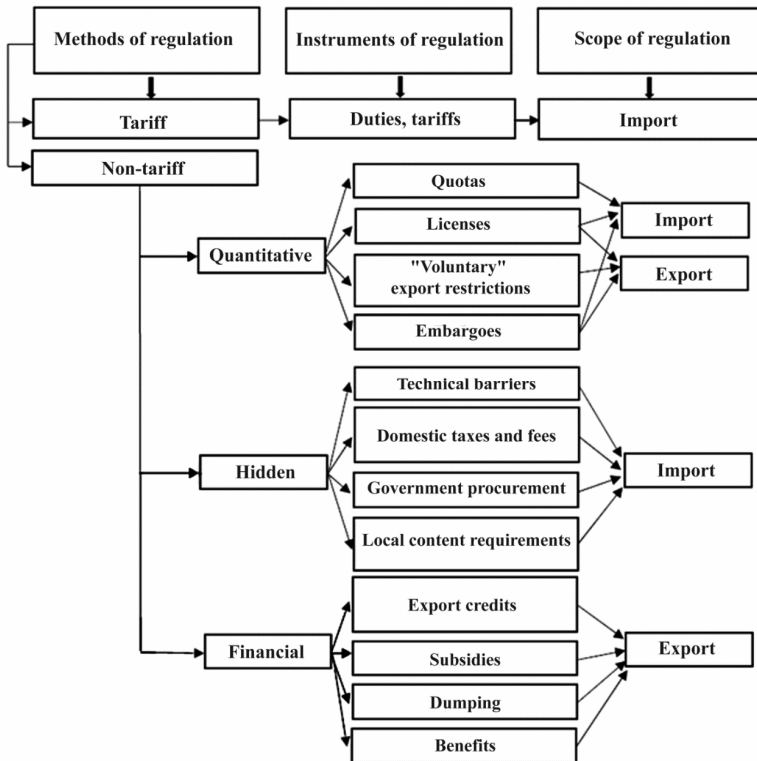


Fig. 4.2. Instruments of the state's foreign economic policy<sup>258</sup>

<sup>258</sup> Tytarenko L. International economic policy of Ukraine ....

The state's foreign economic policy uses various tariff instruments, including:

Customs tariffs are taxes on imported goods that are used to protect local producers and control import volumes.

Anti-dumping duties are additional taxes on goods sold at low prices in order to prevent unfair competition.

Export subsidies are financial assistance to national producers provided to improve their competitiveness in international markets.

Non-tariff instruments include:

Quotas are restrictions on the quantity or value of goods that can be imported or exported during a certain period.

Licensing is the need to obtain permits to import or export certain goods. Technical barriers are requirements for quality, safety and packaging standards of imported goods.

Sanitary and phytosanitary measures are regulation of imports of food and agricultural products to protect public health and the environment.

Also important is the role of financial instruments, such as:

Export credit is provision of preferential loans to exporters to support their activities in international markets.

Export credit insurance is protection of exporters from commercial and political risks associated with non-payment under export contracts.

Thus, the state's foreign economic policy uses a wide range of instruments to regulate and stimulate foreign trade, attract investment, protect national interests and ensure economic growth. The rational use of these instruments contributes to the country's integration into the global

economy, increasing the competitiveness of national goods and services, as well as improving the well-being of the population.

Modern processes of integration and globalization are accompanied by the opening of regional and international markets, which not only creates new opportunities, but also increases threats to the economy. The openness of the economy, on the one hand, contributes to increasing the competitiveness of enterprises and improving their efficiency by improving the structural and functional aspects of their activities. On the other hand, it increases dependence on external markets, currency fluctuations and global economic crises. In the face of such external pressure, the stability of the state largely depends on the level of economic security. Foreign economic policy should be aimed at realizing national interests, while simultaneously expanding the country's participation in international economic relations, improving access to markets, creating favorable conditions for investment and innovation within the country, increasing the productivity of national producers and accelerating economic growth<sup>259</sup>. This emphasizes the importance of forming foreign economic policy taking into account the possible effects of its implementation and the impact on the national economy.

Economic growth is the basis for the development of a country's social and political system and is measured by various indicators. Among them are the growth of gross domestic product per capita, unemployment and inflation rates, income distribution, the average level of education of the workforce, access to education and health services, and life

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<sup>259</sup> Hurochkina, V., Nahaieva, O., Rymar, O., Chorny, O., Makhanets, L., & Shyshpanova, N. Foreign state economic policy in the context of economic security. *Journal of Management Information and Decision Sciences*. 2021. Vol. 24(3). P. 1-14.

expectancy<sup>260</sup>. Economic growth refers to an increase in production or national income. If the production of goods or services in a country increases, this indicates economic growth. At the macro level, economic growth is defined as the increase in gross national product (GNP) or gross domestic product (GDP) in a given year compared to a base period. The prices of the base year are used to calculate economic development, which eliminates the effect of price increases or inflation on the estimate of the increase in GNP<sup>261</sup>.

Trade agreements are one of the key instruments of foreign economic policy, which have the potential to significantly influence the economic development of developing countries. However, despite their importance and widespread use, there remains considerable uncertainty about how these agreements, especially bilateral and regional ones, affect the rate of economic growth in such countries. According to the World Bank, although the volume of trade between developing countries has increased over the years, disparities in the economic benefits from trade agreements remain significant: some countries experience significant economic growth, while others face difficulties in overcoming economic development problems<sup>262</sup>.

The theoretical framework for studying the impact of foreign economic policy on economic growth encompasses several approaches, including dependency theory, export-led growth theory, and institutional theory.

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<sup>260</sup> Mohammadreza Aghareparast & Ahmad Zeinali. The Role of Foreign Policy and International Relations in Economic Development Based on the Philosophy of Liberalism. *Journal of Social Science Studies*, Macrothink Institute. 2017. Vol. 4(1). P. 1-9. <https://ideas.repec.org/a/mth/jsss88/v4y2017i1p1-9.html>.

<sup>261</sup> Chu, A. C., Leung, C. K., & Tang, E. Intellectual property rights, technical progress and the volatility of economic growth. *Journal of Macroeconomics*. 2012. Vol. 34(3). P. 749-756

<sup>262</sup> Global Economic Prospects, January 2021. World Bank Publications. <https://openknowledge.worldbank.org/handle/10986/34738/>

Dependency theory, developed by R. Prebisch and F. Cardoso in the 1960s, argues that developing countries are often at a disadvantage in the global economic system, leading to economic imbalances and inequality<sup>263</sup>. This theory focuses on the uneven development of state institutions in developed and developing countries, highlighting how trade relations can entrench dependence and hinder economic development. In the context of foreign economic policymaking, this theory is important because it helps analyze how trade agreements can simultaneously offer opportunities for growth and increase dependence between developing and developed countries, which affects economic outcomes.

The theory of export-led growth, developed by economists G. Ranis and A. Fishlow, suggests that export-led policies can stimulate economic development in developing countries. According to this theory, trade agreements that facilitate access to international markets and promote the development of export-oriented industries can increase foreign exchange earnings and accelerate economic growth. In the context of foreign economic policy, this theory can serve as a basis for studying how trade agreements contribute to the growth of exports in developing countries and their transition to a higher level of economic development.

Institutional economics, associated with scholars such as Douglas North and Eleanor Ostrom, focuses on the role of institutions, particularly trade agreements, in shaping economic behavior and influencing the development of countries. This theory emphasizes the importance of institutional mechanisms, such as property rights, contract enforcement, and regulatory frameworks, and their impact on economic development. In

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<sup>263</sup> Geller C. Trade Policy and Economic Development: A Study of Trade Agreements' Effects on Developing Countries. *Journal of Modern Law and Policy*. 2023. Vol.3 (3). pp. 64 – 76.

terms of analyzing the impact of foreign economic policies on the economic growth of developing countries, institutional economics provides an understanding of how the main provisions of trade agreements affect economic outcomes. The institutional aspects of these agreements can determine the success of their implementation and the overall impact on the economies of developing countries.

In practice, scholars are actively investigating the relationship between foreign economic policy and economic growth of countries. For example, a study by Patel R. and Singh M. analyzed the impact of export-led growth and trade agreements on the economic development of Southeast Asian countries. Using panel data analysis and cointegration methods, the authors tested the hypothesis that exports and trade agreements have a positive impact on GDP per capita growth. The results showed that export growth and trade agreements were important factors in GDP per capita growth in the long run, but not in the short run. The study also found that trade agreements had a stronger impact on GDP per capita than growth through exports. The authors concluded that export-led growth and trade agreements can promote the economic development of developing countries, especially in the context of regional integration, and recommended continued trade liberalization and regional cooperation to promote economic growth and development<sup>264</sup>.

Another study by Smith A. and Johnson B. examined the impact of trade agreements on economic development in developing countries. They conducted a panel analysis of a sample of such countries over a ten-year period, examining the relationship between trade agreements and key

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<sup>264</sup> Patel, R., & Singh, M. Export-led growth and trade agreements in developing countries: Case studies from Southeast Asia. *Journal of Development Economics*. 2018. Vol. 52(3). P. 371-388.

indicators of economic development. The study found that trade agreements were positively correlated with increased exports and GDP growth in developing countries. The researchers recommended continuing to conclude trade agreements as a means of stimulating economic development<sup>265</sup>.

Garcia L. and Torres E. investigated the impact of institutional aspects of trade agreements on economic development in developing countries using panel data analysis of 120 countries for the period 1995-2015. They found that trade agreements positively affect institutional quality and human development, but do not have a significant impact on economic growth. They also noted that the effects of trade agreements vary depending on the level of development of the country, the type of agreement, and the regional context. They concluded that while trade agreements can be effective in improving institutional quality and human development, they must be accompanied by other policies and reforms to promote the comprehensive development of developing countries<sup>266</sup>.

Chen X. and Li Q.'s study focused on analyzing the social and environmental impacts of trade agreements in developing countries. Using panel data from 78 countries over the period 1990-2018, they found that trade agreements have positive effects on human development, labor rights, and environmental quality. However, the study also found that these agreements lead to increased income inequality and carbon emissions. The

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<sup>265</sup> Smith, A., & Johnson, B. Trade Agreements and Economic Development: Empirical Evidence from Developing Countries. *World Development*. 2017. Vol. 45. P. 256-271.

<sup>266</sup> Garcia, L., & Torres, E. Institutional aspects of trade agreements and economic development in developing countries. *World Development*. 2019. Vol. 63(4). P. 98-115.

authors recommended implementing additional policies to mitigate the negative impacts and enhance the positive effects of trade agreements<sup>267</sup>.

Rodriguez J. and Martinez E. examined the impact of regional and bilateral trade agreements on economic development in developing countries. Analyzing data from 120 countries over the period 1995-2015, they found that regional trade agreements had a positive and significant impact on GDP per capita, trade openness, and the human development index, while bilateral agreements had a mixed and weak impact. The researchers concluded that regional trade agreements are more beneficial to developing countries than bilateral ones, and proposed a number of institutional measures to improve development outcomes through trade integration<sup>268</sup>.

Foreign policy, including trade agreements, does have significant potential to stimulate economic development in developing countries. However, realizing this potential requires taking into account the unique circumstances and challenges faced by each national economy. To make the most of the opportunities offered by trade agreements, governments should implement policies based on a detailed analysis of the factual situation, strengthen institutions, and focus on inclusive and sustainable development. In this way, developing countries can promote economic growth and improve the well-being of their populations<sup>269</sup>.

Governments of different countries, regardless of their level of economic development, seek to initiate effective foreign economic policies to achieve better economic indicators, increase the level of business

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<sup>267</sup> Chen, X., & Li, Q. Social and environmental consequences of trade agreements in developing countries. *Journal of International Economics*. 2020. Vol. 48(2). P. 187-210.

<sup>268</sup> Rodriguez, J., & Martinez, E. Regional versus Bilateral Trade Agreements: A Comparative Analysis of Economic Development Effects in Developing Countries. *Journal of International Trade*. 2017. Vol. 39(4). P. 512-529.

<sup>269</sup> Geller C. Trade Policy and Economic Development...

activity and ensure a higher standard of living for the population. Different approaches and regulatory measures are used for this, but the results may differ significantly depending on the specific conditions and circumstances<sup>270</sup>.

One area of foreign economic policy that has attracted significant scholarly attention is import substitution. Studies of the experiences of Brazil and South Africa demonstrate how different approaches to import substitution can affect economic development<sup>271</sup>. For example, Brazil's import substitution policy proved effective, despite the presence of serious bureaucratic barriers. This approach was based on dividing industries into export-oriented ones, which received protection and support, and industries available for foreign direct investment. This allowed the country to increase GDP by 7%, stimulated economic growth, and improved the investment climate.

In South Africa, by contrast, development has been constrained by a lack of demand for goods in developed markets and a heavy reliance on natural resource exports. Despite government grants and support for strategically important sectors, import substitution in this country has struggled to ensure sustainable economic growth<sup>272</sup>.

A study conducted by Kiliçhaslan Y. and Temurov I. showed that the effectiveness of import substitution can be assessed through correlations between import substitution, labor productivity, and competitiveness in the manufacturing industries of South Korea and Turkey<sup>273</sup>. Ko M. L. and

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<sup>270</sup> Aregbeshola, R. A. Import substitution industrialization and economic growth - Evidence from the group of BRICS countries. *Future Business Journal*. 2017. Vol. 3. P. 138–158.

<sup>271</sup> Aregbeshola, R. A. Does import substitution industrialisation strategy hurt growth?: New evidence from Brazil and South Africa. *African and Asian Studies*. 2012. Vol. 11. P. 288–314.

<sup>272</sup> *ibid*

<sup>273</sup> Kiliçhaslan, Y., and I. Temurov. Import substitution, productivity and competitiveness: Evidence from Turkish and Korea manufacturing industry. *Optimum Journal of Economics and Management Sciences*. 2016. Vol. 3. P. 67–83.

other researchers proposed using an aggregate import substitution coefficient to assess its effectiveness, taking into account the size and weight of industries or groups of industries subject to substitution<sup>274</sup>.

Having considered various approaches to foreign economic policy, it is worth noting that its effectiveness is largely determined by the effectiveness of state institutions and the activity of economic entities. State institutions play a key role in providing financial support to competitive economic entities, ensuring the necessary conditions for economic development. At the same time, the activity and business initiative of economic entities, especially in conditions of significant technological import dependence, are important components of the successful implementation of foreign economic policy.

Economic growth is one of the most important indicators of the development of society, which is influenced by a number of factors, in particular the degree of integration of the national economy into the international system of division of labor. Foreign policy and international relations play a decisive role in economic development, contributing to economic growth through the country's active participation in global economic processes. Ensuring the country's participation in international relations requires a comprehensive approach, which includes a series of actions and interactions of governmental and non-governmental institutions and political processes that shape foreign economic policy.

In modern conditions, the foreign economic policy of most countries in the world is based on the principles of liberalism, which involves a comprehensive approach to managing both domestic and external aspects

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<sup>274</sup> Ko M. L., Plasmans J., and Song-ken H. A Consistent Measure of Aggregate Import Substitution: Research Paper. Antwerp: University of Antwerp, 2014. 24 p.

of economic policy. According to the theory of liberalism, all countries in the world are interdependent, and if the foreign economic policy of the state effectively manages this interdependence, then it can contribute to economic growth and development of the national economy.

Thus, a successful foreign economic policy based on effective government decisions can positively influence a country's economic growth, promoting its integration into the world economy and ensuring stable development.

#### **4.2. The latest world conditions for the development of foreign economic policy of states**

Globalization has a significant impact on the foreign economic policies of countries, changing approaches to trade, investment, regulation and international cooperation. Trade liberalization involves the reduction of tariffs and non-tariff barriers. Under the influence of globalization, countries are reducing customs tariffs and reducing the number of non-tariff barriers to facilitate freer trade, and the signing of bilateral and multilateral trade agreements is becoming a priority to improve market access. Harmonization of regulatory standards has been actively underway in recent decades. Countries are working to unify their standards and regulations to facilitate trade with other countries, and cooperation within international organizations such as the WTO helps create common rules and norms.

At the same time, the development of foreign economic policies of countries takes place in the conditions of global economic uncertainty, which continued to grow in 2023, and the economic outlook remained pessimistic in the United States, the European Union and China, which are

the largest economies in the world. China faced deflationary pressures, a property crisis and high youth unemployment. The US economy grew moderately, and high interest rates led to a slight decrease in inflation. Europe managed to significantly reduce energy prices compared to the previous year, but inflation remained high and real economic growth was low at 0.7%<sup>275</sup>. Events in these three regions have had an impact on the global economy as a whole. In addition, the global environment of high interest rates has created challenges for many developed and developing countries, especially in Africa, Latin America and South Asia. In many economies, this has led to currency depreciation and capital flight. Fiscal policy options in these countries have been quite limited, in particular due to the high level of public debt accumulated to combat the COVID-19 pandemic<sup>276</sup>.

In 2023, the development of foreign economic policy was influenced by the intensification of competition between the US and China<sup>277</sup>. This has led to increased tensions in various regions of the world, which has significantly affected global trade and investment strategies. In the context of increased competition, there has been a general trend towards rearmament, with European countries in particular adjusting their security and armaments policies in response to the war in Ukraine. In addition, tensions have increased in the South China Sea and around Taiwan, which has prompted several countries in the Asia-Pacific region to increase military spending. This has been accompanied by increased sanctions and export controls on military and dual-use goods.

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<sup>275</sup> IMF, World Economic Outlook, October 2023, Navigating Global Divergences. World Economic Outlook Growth Projections. URL: [www.imf.org](http://www.imf.org).

<sup>276</sup> World Trade Report 2023. Reglobalization for a secure, inclusive and sustainable future. URL: [www.wto.org](http://www.wto.org).

<sup>277</sup> IISS, 2023. Asia-Pacific Regional Security Assessment, Key developments and trends, Strained US-China Relations and the Growing Threat to Taiwan. International Institute for Strategic Studies. URL: [www.iiss.org](http://www.iiss.org)

Of particular note is the development of India, which has become the world's most populous country. Its huge domestic market, low labor costs, and significant growth prospects are attracting the attention of international companies. India has carried out successful space missions, underscoring its status as a center of advanced technologies of the 21st century<sup>278</sup>. Geopolitically, India pursues a complex policy, balancing membership in the BRICS and SCO, which oppose the West, with security cooperation with Australia, the US and Japan. India seeks to maintain good economic relations with all players in an increasingly polarized world, reflecting the approach of many countries that prefer to stay out of the US-China rivalry.

Geopolitical rivalry, coupled with the effects of the COVID-19 pandemic and Russia's war against Ukraine, has led to a reassessment of interdependencies between countries. Western industrialized economies have become more focused on reducing dependence on critical supply chains, particularly in advanced technologies such as semiconductors and quantum technologies, as well as key raw materials<sup>279</sup>. The US and EU have begun to restrict certain economic activities to specific geographic regions through the processes of resourcing, shoring, and friendshoring<sup>280</sup>. The EU is also actively working to support strategic autonomy and promote sustainable technologies for decarbonization, while simultaneously attempting to limit China's access to advanced technologies.

Overall, 2023 saw increased state intervention in the economy in the form of discriminatory regulations, tariffs, network and information

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<sup>278</sup> World Investment Report 2023. Investing in sustainable energy for all. UNCTAD (2023). URL: [www.unctad.org](http://www.unctad.org).

<sup>279</sup> Evenett, S. and Fritz, J. The Scramble for Critical Raw Materials: Time to Take Stock? The 31st Global Trade Alert Report? 2023. URL: [www.globaltradealert.org](http://www.globaltradealert.org).

<sup>280</sup> Engelke, P. and Weinstein, E. Global Strategy 2023: Winning the tech race with China, in: Atlantic Council Strategy Paper Series, 2023. URL: [www.atlanticcouncil.org](http://www.atlanticcouncil.org).

blocking, and restrictions on exports and capital movements. Such confrontational behavior by major powers has made international cooperation more difficult, creating additional challenges for multilateral trade and investment cooperation. The fragmentation of the global economy also makes it more difficult to address global challenges such as climate change and poverty. As a result, many developing countries risk losing access to capital, markets, and new technologies, which the IMF predicts could lead to lower productivity and higher poverty<sup>281</sup>.

The US and the EU have implemented several industrial policy initiatives in 2023 to address interdependencies and achieve decarbonization goals. Biden administration's subsidy program is partly driven by the political impossibility of using other instruments, such as a national carbon tax. In the context of economic policy, two types of measures can be distinguished. The first category includes horizontal measures, such as developing reliable infrastructure and creating flexible labor market conditions, which benefit all sectors of the economy and are used in European countries to ensure favorable macroeconomic conditions. The second category covers vertical measures that support individual industries or technologies and can be protectionist in nature. An example is the "Chips Act," under which the US and the EU plan to spend billions to stimulate the production of microcircuits<sup>282</sup>.

One of the most important measures of US industrial policy is the Inflation Reduction Act (IRA), passed in August 2022<sup>283</sup>. The IRA includes a set of measures aimed at climate, health, and tax policy,

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<sup>281</sup> Georgieva K. Confronting Fragmentation Where It Matters Most: Trade, Debt, and Climate Action, in: IMFBlog. URL: [www.imf.org](http://www.imf.org).

<sup>282</sup> Chips and Science Act from 9 August 2022, H.R.4346. URL: [www.congress.gov](http://www.congress.gov)

<sup>283</sup> Inflation Reduction Act from 16 August 2022, H.R.5376. URL: [www.congress.gov](http://www.congress.gov)

including both horizontal measures, such as incentives for energy-efficient construction, and vertical measures, such as tax credits for the purchase of electric vehicles produced partly in the United States.

The EU responded to the IRA by announcing its Green Deal industrial plan in February 2023, which includes both horizontal measures, such as simplifying approval procedures for renewable energy sources and initiatives to increase the number of skilled workers, and vertical ones, such as subsidies for the development of green technologies<sup>284</sup>. The Green Deal is part of the EU's strategy of open strategic autonomy, which aims to balance open trade policies with economic policies aimed at protecting national security. On 20 June, the European Commission published the European Economic Security Strategy, which sets out the tools to achieve this balance and aims to develop a comprehensive approach to assessing and mitigating risks to the EU's economic security<sup>285</sup>.

In addition to the US and the EU, individual EU member states such as Germany and France have also felt the need to strengthen their industrial policies. Other countries, including Canada and the UK, have also announced significant subsidies for individual companies<sup>286</sup>. Since 2015, China has supplemented its regular five-year plans with the Made in China 2025 strategy, a comprehensive approach to economic policy for ten key industries. The number of industrial policy programs has increased significantly in recent years (Figure 4.3).

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<sup>284</sup> Press release by the European Commission from 1 February 2023. The Green Deal Industrial Plan: putting Europe's net-zero industry in the lead. URL: [www.commission.europa.eu](http://www.commission.europa.eu)

<sup>285</sup> Press release by the European Commission from 20 June 2023, An EU approach to enhance economic security. URL: [www.commission.europa.eu](http://www.commission.europa.eu)

<sup>286</sup> Press release by the Prime Minister of Canada from 21 April 2023, Volkswagen's new electric vehicle battery plant will create thousands of new jobs. URL: [www.pm.gc.ca](http://www.pm.gc.ca)

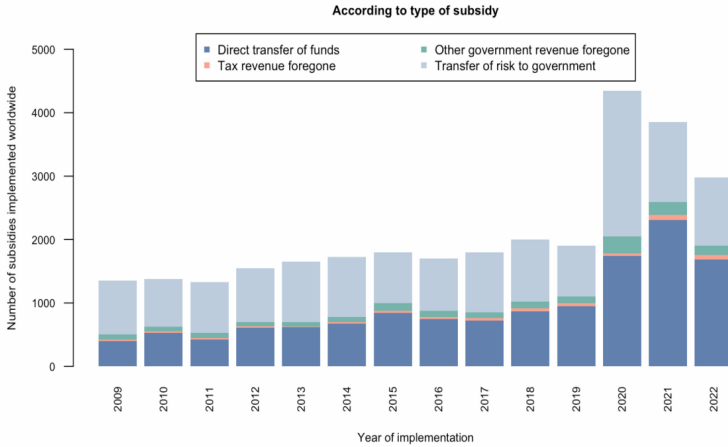


Fig. 4.3. Number of implemented global subsidies by type<sup>287</sup>

According to the Global Trade Alert subsidy database, most of the increase in these measures is related to the COVID-19 pandemic, although this does not fully explain the increase in subsidies after 2020. In particular, subsidies targeting decarbonisation measures have increased. These subsidies can affect not only the national economies of EU countries, but also economic conditions in third countries. Subsidies in other countries or production localization policies give competitive advantages to foreign companies, which can negatively affect the labor market or distort investment decisions in third countries. However, suppliers of products from third countries can benefit from increased demand from subsidised companies. Another possible positive effect for third-country companies is the expansion of their choice of sources of supply or access to new technologies developed thanks to foreign subsidies. However, there is a significant risk that numerous initiatives could lead to excess production capacity. Participating in a “subsidy race”

<sup>287</sup> Report Foreign Economic Policy 2023. <https://www.newsadmin.ch/newsd/message/attachments/85680.pdf>

can also limit the use of valuable tax revenues that could be more effectively directed to other areas.

Global international reserve assets have grown significantly since the 1998 Asian financial crisis. In 1998, total global reserves were estimated at US\$1.92 trillion, covering 48 months of imports, and in 2018 they stood at US\$12.69 trillion, covering almost 100 months of imports. This increase in reserves has not been evenly distributed across countries. Countries in East Asia and the Pacific, Europe and Central Asia, Latin America and the Caribbean, and the Middle East and North Africa have been able to increase their reserves to more adequate levels since 2000. However, in East Asia and the Pacific, and especially in South Asia, reserve levels have declined since the crisis, while economies in South Asia and sub-Saharan Africa have failed to improve their reserve levels since 2000<sup>288</sup>. According to the IMF's Reserves Assessment Index, almost half of developing countries did not have sufficient reserves to meet their balance of payments needs as of 2019<sup>289</sup>.

Adequate foreign exchange reserves can mitigate the negative impact of currency volatility by reducing the risks associated with currency mismatches and volatile capital outflows<sup>290</sup>. After the 2013 crisis, countries with larger reserves experienced less currency devaluation. The level of reserves sufficient to serve as insurance against crisis events depends on the country's level of integration into the world economy, the liquidity of domestic financial markets, access to external foreign exchange reserves (e.g., central bank swap lines or IMF loans), and

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<sup>288</sup> Ruch F. U. Policy Challenges for Emerging and Developing Economies: Lessons from the Past Decade. Policy Research Working Paper 9180. March, 2020. World Bank Group. <https://documents.worldbank.org/curated/en/249291584025972023/pdf/Policy-Challenges-for-Emerging-and-Developing-Economies-Lessons-from-the-Past-Decade.pdf>

<sup>289</sup> Assessing Reserve Adequacy. IMF Policy Paper. 2011. International Monetary Fund, Washington, DC.

<sup>290</sup> *ibid*

potential balance of payments costs (such as export losses, broad money supply, short-term external debt, and other external liabilities)<sup>291</sup>. Economies dependent on commodity markets often need additional reserves to reduce the negative impact of sudden changes in the terms of trade, especially in the agricultural sector, to counteract weather-related supply shocks.

Accumulation of reserves carries potential costs, requiring careful cost-benefit analysis. In countries with insufficient reserves, governments can develop a medium- to long-term plan for accumulating reserves that does not destabilize foreign exchange markets, public budgets, or the economy. Accumulation of reserves also requires sterilization of these funds and the availability of monetary policy instruments to prevent unintended increases in the domestic money supply, which could lead to runaway inflation. In countries with flexible exchange rates, accumulation of reserves can occur when the currency is overvalued or close to fair value, but not when it is undervalued. Accumulation or reduction of reserves can also help low-income countries that are heavily dependent on foreign aid to mitigate the effects of currency revaluation through the Dutch disease effect and the volatility of aid delivery<sup>292</sup>.

Trade remains one of the most important tools for improving the productivity and efficiency of developing economies. However, the terms of trade in these countries are still less favourable than in advanced economies, considering indicators such as export and import costs, the quality of trade and transport infrastructure and other related factors. At the same time, the average “trading across borders” indicator in developing countries improved by 11 percentage points in the Doing

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<sup>291</sup> Ruch F. U. Policy Challenges for Emerging and Developing Economies....

<sup>292</sup> Moldovan I., Yang S. C. S., and L. F. Zanna. Optimal Fiscal Spending and Reserve Accumulation Policies Under Volatile Aid. IMF Working Paper. 2019. Vol. 19/126. International Monetary Fund, Washington, DC

Business 2020 report compared to 2007, reflecting trade reforms and increased economic activity. However, the pace of reform slowed after 2010, although there has been a resurgence of reform activity since 2017. Instead, G20 countries have gradually introduced new tariff and non-tariff barriers to trade<sup>293</sup>.

International trade is losing its role as a driver of growth, slowing to 0.6% in 2023 and expected to recover to 2.4% in 2024. According to the UN, this was due to a shift in consumer spending from goods to services, rising geopolitical tensions, supply chain disruptions and the impact of the pandemic. In addition, the shift to protectionist policies in some countries has also negatively affected trade dynamics, leading to a reassessment of global supply chains and trade agreements. This is particularly noticeable in developing countries, whose economic growth is largely dependent on exports. Accordingly, increasing attention is being paid to diversifying trading partners and strengthening regional trade agreements to reduce the risks associated with over-reliance on a limited number of markets<sup>294</sup>.

According to a study by the World Economic Forum, geoeconomic confrontation, including sanctions, trade wars and investment controls, has become one of the biggest threats in recent years, especially in East and Southeast Asia<sup>295</sup>. The use of economic policy as a tool of influence by globally integrated states has exposed the vulnerability of international relations built on interdependence in trade, finance and technology. The war in Ukraine has led to sanctions against Russia and transnational companies that continued to operate on its territory, including the

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<sup>293</sup> Report on G20 Trade Measures: Mid-October 2018 to Mid-May 2019. June. Geneva: World Trade Organization, 2019

<sup>294</sup> Overview – World Economic Situation and Prospects 2024. URL: <https://www.un.org/sustainabledevelopment/blog/2024/01/overview-world-economic-situation-and-prospects-2024>

<sup>295</sup> Global Risks Report 2023. <https://www.weforum.org/publications/global-risks-report-2023/in-full/1-global-risks-2023-today-s-crisis/>

nationalization of key enterprises, such as the seizure of assets of Russian energy companies in Germany. In addition, reputational and legal risks for transnational companies operating in certain markets have increased<sup>296</sup>.

Taking into account the vulnerability of the global economy caused by the pandemic and the war in Ukraine, the foreign economic policy of advanced economies is increasingly focused on achieving geopolitical goals. These countries seek to strengthen their self-sufficiency and protect national interests through state support, trying to reduce dependence on foreign suppliers and strengthen their position in economic competition. To achieve these goals, governments are introducing various protectionist measures aimed at stimulating local production and limiting foreign influence in critical industries. Such measures include subsidies, stricter investment selection, production localization policies, visa bans, and the exclusion of foreign companies from access to key markets. In addition, economic levers are used to restrain the growth of competitors. This includes the exclusion of foreign companies from stock exchange listings, the introduction of rules for direct sales of foreign goods, control over the export of key technologies and intellectual property, and expanding restrictions on citizens and organizations cooperating with foreign companies.

These trends are increasing geo-economic tensions, which could have far-reaching consequences. The increased use of economic leverage to achieve geopolitical goals is increasing distrust between countries. This could lead to the curtailment of international cooperation programs aimed at strengthening national security and resilience. However, limiting international ties can have the opposite effect: reducing the resilience of economies, slowing productivity growth, and negatively affecting

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<sup>296</sup> *ibid*

economic growth, which has largely depended on the globalization of capital, labor, goods, and services. In this situation, countries may face a dilemma: how to balance national interests and international cooperation in order to maintain economic stability and stimulate long-term growth in the face of global change and uncertainty.

### **4.3. Institutional instruments of Ukraine's foreign economic policy**

The country's foreign economic policy plays an important role in protecting the interests of citizens, supporting the stable functioning of the foreign exchange market, developing entrepreneurship and attracting investment. It is aimed at strengthening the international competitiveness of national producers and ensuring stable economic growth.

Institutional support for foreign economic activity is a key factor for effective regulation of foreign trade and the country's integration into the world economy. This includes the creation of a legal framework consisting of established norms and rules enshrined in regulatory legal acts. In Ukraine, this regulatory system is built on two levels:

The first level covers general regulatory documents that define the principles and priorities for the development of legislation in the field of foreign economic activity<sup>297</sup>.

The second level includes special legal norms that directly regulate the foreign economic activity of economic entities.

The basis of the system of state regulation of foreign economic activity in Ukraine is the Constitution, which determines that the principles

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<sup>297</sup> Legal regulation of foreign economic activity: a textbook. Dnipro: University of Customs and Finance, 2021. 164 p., p. 11

of foreign economic activity are regulated exclusively by the laws of Ukraine. The Cabinet of Ministers of Ukraine has the authority to organize and ensure the implementation of foreign economic activity and customs affairs.

The Economic Code of Ukraine, in particular Chapter VII "Foreign Economic Activity", regulates the general provisions on the regulation of foreign activity of economic entities and foreign investment<sup>298</sup>. These provisions include:

Basic concepts, principles and subjects of foreign economic activity.

Types of foreign economic operations, the procedure for their licensing and quotas.

Types of foreign economic agreements and the procedure for their registration.

Customs regulation and taxation of foreign economic activity.

Procedure for settlements in foreign currency.

Principles of lending to foreign economic entities.

Legal protection of property and interests of foreign economic entities.

Effective coordination between state bodies, international organizations, business associations, research institutions and financial institutions is necessary to increase the competitiveness of the national economy, ensure economic growth and improve the well-being of the population<sup>299</sup>.

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<sup>298</sup> Constitution of Ukraine: Law of Ukraine of 28.06.1996 № 254к/96-VR // Information of the Verkhovna Rada of Ukraine. 1996. № 30. Article 141.

<sup>299</sup> Commercial Code of Ukraine: Law of Ukraine of 16.01.2003. № 436-IV // Information of the Verkhovna Rada of Ukraine. 2003. № 18, 19–20, 21–22. Article 144

Chapter 38 of the Commercial Code of Ukraine defines the basic legal principles of foreign investors, types and forms of foreign investments, as well as the legal regime for their involvement in the economy of Ukraine. It also outlines the features of the functioning of enterprises with foreign investments and guarantees for their activities. These issues are discussed in more detail in the Laws of Ukraine “On Investment Activity” and “On the Foreign Investment Regime”.

The Customs Code of Ukraine is a key document that regulates the procedure for determining the customs status of goods, confirming their origin and determining the customs value. It also establishes the rules for the import and export of goods, the procedure for customs clearance, requirements for making customs payments and ensuring liability for violation of customs rules<sup>300</sup>.

The Law of Ukraine “On Foreign Economic Activity” regulates all aspects of the state’s foreign economic relations and is the main regulatory act on which the provisions of other laws related to foreign economic activity are based. This law defines the general principles and priorities for regulating foreign economic operations, which makes it the foundation for the system of legal regulation of foreign economic activity in Ukraine (Figure 4.4).

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<sup>300</sup> Customs Code of Ukraine. Information of the Verkhovna Rada of Ukraine. 2012. № 44-45, № 46-47, № 48, Article 552.

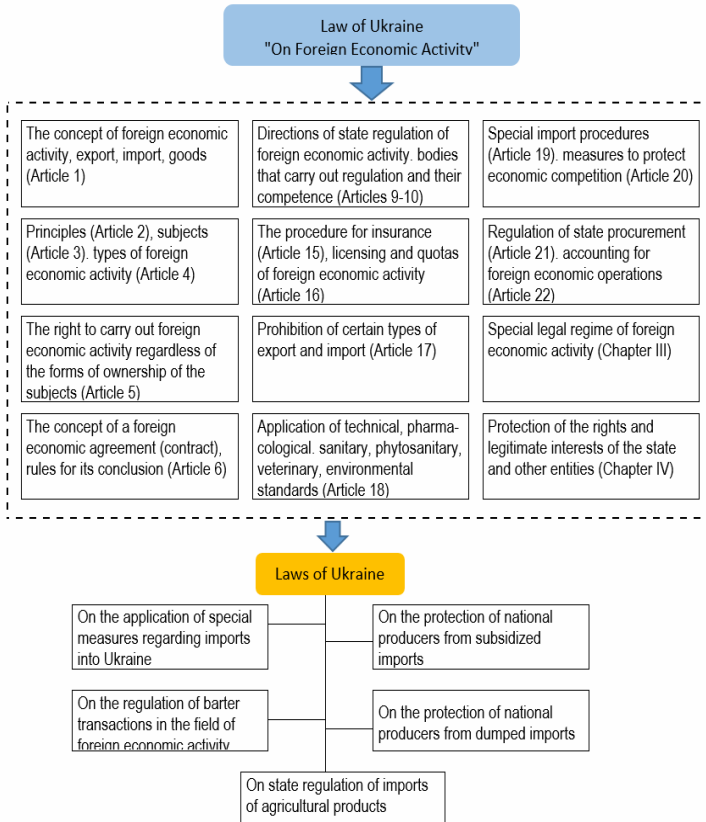


Fig. 4.4. Structure of legislation regulating foreign economic activity in Ukraine <sup>301</sup>

International agreements are an important component of Ukraine's foreign economic policy, as they enshrine the country's obligations to international partners and are integrated into national legislation. The Law of Ukraine "On International Treaties of Ukraine" clearly states that international treaties ratified by the Verkhovna Rada of Ukraine become part of national legislation and are applied in the manner prescribed for the

<sup>301</sup> Worked out by the author using: Legal regulation of foreign economic activity: a textbook. Dnipro: University of Customs and Finance, 2021. 164 p., p. 12-14

norms of national law<sup>302</sup>. This means that the provisions of such treaties can be applied immediately after their ratification, even if they have not been implemented into domestic legal acts<sup>303</sup>.

A significant stage in foreign economic integration was Ukraine's accession to the World Trade Organization (WTO) in 2008. This provided Ukrainian enterprises with access to information about the trade regimes of other countries and participation in the notification system, which informs about changes in the legislation of WTO member countries, especially in the field of regulating the compliance of products with sanitary and phytosanitary norms, technical standards and regulations<sup>304</sup>.

WTO accession has also facilitated the conclusion of agreements on the creation of free trade areas with various countries and integration associations, such as the European Free Trade Association (EFTA), the European Union, Canada and Montenegro (Table 4.1). These agreements have facilitated access for Ukrainian enterprises to the domestic markets of the participating countries through the liberalization of the trade regime, which includes the elimination or reduction of customs duties and taxes, as well as quantitative restrictions on the export and import of goods. At the same time, trade in agricultural products and food products within the free trade areas is often subject to special conditions that provide for the gradual removal of restrictions.

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<sup>302</sup> On international treaties of Ukraine: Law of Ukraine dated 29.06.2004. No. 1906-IV // Information of the Verkhovna Rada of Ukraine. 2004. № 50. Article 540

<sup>303</sup> Kozubra M. I. The relationship between national and international legal systems. Scientific notes of NaUKMA. Legal sciences. 2016. Vol. 181. P. 3–11.

<sup>304</sup> Information based on reports from WTO member countries. Department of Multilateral and Bilateral Trade Agreements. Ministry of Economic Development, Trade and Agriculture of Ukraine. URL: <https://me.gov.ua/Documents/List?lang=uk-UA&id=ef225f55-b6f8-4959-8d88-eed54adfbcb66&tag=InformatsiiaZaPovidomlenniamiZKrain-chlenivSot>

Characteristics of free trade agreements signed by Ukraine <sup>305</sup>

Free Trade Agreements of Ukraine with other countries or groups of countries	Institutional framework	Ratification of the Agreement
Association Agreement between Ukraine and the EU Section "On the Creation of a Free Trade Area" (entered into force in 2016)	Association Council. Association Committee. Association Parliamentary Committee. Civil Society Platform	Law of Ukraine No. 1678-VII of April 16, 2014
Free Trade Agreement with EFTA. Agreement on Agriculture directly with each Association Country (entered into force in 2011)	EFTA-Ukraine Joint Committee	Law of Ukraine No. 4091-VI of December 7, 2011
Agreement on a Free Trade Area with the CIS Countries (entered into force in 2012)	Bilateral Commission with the Republic of Kazakhstan. Interstate Coordination Council with the Republic of Belarus and others	Law of Ukraine No. 5193-VI of August 30, 2012
Free Trade Agreement between Ukraine and Canada (entered into force in 2017)	Trade Committee	Law of Ukraine No. 1917-VIII of March 14, 2017
Agreement between the Government of Ukraine and the Government of the Republic of Georgia (entered into force in 1995)	Joint Ukrainian-Georgian Commission	Law of Ukraine No. 168/96-VR of May 5, 1996.
Free Trade Agreement between the Government of Ukraine and the Government of Montenegro (entered into force in 2013)	Free Trade Committee	Law of Ukraine No. 5445 of October 16, 2012
Free Trade Agreement between the Republic of Macedonia and Ukraine (entered into force in 2001)	Joint Committee	Law of Ukraine No. 2599-III of July 5, 2001

Within each free trade agreement signed by Ukraine, an institutional environment has been created to ensure the effective implementation of obligations by the parties to the agreement. For example, after joining the

<sup>305</sup> Bilyanskiy Yu. O. Formation of institutional support for the foreign economic activity of agricultural enterprises of Ukraine in the context of international trade agreements. Effective economy. 2020. №3. <http://www.economy.nayka.com.ua/?op=1&z=7745>

European Free Trade Association (EFTA), which includes Iceland, Liechtenstein, Norway and Switzerland, Ukraine created the "Ukraine-EFTA Joint Committee". This committee controls and monitors the implementation of the provisions of the agreement, and also identifies opportunities for eliminating tariff and non-tariff barriers to improve trade conditions between the participating countries. In addition, separate agreements on trade in agricultural products have been concluded with each EFTA country.

The agreement provided for the gradual elimination of tariffs on agricultural imports. For example, for animal products and processed cereals (flour), tariffs were eliminated over 7 years with an annual reduction of 13 percentage points, with the final elimination taking place in January 2019. Other products, such as cereals and vegetables, had a different tariff reduction schedule. The agreement also contains safeguard provisions that allow for the possibility of temporarily increasing tariffs or establishing tariff quotas for certain goods if necessary<sup>306</sup>.

The Free Trade Area Agreement with Montenegro, in force since 2013, establishes a customs regime for trade, where Ukraine has undertaken to abolish import duties on most products, with the exception of some, such as fresh or chilled pork, parts of poultry carcasses, and sugar. To confirm the origin of the goods, it is necessary to submit an EUR.1 certificate or another document confirming the origin of the products<sup>307</sup>.

The Ukraine-Canada Free Trade Agreement (CUFTA), introduced in 2017, provides for the elimination of 90% of trade restrictions between the countries (Figure 4.5). For this purpose, the Committee on Trade in Goods

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<sup>306</sup> Free Trade Agreement between Ukraine and the EFTA States. State Fiscal Service of Ukraine. URL: <http://sfs.gov.ua>

<sup>307</sup> Free Trade Agreement between the Government of Ukraine and the Government of Montenegro. Legislative Framework of Ukraine. URL: <https://zakon.rada.gov.ua>

and Rules of Origin and the Subcommittee on Agricultural Products were established, which deal with resolving customs issues and verifying documents on the origin of goods. The most important agreement was the Deep and Comprehensive Free Trade Area (DCFTA) between Ukraine and the EU, which was implemented within the framework of the Association Agreement and is valid from 2016 to 2026. The DCFTA ensures access of Ukrainian goods to European markets and promotes the convergence of Ukrainian legislation with European standards. Trade liberalization within the DCFTA provides for the elimination of most customs duties, but provides for transitional periods for some agricultural products. The institutional support of this agreement is carried out through the Association Committee and its subcommittees, which deal with various aspects of trade and cooperation between Ukraine and the EU.

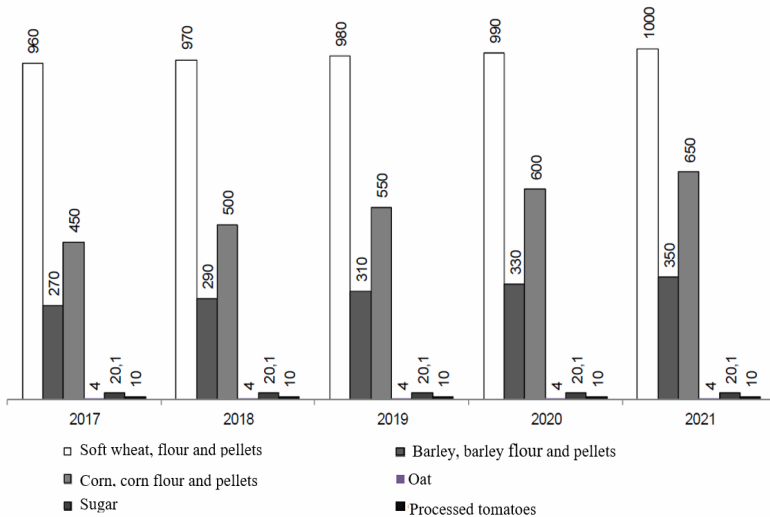


Fig. 4.5. Change in tariff quotas allocated to the EU for the import of plant products from Ukraine in 2017-2021, thousand tons <sup>308</sup>

<sup>308</sup> Bilyanskyi Yu. O. Formation of institutional support for the foreign economic activity of agricultural enterprises of Ukraine in the context of international trade agreements. Effective economy. 2020. №3. <http://www.economy.nayka.com.ua/?op=1&z=7745>

As a result of trade liberalization in Ukraine, the openness of the national economy increases and economic growth is ensured by eliminating tariff and non-tariff barriers to trade in goods on international markets. The improvement of trade conditions for domestic enterprises that export and import products is achieved through Ukraine's membership in international organizations, the conclusion of bilateral trade agreements, and the creation of free trade zones. At the same time, in the process of evolution of institutional support for the protection of the interests of domestic exporters, the conditions for their participation in international trade are improving, as they have received a number of advantages due to the abolition or reduction of customs tariffs or an increase in quotas for duty-free import of products. It should be noted that the use of preferences received by domestic exporters in accordance with agreements concluded within the WTO and free trade agreements is largely determined by the ability of producers to adapt to global norms and standards for product quality.

#### **4.4. Problems of implementing Ukraine's foreign economic policy during martial law**

The full-scale invasion of Ukraine by Russian troops on February 24, 2022, and the introduction of martial law negatively affected the country's economic stability, forcing the government to review and adapt its regulatory approaches to foreign economic activity. In the context of the war, the government was faced with the need to develop new mechanisms to support economic development aimed at ensuring a balance between meeting the needs of the domestic market and maintaining the competitiveness of Ukrainian goods in international markets.

The main tasks of regulatory policy in wartime were:

Supporting the import of critical goods: Ensuring stable supplies of goods that are crucial for the functioning of the economy and the country's defense capability. This includes food products, medical goods, fuel and other necessary resources.

Increasing exports of competitive products: Effective support for exporters to maintain and expand their positions in foreign markets. This is important both for replenishing the state budget and for preserving jobs in export-oriented industries.

State regulation in wartime requires special approaches, taking into account the instability of the market situation and the growth of import dependence. It is important that the Government of Ukraine adapt its economic policies to new realities, contributing to the optimization of trade relations and strengthening the integration of the Ukrainian economy into the world economic system, while ensuring the protection of national interests and economic security.

The situation in Ukraine is complicated not only by the full-scale war, but also by the problems of the slow recovery of the economy after the pandemic. The war has a devastating impact on the economy of Ukraine and its position in international markets. This is manifested in the following processes:

Economic and physical destruction of enterprises due to the aggravation of the crisis and the destruction of the material and technical base as a result of missile attacks.

Slowdown of business activity, decrease in the profitability of enterprises and the impossibility of ensuring socio-economic development in wartime.

Loss of human capital due to the mass emigration of citizens abroad, decrease in labor productivity due to the deterioration of professional conditions, uncertainty and worsening career prospects of employees, the impossibility of training and advanced training, as well as an increase in the mortality rate of the population due to military operations and the difficulty of accessing medical services in front-line regions.

Martial law introduced in Ukraine introduces a special legal regime, under which some regulatory instruments in the field of foreign economic activity are not applied due to their inexpediency and low efficiency. The basis of the regulatory mechanism during wartime is formed by legal levers. The Law of Ukraine "On the Legal Regime of Martial Law", adopted in 2015, does not provide for direct restrictions or prohibitions on export-import operations during martial law<sup>309</sup>. However, special attention is paid to changes in trade relations with the aggressor country, which involves the establishment of an embargo. Ukraine's foreign trade with Russia, recognized as an aggressor state, must be completely stopped.

The Law of Ukraine "On Foreign Economic Activity" grants the Verkhovna Rada of Ukraine the authority to regulate foreign economic activity, in particular by introducing measures in response to discriminatory or unfriendly actions of other states, including full or partial embargoes on bilateral trade, as well as the abolition of the most favored nation treatment or preferential special treatment<sup>310</sup>.

In addition, the Law provides for the possibility of applying appropriate measures under a simplified procedure based on a decision of

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<sup>309</sup> On the legal regime of martial law. Law of Ukraine. № 389-VIII. URL: <https://zakon.rada.gov.ua/laws/show/389-19#Text>

<sup>310</sup> On foreign economic activity. Law of Ukraine. № 959-XII dated 16.04.1991. <https://zakon.rada.gov.ua/laws/show/959-12#Text>

the Cabinet of Ministers of Ukraine in response to discriminatory actions of an aggressor or occupier state. These provisions are also enshrined in other regulatory acts, such as the Customs and Tax Codes of Ukraine, which determine restrictions on the import of goods from an aggressor state.

These provisions were implemented in accordance with the Resolution of the Cabinet of Ministers of Ukraine “On the Application of the Ban on the Import of Goods from the Russian Federation” dated April 9, 2022, which prohibited the import of products from Russia from April 11, 2022.

After the start of the full-scale Russian invasion of Ukraine, a number of regulatory acts were adopted that changed the procedure for state regulation of foreign economic activity, including licensing of exports and imports, restrictions on the export of certain commodity groups, simplification of customs clearance of goods of critical import, and reduction of the term of settlements for export-import transactions (Table 4.2).

In addition to changes in national legislation, an important factor influencing the formation of institutional support for foreign trade was the changes in the trade regime with the EU. After the outbreak of the war, the European Commission adopted the Action Plan "Paths of Solidarity"<sup>311</sup>, aimed at creating additional logistics routes for the export of Ukrainian products to Europe and transit to countries in Asia, Africa and the Middle East. The creation of "solidarity corridors" became the basis for further liberalization of trade between Ukraine and the EU through the introduction of "transport visa-free" and "trade visa-free".

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<sup>311</sup> Zanuda A. Trade unlimited: what two years without restrictions on the EU market gave Ukraine. URL: <https://www.bbc.com/ukrainian/articles/cv22lexmrmno>

## Changes in the regulation of Ukraine's foreign economic activity under martial law<sup>312</sup>

Document title	Changes introduced
CMU Resolution No. 314 dated 18.03.2022 “Some issues of ensuring the conduct of economic activity during martial law”.	Until the termination or cancellation of martial law in Ukraine, the fee for issuing a license for the export/import of goods is not collected
CMU Resolution No. 207 dated 05.03.2022 “On amendments to Annexes 1 and 5 to the Resolution of the Cabinet of Ministers of Ukraine dated December 29, 2021 No. 1424”	Quotas and licensing have been introduced for the export of: wheat and mixtures of wheat and rye, chicken meat, chicken eggs, live cattle, meat and edible meat by-products, edible flour from meat or meat by-products, millet, sugar. Ban on the export of oats, buckwheat, salt, rye. Introduction of a zero quota for the export of mineral fertilizers.
CMU Resolution No. 236 dated 09.03.2022 “Some issues of customs clearance of certain goods imported into the customs territory of Ukraine during the period of martial law”	The possibility of importing most goods under a simplified procedure based on the submission of a preliminary customs declaration without paying customs payments (including VAT, excise tax, import duty), without conducting customs inspection, phytosanitary control, as well as non-tariff regulation measures has been introduced.
NBU Board Resolution No. 18 dated 24.02.2022 “On the operation of the banking system during the period of martial law”	The settlement deadlines for export-import transactions have been reduced to 90 calendar days, compared to peacetime rules (365 calendar days)

The "Agreement on the Liberalization of Freight Transport between Ukraine and the EU" was signed at the end of June 2022 for one year, and in June 2023 its validity was extended for another year<sup>313</sup>. Thanks to this agreement, Ukrainian carriers were able to transport goods across the EU without the need for special permits. This regime, known as “visa-free transport”, is also used by European transport companies to deliver goods to the customs territory of Ukraine. The implementation of this agreement

<sup>312</sup> Compiled by: Resolution of the Cabinet of Ministers of Ukraine № 314 dated 18.03.2022 «Some issues of ensuring the conduct of economic activities under martial law». <https://zakon.rada.gov.ua/laws/show/314-2022-%D0%BF#Text>; Resolution of the Cabinet of Ministers of Ukraine № 207 dated 05.03.2022 «On amendments to Appendices 1 and 5 to the Resolution of the Cabinet of Ministers of Ukraine dated December 29, 2021. № 1424». <https://zakon.rada.gov.ua/laws/show/207-2022-%D0%BF#Text>; Resolution of the Cabinet of Ministers of Ukraine dated 09.03.2022 № 236 «Some issues of customs clearance of certain goods imported into the customs territory of Ukraine during the period of martial law». <https://zakon.rada.gov.ua/laws/show/236-2022-%D0%BF#Text>; Resolution of the NBU Board of 24.02.2022 № 18 «On the operation of the banking system during the period of martial law». <https://zakon.rada.gov.ua/laws/show/v0018500-22#Text>.

<sup>313</sup> Tarasovskiy Y. Transport visa-free regime. Ukraine increased truck exports by almost a third during the term of the agreement. URL: <https://forbes.ua/news/transportniy-bezviz-ukraina-zbilshila-eksport-vantazhivkami-mayzhe-natretinu-za-chas-dii-ugodi-19122023-17984>

made it possible to solve the problem of exporting Ukrainian agricultural products by land through EU countries in conditions of blocking maritime logistics. However, Polish carriers expressed dissatisfaction, accusing the European Commission of violating competitive conditions in the freight market due to the lower cost of Ukrainian transport services. In response, they began to block crossing points on the Polish-Ukrainian border. As a result, after a significant simplification of the regime for transporting goods from Ukraine to the EU, new problems arose on the Polish-Ukrainian border, which negatively affected the institutional environment of Ukraine's foreign economic activity and forced Ukrainian politicians to take appropriate measures.

Since June 2022, the European Union has also introduced a "trade visa-free regime", which abolishes duties and quotas on the import of Ukrainian goods into EU countries and will be valid until June 2025<sup>314</sup>. Although Ukraine already exported most of its processing industry products duty-free and quota-free under the Association Agreement, the "visa-free trade" has significantly facilitated the export of Ukrainian agricultural products, which were previously supplied within quotas. The introduced "autonomous trade preferences" have significantly improved the terms of trade for Ukrainian exporters with EU countries.

However, this preferential regime caused dissatisfaction among Polish farmers, who joined the protests of carriers blocking the border. In August 2023, Poland banned the import of Ukrainian sunflower seeds, corn, rapeseed and wheat. Similar protests also occurred in Bulgaria, Romania, Slovakia and Hungary, which restricted the import of these

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<sup>314</sup> The EU has finally approved "trade visa-free travel" for Ukraine. Debet-Kredit, May 14, 2024. URL: <https://www.qdpro.com.ua/uk/news/ies-ostatochno-shvaliv-torgovelnij-bezviz-dlya-ukrayini>

products from April to October 2023. After that, the European Commission decided not to extend the restrictions, believing that the imbalances in agricultural markets had been eliminated. However, the blockade of the Polish-Ukrainian border lasted until May 2024, which negatively affected the volume of exports of Ukrainian products, not only agricultural, to Poland.

Thus, Ukraine's foreign economic policy under martial law has undergone significant changes, especially regarding the regulation of exports and imports of goods. The main areas of these changes include:

**Ban on trade with Russia as an aggressor state:** The establishment of a complete ban on foreign economic activity with Russia contributed to the protection of Ukraine's national interests and economic security.

**Control over the export of basic foodstuffs:** The Cabinet of Ministers of Ukraine introduced restrictions on the export of key foodstuffs, thereby ensuring their availability on the domestic market in wartime conditions.

**Ensuring the import of critical goods:** Conditions were created for the uninterrupted supply of necessary imported goods to Ukraine, which are important for the country's economy and defense.

The Association Agreement with the EU became a decisive factor in the transformation of foreign economic policy. Within the framework of this agreement, the European Union decided to liberalize the freight transportation regime for Ukrainian transport companies and abolish customs duties and quantitative restrictions on duty-free import of goods from Ukraine. These measures significantly improved the terms of trade between Ukraine and the EU countries, contributing to the growth of exports of Ukrainian goods.

However, the introduction of these preferential regimes also caused certain complications in relations with individual EU countries. For example, Polish carriers protested against the decrease in competitiveness in the European freight market due to cheaper Ukrainian services, which led to border blockades and tensions in trade relations. Similar protest actions were observed in other EU member states, which required Ukrainian politicians to take appropriate measures to stabilize the foreign economic environment. Thus, Ukraine's foreign economic policy in the period 2022-2024 was determined by the need to adapt to wartime conditions, protect national interests, and integrate with the European Union, which contributed to both improving trade opportunities and the emergence of new challenges in international relations.

Geopolitical factors, including Russia's full-scale invasion of Ukraine and unprecedented support from the European Union, have catalyzed significant changes in the economic activity of not only Ukraine, but also many other countries. The transformation of Ukraine's foreign economic policy under the influence of martial law has led to changes in the volumes of exports and imports, as well as in the geographical and commodity structure of foreign trade. The Ukrainian economy, having suffered significant losses of industrial potential and labor resources due to the war, has faced a decline in exports and a deterioration in its position in global markets. In 2021, Ukraine's foreign trade volumes recovered rapidly after the crisis caused by the Covid-19 pandemic in 2020. In particular, exports increased to \$68,072.3 million compared to \$49,191.8 million in 2020, and imports increased from \$54,336.1 million to \$72,843.1 million in 2021.

However, in 2022, due to the full-scale war, Ukraine's total foreign trade volume decreased by 29.5% compared to the previous year. Exports decreased by 35.1% (by 23,923.5 million USD), and imports by 24.1% (by 17,569.6 million USD). Since exports decreased faster than imports, this led to an increase in the negative balance of Ukraine's foreign trade balance in 2022 to 11,160 million USD.

In 2023, the situation worsened: a significant decline in exports continued, while imports increased. This led to a further increase in the negative balance of foreign trade to 27,384.1 million USD.

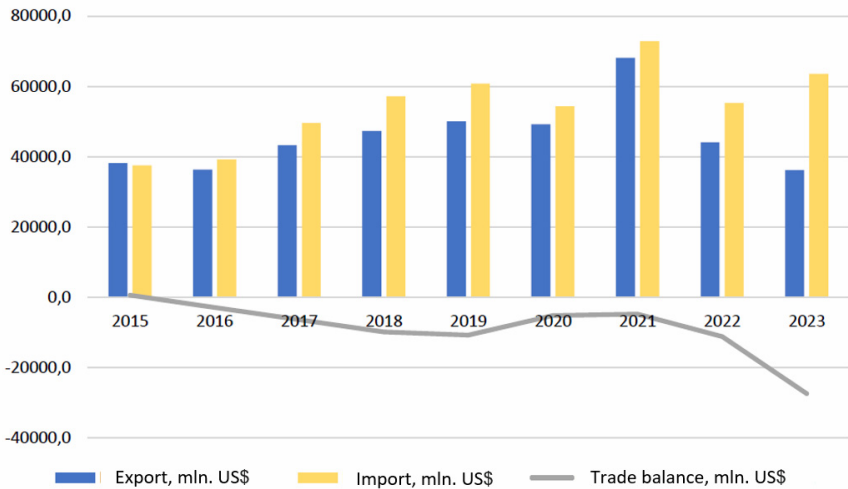


Fig. 4.6. Dynamics of Ukraine's export and import volumes in 2015-2023<sup>315</sup>

The structure of Ukraine's exports of goods in 2022 was dominated by plant products, which accounted for 30.5% of total exports. However, their exports decreased by 13.3% compared to 2021. In 2023, there was a further

<sup>315</sup> Compiled by: Dynamics of the geographical structure of foreign trade in goods (1996-2023). URL: [https://www.ukrstat.gov.ua/operativ/menu/menu\\_u/zed.htm](https://www.ukrstat.gov.ua/operativ/menu/menu_u/zed.htm)

decrease in exports of plant products by 13% compared to 2022, although their share in total exports increased to 32.5%. The group of goods "Base metals and articles thereof" also accounted for a significant part of Ukrainian exports, but their share decreased from 13.6% in 2022 to 10.8% in 2023. The export volume of this group of goods in 2022 decreased by 62.5% compared to 2021 and by another 34.8% in 2023 compared to 2022.

Animal and vegetable fats and oils ranked third in terms of export share in 2022, accounting for 13.5% of total exports of goods. In 2022, the export volume of these products decreased by 15.5% compared to 2021, and in 2023 their share in exports increased to 15.6%, although export volumes decreased by 5% compared to the previous year.

The decrease in exports of processing industry products was due to significant losses of industrial potential in the occupied regions of Donetsk, Luhansk, Zaporizhia regions, as well as due to the destruction of industrial facilities in Dnipropetrovsk, Mykolaiv and Kharkiv regions. Exports of agricultural products, the basis of which are cereals and oilseeds, decreased due to the destruction of maritime logistics routes. Restoring agricultural exports depends on resolving logistical problems, while stabilizing industrial exports requires significant capital investments in restoring the material and technical base and energy infrastructure.

As for imports of goods, in 2022 its volume decreased by 24.1% compared to 2021, however, in 2023 there was an increase in imports by 15% compared to 2022. The largest decrease was observed in imports of goods such as machinery and equipment, polymeric materials and plastics, as well as mineral products. In particular, the share of machinery, equipment and electrical equipment in imports in 2022 was 16.6%, and their imports decreased by 35.4% (by 3247.4 million USD) compared to

the previous year. In 2023, the share of this group of goods in imports increased to 17.7%, and their imports increased by 22.6% compared to 2022.

The share of mineral products in imports in 2022 was 23.7%, and import volumes decreased by 12.4% (by 1,626.4 million USD) compared to the previous year. This trend continued in 2023, when the share of mineral products in imports decreased to 16.7%, and their imports decreased by 19% compared to 2022.

The commodity group "Polymeric materials, plastics and products made from them" ranked third in terms of imports to Ukraine in 2022, accounting for 5.9% of total imports. Their imports decreased by 32.4% compared to 2021. However, in 2023, the share of this group of goods in imports remained at 5.9%, and the value of imports increased by 14.9% compared to 2022.

In 2022, the reduction in the volume of imports of goods to Ukraine was due to full-scale military operations, which significantly affected the social and economic spheres of life. The departure of more than 7.5 million Ukrainian refugees abroad caused a decrease in consumer demand in the domestic market, and the economic crisis led to a decrease in the purchasing power of citizens who remained in Ukraine. In addition, the volume of industrial production decreased, which caused a decrease in demand for imported raw materials, materials and components. However, in 2023, imports of chemical industry products, polymeric materials, plastics, base metals and products made of them, machinery and equipment, and vehicles increased. This indicates a partial recovery of certain types of industrial production that requires imported intermediate

goods, as well as the replacement of domestically produced products with imported goods.

Ukraine's trade in services suffered more than trade in goods, both during the pandemic in 2020 due to the introduction of quarantine restrictions, and under martial law due to the impossibility of providing and consuming certain types of services. In 2022, exports of services decreased by 28.3% compared to 2021. The volumes of services related to the processing of goods (by 75.3%), air transport services (by 64.2%), rail transport (by 68.5%), as well as travel-related services (by 57.4%), construction services (by 55.3%), insurance services (by 81.7%), and public administration services (by 86.7%) significantly decreased.

The rate of decline in imports of services to Ukraine in 2022 was even greater than the decline in exports. Imports of services decreased by 62.2% compared to 2021, while during the pandemic in 2020 this indicator decreased by only 16.4% compared to the previous year. Imports of public administration services (by 98.1%), travel-related services (by 88.2%), and environmental services (by 86.7%) decreased the most. Imports of construction services (by 80.7%), air transport services (by 69.8%), and goods processing services (by 67.2%) also decreased significantly. This decrease was due to the cessation of operations of many enterprises located in regions close to the front line or in active combat zones.

Thus, geopolitical factors, primarily related to Russian aggression, have become a source of significant threats that have exacerbated the negative impact of internal economic problems on Ukraine's foreign economic activity. In wartime, the activities of many Ukrainian enterprises have become impossible due to missile attacks and destruction of infrastructure, which has led to a significant decrease in the volume and

changes in the structure of foreign trade in goods and services. Enterprises have been forced to reduce production and provision of services, which has led to a decrease in export volumes and demand for imported materials and components, as well as a significant reduction in the import of services due to the lack of demand for them in the domestic market.

However, despite negative geopolitical factors, Ukraine's cooperation with international partners, in particular with the EU, which has significantly simplified trade conditions for Ukrainian exporters, plays an important positive role. The liberalization of the transport regime in 2022 led to an increase in exports of goods from Ukraine by 40% compared to 2021, and in 2023 this growth was 30%. Imports of goods from the EU to Ukraine increased by 11% in 2022 and by 25% in 2023 compared to 2021. Over the 1.5 years of the "transport visa-free regime", Ukraine exported 48% more goods and imported 44% more goods than in the same period before the signing of this agreement (Figure 4.7).

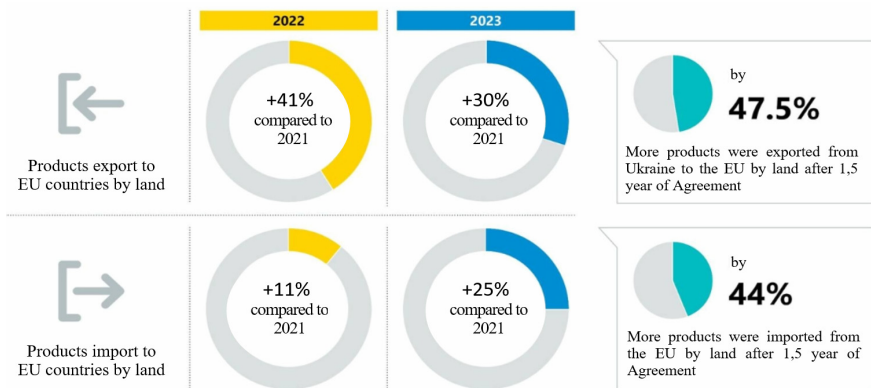


Fig. 4.7. The impact of the agreement on liberalization of transport on Ukraine's trade with EU countries<sup>316</sup>

<sup>316</sup> Tarasovskyi Y. Transport visa-free regime. Ukraine increased truck exports by almost a third during the term of the agreement. URL: <https://forbes.ua/news/transportniy-bezviz-ukraina-zbilshila-eksport-vantazhivkami-mayzhe-na-tretinu-za-chas-dii-ugodi-19122023-17984>

The European Union has become Ukraine's main trading partner, and since 2022, Poland has taken a leading place among Ukraine's foreign trade partner countries, displacing China from this position. Trade volumes with China have significantly decreased due to economic and geopolitical risks associated with the war. In 2022, the EU's share in Ukraine's trade increased to 53.6% compared to 39.1% in 2021. This growth was largely due to the active use of the preferential trade regime introduced within the framework of the Deep and Comprehensive Free Trade Area (DCFTA), as well as the abolition of customs duties and quantitative restrictions on imports of Ukrainian goods into the EU since June 2022.

Improved terms of trade with the EU contributed to a faster adaptation of Ukrainian exporters to the war conditions and the establishment of export supplies. Although Ukraine's total trade turnover with the EU increased by 4% in value terms, the physical volume of trade decreased by almost 4%. One of the reasons for this decrease was the blockade of the Ukrainian border by Polish carriers and farmers during 2023, as well as the embargo imposed by five EU countries on the import of basic agricultural goods from Ukraine.

In the first half of 2023, exports of goods from Ukraine to the EU decreased to USD 19.4 billion, which is 14% less than in the same period of 2022. At the same time, imports of goods increased to USD 30.4 billion, which is 20% more than in the first half of 2022. However, in physical terms, imports decreased by 26%, which indicates an increase in prices for basic goods that Ukraine purchases from the EU. The negative balance in trade in goods with the EU amounted to USD 11 billion, which is explained by the increase in the trade deficit in such commodity groups as

machinery, equipment, vehicles, mineral products, chemical and pharmaceutical products, and textiles<sup>317</sup>.

Also in the first half of 2023, there were changes in the commodity structure of exports and imports between Ukraine and the EU compared to the first half of 2022. The share of agricultural products in Ukraine's exports to the EU increased to 60.6%, while the share of processing industry products decreased to 39.4% (Figure 4.8). In particular, the share of base metals and products made from them decreased to 11% due to a decrease in production volumes in Ukraine and problems with the logistics of supplying these products to EU countries. Mineral products accounted for 5.1% of total exports of goods, machinery, equipment and vehicles – 8.6%, chemical products – 3.1%, fuels and energy carriers – 1.2%.

In imports from the EU to Ukraine, the share of fuels and energy carriers decreased to 19.2%, as the Ukrainian market was saturated with these products, and demand for them decreased due to the reduction in industrial production and the decline in the domestic service sector. At the same time, the share of machinery, equipment and vehicles in imports increased to 29.2%, and the share of food and agricultural products increased to 11.4%.

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<sup>317</sup> Foreign trade in goods. Results of the first half of 2023. URL: <https://niss.gov.ua/doslidzhennya/mizhnarodni-vidnosyny/zovnishnya-torhivlya-tovaramy-pidsumky-i-pivrichchya-2023-roku>

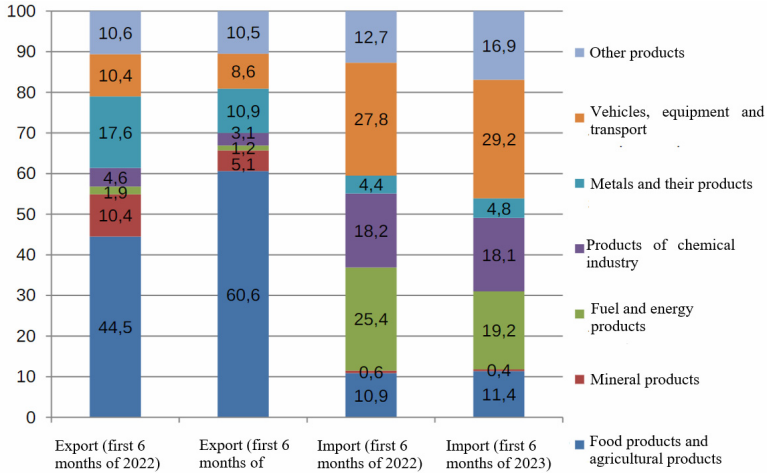


Fig. 4.8. Commodity structure of foreign trade in goods in the first half of 2022 and 2023, % (value volumes)<sup>318</sup>

The geographical structure of Ukraine's foreign trade in 2022-2023 was characterized by a high share of the EU in both exports (62%) and imports of goods (52%). Under martial law, Ukraine actively used the trade preferences provided by the European Union within the framework of the Deep and Comprehensive Free Trade Area (DCFTA). An important factor contributing to the growth of trade turnover between Ukraine and the EU was the decision of the European Commission and the European Council to abolish customs duties and quantitative restrictions on the import of Ukrainian goods.

In addition to the EU, a significant share of Ukrainian exports was occupied by countries such as China (8.5%), Turkey (8.2%), Egypt (2.9%), India (1.6%) and the USA (1.5%). The largest increase in exports of Ukrainian goods occurred to Turkey (by 24%) due to increased exports of sunflower oil, cereals, wood, engines and parts for railway locomotives and trams.

<sup>318</sup> Foreign trade in goods. Results of the first half of 2023. URL: <https://niss.gov.ua/doslidzhennya/mizhnarodni-vidnosyny/zovnishnya-torhivlya-tovaramy-pidsumky-i-pivrichchya-2023-roku>

Changes in the consumption structure on the Ukrainian market caused by the war led to an increase in imports from China of goods such as cars, computers, unmanned aerial vehicles, electric generators, electric batteries, fertilizers and petroleum products. Imports from Turkey also increased, including petroleum products, electric generators, vehicles, metal products, car tires and pharmaceutical products.

The full-scale war became a determining factor in significant changes in the dynamics and structure of Ukraine's foreign trade. The destruction of industrial potential due to the occupation of part of the territory and the physical destruction of enterprises as a result of rocket attacks led to a decrease in the volume of Ukrainian exports and a gradual increase in imports of goods to meet consumer and defense needs. The share of agricultural products in exports from Ukraine increased against the background of a significant decrease in exports of processing industry products.

In the structure of imports to Ukraine, there was an increase in the production of mechanical engineering, electronics, vehicles, fuels and lubricants, and medical products. A significant role in mitigating the crisis situation in foreign trade was played by the EU policy of liberalizing the regime of transport by Ukrainian carriers across the territory of EU countries, as well as the introduction of a duty-free regime for all goods imported from Ukraine. However, the effect of these measures was partially offset by the introduction by five EU countries of an embargo on the import of major agricultural products from Ukraine, as well as the blocking of border checkpoints by Polish carriers and farmers, which significantly complicated the delivery of export and import goods.

## **CHAPTER 5. THE STATE AND PROBLEMS OF ENSURING EFFICIENCY OF UKRAINE'S FOREIGN TRADE AT THE PRESENT STAGE**

### **5.1. Consequences of the pandemic for Ukraine's foreign trade**

Ukraine's economy is integrated into the global environment, and therefore is extremely sensitive to the impact of external shocks associated with such global phenomena as global financial crises and pandemics. Accordingly, the Covid-19 pandemic spread very quickly to the territory of Ukraine, causing significant economic losses and human losses in 2020. The Ukrainian government reacted very quickly, introducing a number of strict quarantine restrictions aimed at countering the pandemic: blocking the state border; closing many enterprises, especially in the service sector; stopping international passenger traffic and restricting internal logistics.

At the beginning of the pandemic, Ukraine's economy was already weakened by the war and the loss of economic potential of Crimea annexed by Russia and parts of the occupied Donetsk and Luhansk regions, so the impact of the pandemic was extremely negative. The slowdown in business activity, the complications of the functioning of large industrial enterprises, and the restrictions on international relations led to a significant economic downturn in Ukraine.

According to IMF estimates, due to the decline in economic activity during the pandemic, Ukraine's GDP decreased by 9.1% in 2020 compared to 2019 and, according to expert forecasts, should have grown by 3% in 2021 and 3.2% in 2022, given the recovery of the global economy in the

post-pandemic period<sup>319</sup>. According to the State Statistics Service of Ukraine, the decline in Ukraine's GDP in the 2nd quarter of 2020 was 11.4%, in the 3rd quarter of 2020 this indicator decreased by 3.5%, and in the 4th quarter of 2020 the slowdown in growth was much smaller and amounted to 0.7%. Real GDP in the 1st quarter of 2021 decreased by 1.1% compared to the previous quarter, and by 2.0% compared to the first quarter of 2020<sup>320</sup>.

The significant reduction in Ukraine's GDP due to the pandemic led to an increase in the state budget deficit, which increased from 1.8% in 2019 to 5.18% of GDP in 2020, and decreased to 3.63% of GDP in 2021<sup>321</sup>. There was also an increase in the ratio of Ukraine's public debt to GDP - from 50.3% in 2019 to 60.8% in 2020<sup>322</sup>. The unemployment rate in Ukraine was decreasing until 2019, but due to the negative impact of the pandemic on the economy, it increased to 11% in 2020 and remained at a high level in 2021 - 9.6%<sup>323</sup>.

The data presented in Table 5.1 indicate that the greatest impact of the pandemic was manifested in the negative dynamics of foreign trade, which was characterized by a decrease in export volumes in 2020 by 4.71% compared to 2019 and in import volumes by 18.13%, respectively. However, the faster rate of decrease in import volumes compared to the rate of decrease in exports led to a positive effect, which consisted in a

<sup>319</sup> Coronavirus puts up to 50 million Travel & Tourism jobs at risk. URL: <https://wtcc.org/Portals/0/Documents/Press%20Releases/Coronavirus%20puts%20up%20to%2050%20million%20Travel%20and%20Tourism%20jobs%20at%20risk%20says%20WTTC.pdf?ver=2020-10-26-143855-200>

<sup>320</sup> Gross domestic product in the 1st–4th quarters of 2020 and in 2020. State Statistics Service of Ukraine. Express release of 22.03.2021. [www.ukrstat.gov.ua](http://www.ukrstat.gov.ua)

<sup>321</sup> Execution of the State Budget of Ukraine from 2008 to 2024. Ministry of Finance of Ukraine. <https://index.minfin.com.ua/ua/finance/budget/gov/2021/>

<sup>322</sup> Dynamics of the aggregate public debt and GDP of Ukraine from 2009 to 2024. Ministry of Finance of Ukraine. <https://index.minfin.com.ua/ua/finance/debtgov/>

<sup>323</sup> Unemployment of the population (according to ILO methodology) by gender, type of area and age groups. State Statistics Service of Ukraine. URL: [https://www.ukrstat.gov.ua/operativ/operativ2017/rp/eans/eans\\_u/arch\\_bnsmv\\_u.htm](https://www.ukrstat.gov.ua/operativ/operativ2017/rp/eans/eans_u/arch_bnsmv_u.htm)

decrease in the negative balance of foreign trade turnover by 10.8 billion USD or 86.4% in 2020 compared to 2019. This is explained by the fact that Ukraine's exports are dominated by raw materials, so the reduction in its volume was relatively insignificant. At the same time, imports, in which industrial goods occupy a larger share, decreased significantly more than exports.

Table 5.1

Dynamics of the main macroeconomic indicators of Ukraine in 2018-2020<sup>324</sup>

Indicator	2018	2019	2020	Deviation 2020/2019	
				Absolute	Relative
GDP, billion USD	130,93	154.69	142.25	-12.44	-8.04
External debt, billion USD	114.449	117.409	122.799	5.39	4.59
Inflation, %	9.8	4.1	5.0	0.9	21.9
Unemployment rate, %	9.0	8.5	11.0	2.5	29.41
Export of goods and services, billion USD	59.2	63.6	60.6	-3.0	-4.71
Import of goods and services, billion USD	70,6	76.1	62.3	-13.8	-18.13
Foreign trade turnover, billion USD	129.8	139.7	122.9	-16.8	-12.02
Foreign trade balance, billion USD	- 11.4	- 12.5	- 1.7	10.8	-86.4

The differences in the downward dynamics of Ukraine's exports and imports during 2020 were due to the commodity and geographical structure of foreign trade. Thus, in addition to the impact of the pandemic as a general factor in the decline in exports and imports during this year, experts identified additional factors. Such factors included changes in the

<sup>324</sup> Calculated based on data: Gross domestic product in the 1st–4th quarters of 2020 and in 2020. State Statistics Service of Ukraine. Express release dated 03/22/2021. [www.ukrstat.gov.ua](http://www.ukrstat.gov.ua); Execution of the State Budget of Ukraine from 2008 to 2024. Ministry of Finance of Ukraine. <https://index.minfin.com.ua/ua/finance/budget/gov/2021/>; Dynamics of the aggregate public debt and GDP of Ukraine from 2009 to 2024. Ministry of Finance of Ukraine. <https://index.minfin.com.ua/ua/finance/debtgov/>

terms of Ukraine's trade with partner countries due to the introduction by our country of a number of trade restrictions on the export of certain groups of goods, as well as the introduction by the Chinese government of a stricter trade policy towards Australia<sup>325</sup>. The economic recovery of the Chinese economy began while other countries were in recession, which contributed to the growth of its exports, which to a large extent provided consumer demand for imported goods in many countries, including Ukraine.

At the same time, the rapid improvement in the situation in China also contributed to the export of Ukrainian goods, since starting in 2019, China became Ukraine's main trading partner and had the largest share in our country's foreign trade turnover. In addition, in 2020, the volume of Ukrainian exports to China almost doubled. Thus, the volume of barley exports from Ukraine to China in 2020 increased by 195% compared to 2019, corn and iron ore - by 81% and 77%, respectively. A significant increase in the volume of iron ore supplies from Ukraine was due to the increase in demand for raw materials by Chinese metallurgical enterprises. The increase in exports of Ukrainian grain crops, in particular corn and barley, was due to changes in China's trade policy, which since May 2020 imposed an 80% tariff on barley imports from Australia and effectively closed its market to Australian products. On the one hand, Ukraine's deepening trade with China increased the export opportunities of the Ukrainian agricultural sector and reduced the downward dynamics of exports during the pandemic. On the other hand, this led to an increase in

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<sup>325</sup> Deysan I., Sholomytskyi Y. Pandemic foreign trade: How difficult times of the corona crisis affect Ukrainian trade with the world. *Dzerkalo tyzhnia*, March 25, 2021. <https://zn.ua/ukr/international/pandemichna-zovnishnja-torhivlja.html>

the raw material component of Ukraine's agricultural exports, reducing their efficiency.

In connection with the above, the rate of decline in exports of goods was significantly lower compared to the rate of decline in imports (Figure 5.1). Given that Ukrainian exports to China consisted mainly of grain crops, a more significant reduction in their volume was observed in September (by 34.9% compared to September 2019), as the accumulated stocks of agricultural products were exhausted. However, after the new harvest, grain exports increased, and accordingly, the total volume of exports in September 2020 was only 3.5% lower compared to the same period of the previous year.

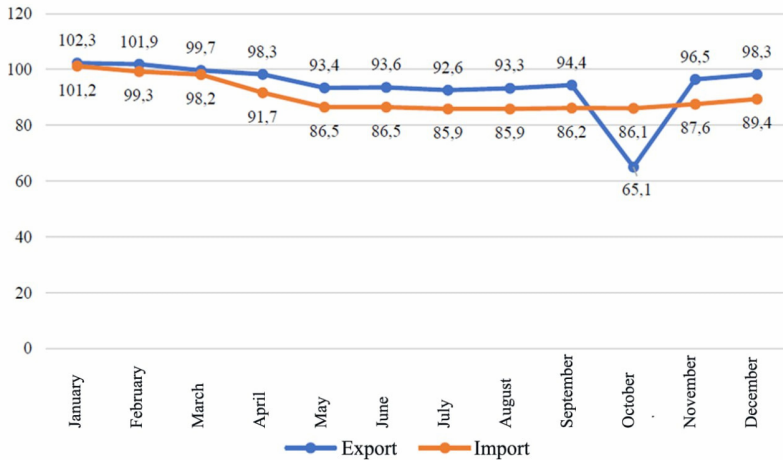


Fig. 5.1. Rates of change in the volume of exports and imports of goods of Ukraine during 2020<sup>326</sup>

As already noted, the largest share in the export of goods is traditionally occupied by agricultural raw materials. In particular, in 2020,

<sup>326</sup> Compiled by the author based on data: Monthly volumes of the commodity structure of foreign trade in 2020. [https://www.ukrstat.gov.ua/operativ/operativ2008/zd/str\\_eit/arh\\_s\\_eit\\_u.htm](https://www.ukrstat.gov.ua/operativ/operativ2008/zd/str_eit/arh_s_eit_u.htm)

the share of plant products accounted for 24.2% of the total volume of exports of goods of Ukraine, and this commodity group was dominated by cereals with a share of 19.1% in total exports of goods. In general, the annual reduction in the volume of exports of cereals was 2.8% compared to 2019, and exports of plant products decreased by 8% over the same period. It should be noted that in the first month of the pandemic, the volume of exports of cereals decreased insignificantly (by 89 million USD) and in April 2020 amounted to 839.7 million USD. The largest reduction in exports of cereals was recorded in June 2020 - to 354.9 million USD. Then, grain exports began to gradually recover and in November 2020 reached 905.7 million USD, which was only 4.9% less than in January 2020 (952.4 million USD).

In second place in terms of export volumes in 2020 were products belonging to the commodity group “Base metals and articles thereof”, which accounted for 18.4% of Ukraine’s total exports of goods. The main products in this commodity group were ferrous metals, whose share in total exports was 15.6%. During the year of the pandemic, there was a more significant reduction in exports of this group of goods, compared to grain crops, by 12.0% compared to 2019. In general, the gradual decrease in exports of ferrous metals began in February 2020, when exports decreased by 30.9 million USD compared to January 2020 and amounted to 682.4 million USD. The largest reduction in ferrous metal exports occurred in November 2020 – to \$572 million, or 19.8% compared to January 2020 (\$713.3 million).

In third place in Ukraine's exports of goods in 2020 were fats and oils of animal or vegetable origin, the share of which was 11.7%. It should be noted that during the first year of the pandemic, exports of these products

increased by 21.4% compared to 2019. Although the volume of exports of fats and oils of animal and vegetable origin decreased during May-October 2020, starting from the end of the year, they grew significantly. Thus, in November 2020, exports of fats and oils increased to 684.8 million USD or by 50.8% compared to January 2020 (454.1 million USD), and in December 2020, the growth was slower and amounted to 32.3% compared to January of the same year.

At the beginning of the pandemic, the Ukrainian government introduced restrictions on the export of a number of goods. A zero quota was set for the export of alcohol (80%), ethyl alcohol and alcohol distillates, which was due to the growth of domestic demand for these products, the need to supply domestic medical institutions with these products in sufficient quantities and to provide domestic pharmaceutical enterprises with raw materials for the production of relevant drugs. Also, in order to ensure Ukraine's food security during the pandemic, a partial restriction on the export of buckwheat and hulled buckwheat grain from Ukraine was also introduced<sup>327</sup>.

Despite this, the annual dynamics of exports of Ukrainian pharmaceutical products and finished grain products was growing. Thus, in 2020, exports of pharmaceutical goods increased by 6.9% compared to 2019, and exports of finished grain products by 16.2%, respectively. Due to the introduction of restrictions on the sale of buckwheat abroad until July 1, 2020, exports of finished grain products decreased from USD 24.7 million in March 2020 to USD 19.0 million in May 2020, and then exports increased to USD 27.3 million in August 2020 after the restrictions were

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<sup>327</sup> The government has introduced quotas for the export of buckwheat until July 1, 2020. Government portal. URL: <https://www.kmu.gov.ua/news/uryad-vviv-kvotuvannya-na-eksport-grechki-do-1-lipnya-2020-roku>

lifted. The maximum value of exports of finished grain products was reached in October 2020 and amounted to USD 33 million. Exports of pharmaceutical products, despite the established restrictions, increased throughout 2020. While in January pharmaceutical products were exported for 13.6 million USD, in December exports increased to 33 million USD, which was to some extent also due to an increase in prices for these products. However, the increase in the export volumes of these products did not play a significant role in the overall dynamics of Ukraine's exports of goods, since their share in total exports was low (pharmaceutical products – 0.5%, finished grain products – 0.6%).

As noted above, the rate of decline in imports was greater than the rate of decline in exports. The significant decrease in the volume of imports of goods to Ukraine was due to both a significant slowdown in economic activity due to restrictions introduced in connection with the pandemic, and a decrease in consumer demand in the domestic market due to rising unemployment, falling incomes, and negative expectations of buyers regarding well-being in conditions of uncertainty.

One of the main consequences of the increase in pessimistic expectations of enterprises was a decrease in demand for investments, as due to the uncertain prospects for further development, they began to purchase less machinery and equipment. During the period from the first to the third quarter of 2020, investments in the Ukrainian economy decreased by 24% compared to the same period in 2019, while the rate of decline in investments in EU countries averaged 6% over the same period. Technological products make up a significant part of imports of goods to Ukraine. Thus, the share of machinery and equipment in imports in 2020 was 21.3%, vehicles – 10.6%, optical instruments and apparatus – 2.3%.

Accordingly, the decline in demand for these goods led to a significant decrease in import volumes. In 2020, the volume of imports of machinery and equipment decreased by 13.2% compared to 2019, and imports of vehicles by 6.8%. The largest reduction in imports of machinery and equipment occurred in April 2020, when its volume decreased to 625.4 million USD or by 30.1% compared to March 2020. However, over the following months, enterprises adapted their activities to the conditions of the pandemic and import volumes began to increase, and at the end of the year the value of imports of machinery and equipment amounted to 1,275.2 million USD, which was twice the figure recorded in April.

The dynamics of vehicle imports were similar to those of machinery and equipment. In April 2020, vehicle imports decreased by 42.9% compared to March and amounted to 268.9 million USD, which was the lowest value of this indicator for this year. Starting from May 2020, imports gradually recovered and in January reached 606.2 million USD. At the same time, imports of devices and equipment in 2020 increased by 17.9% compared to 2019, which was due to an increase in the purchase of medical equipment, in particular, ventilators. The growth in imports of these goods began precisely in April 2020, when they were supplied to Ukraine by 15.2% more compared to March. By the end of the year, imports of appliances and equipment increased by more than 2.5 times and amounted to 237.2 million USD.

The recovery of consumer demand in the second quarter of 2020 also contributed to the growth of imports of other goods. In particular, imports of prepared food products, whose share in imports of goods was 5.5%, increased in 2020 by 13.5% compared to 2019. Products of plant origin

accounted for 3.2% of total imports of goods in 2020, and the value of their imports increased by 10.8% for this year.

Thus, the pandemic had a greater impact on the dynamics of imports of goods to Ukraine, as evidenced by the higher rates of decline in import supplies in 2020 compared to 2019 compared to the rates of decline in exports. The main reason for this asymmetry is the commodity imbalance of Ukraine's exports and imports, which is manifested in the predominance of raw materials in exports and technological goods in imports. This trend was consistent with the general global situation, where demand for food declined less than demand for investment goods. Accordingly, exports of Ukrainian goods recovered faster by the end of 2020 than imports, which significantly improved the economic conditions for Ukraine's post-pandemic recovery.

## **5.2. Assessment of Ukraine's position in the global services market**

The dynamics of foreign trade in services are determined by both internal and external factors, which in the context of globalization are changing rapidly, leaving economies little time to adapt and develop stabilization measures. The structure of Ukraine's foreign trade is traditionally dominated by goods, and the share of services does not exceed 25% of the total trade turnover. However, for the development of a post-industrial economy, trade in services is extremely important, since this sector creates high added value and provides a significant part of employment for the population.

In 2022, the share of services in Ukraine's total exports was 17.2%, an increase from 15.8% in 2021. At the same time, the share of services in

imports decreased from 9.9% to 5.2%. However, Ukraine's share in global exports of services remains small and decreased from 0.45% in 2013 to 0.22% in 2022. At the same time, Ukraine's share in global imports of services increased from 0.33% to 0.38% over the same period. For comparison, Poland's share in global exports of services in 2022 was 1.32% and in imports - 0.86%, while Germany occupied 5.9% and 7.05%, respectively.

Analysis of World Trade Organization data on Ukraine's exports and imports of commercial services for the period 2013-2023 reveals several key trends. First, services exports decreased from USD 21,851 million in 2013 to USD 15,740 million in 2022, a decline of almost 28% (Figure 5.2). Secondly, the dynamics of services imports were also declining between 2013 and 2021, when imports decreased from USD 15,538 million to USD 13,384 million (a decrease of 13.9%). However, with the outbreak of a full-scale war in Ukraine in 2022, imports of commercial services increased sharply, almost doubling compared to 2021, to USD 24,918 million. In 2023, there was a slight decrease in imports of services to \$23,417 million, which indicates a certain stabilization of the domestic services market and partial satisfaction of needs at the expense of domestic enterprises.

Third, unlike trade in goods, Ukraine had a positive balance of foreign trade in services in the period 2013-2021, although its size decreased from 6,313 million USD in 2013 to 4,685 million USD in 2021. However, in 2022, due to a simultaneous reduction in exports of services by 11% and a sharp increase in imports by 86%, the balance of trade in services became negative, reaching -8,780 million USD. In 2023, the downward trend in exports of services continued, the volume of services

provided to foreign consumers decreased by 2% compared to 2021, and the upward trend in imports stopped, which led to a decrease in imports by 6%.

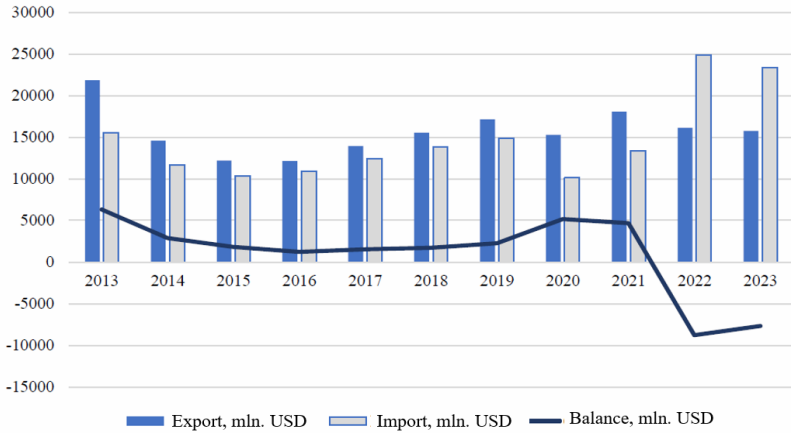


Fig. 5.2. Exports, imports and balance of trade in services of Ukraine in 2013-2023<sup>328</sup>

As can be seen from the figure, the economic crisis of 2014-2015, caused by Russia's annexation of Crimea and occupation of parts of the Donetsk and Luhansk regions, led to a significant decline in exports of services from Ukraine. In 2014, exports decreased by 33% compared to 2013, and in 2015 - by another 16% compared to the previous year. The reduction in imports of services occurred more slowly: by 25% in 2014 and by 11% in 2015. In 2016, the decline in exports slowed down, the decrease was only 1% compared to 2015, and since 2017, a gradual recovery in exports of commercial services began, which increased by

<sup>328</sup> Compiled based on data: Commercial Services Trade - Ukraine. World Trade Organization. URL: [https://www.wto.org/english/res\\_e/statis\\_e/gstdh\\_commercial\\_services\\_e.htm](https://www.wto.org/english/res_e/statis_e/gstdh_commercial_services_e.htm)

15% per year. Imports of services also began to recover from 2016, growing by 5% compared to 2015, and in 2017 imports increased by 14%.

Despite the relatively high average annual growth rates of foreign trade in commercial services (an average of 12%), it has not returned to the pre-crisis level. The COVID-19 pandemic and quarantine restrictions have caused a significant decline in trade volumes. As a result of the economic crisis caused by the pandemic, exports of services from Ukraine in 2020 decreased by 11%, and imports by 32% compared to the previous year. It is worth noting that the decline in trade in services during the pandemic was less significant than during the crisis of 2014-2015. In 2021, exports of services increased by 18%, and imports by 32%, which indicates the high ability of Ukrainian service enterprises to recover from the crisis.

However, due to the full-scale invasion of Russian troops into Ukraine, foreign trade in services has undergone asymmetric changes. In 2022, exports decreased by 11%, as during the pandemic crisis, while imports of services increased sharply by 86% compared to 2021. This significant increase in imports was the result of increased consumption of travel-related services, the value of which increased from USD 6,251 million in 2021 to USD 19,759 million in 2022 (an increase of 216%). This was due to the departure of a significant part of Ukrainians abroad through travel agencies. In 2023, total imports of commercial services decreased to \$23,417 million (down 6% compared to 2022), and imports of travel-related services decreased by 11%, which was a significant factor in reducing the negative balance of trade in services.

Changes in the overall dynamics of commercial services and their main types were reflected in structural changes in Ukraine's trade in services. According to the classification of services by aggregated sectors,

in 2019, the structure of Ukraine's service exports was dominated by other commercial services (43%), followed by transport services (36%), and the share of goods-related and travel-related services was 11% and 9%, respectively (Figure 5.3). In the import of services, the largest share was taken by travel (57%), followed by other commercial services (25%), transport services accounted for 17% of all services, and goods-related services accounted for only 1%.

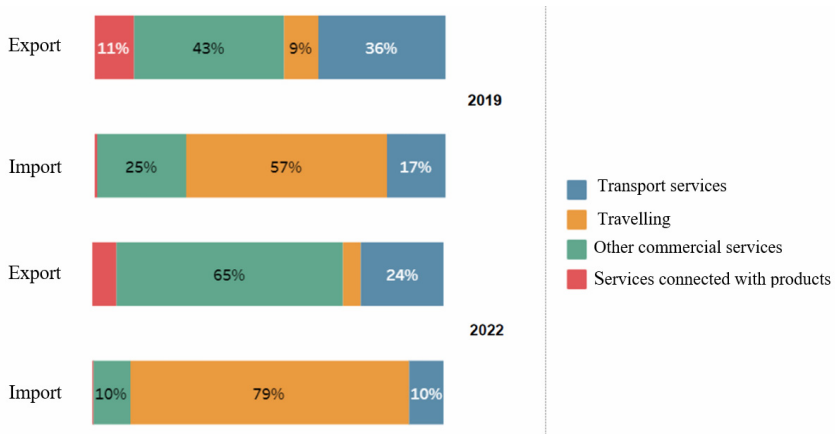


Fig. 5.3. Changes in the structure of exports and imports of commercial services of Ukraine in 2019-2022<sup>329</sup>

As can be seen from the figure, in 2022, the structure of Ukraine's trade in services underwent significant changes. The share of exports of other commercial services increased to 65%, while the share of transport services decreased to 24%. The share of travel-related services in the structure of exports of commercial services of Ukraine decreased to 5%, while their share in imports increased to 79%. At the same time, the share

<sup>329</sup> Compiled based on data: Commercial Services Trade - Ukraine. World Trade Organization. URL: [https://www.wto.org/english/res\\_e/statis\\_e/gstdh\\_commercial\\_services\\_e.htm](https://www.wto.org/english/res_e/statis_e/gstdh_commercial_services_e.htm)

of transport services and other commercial services in total imports decreased to 10% each.

The analysis of general trends in Ukraine's trade in services also includes a study of the geographical structure of exports and imports of services. Before the start of the full-scale war, Ukraine carried out foreign trade in services with 170 countries of the world. The main partner countries of Ukraine in 2021 were the EU countries (33.4% of the total volume of foreign trade turnover in services), Russia (31.5%), the USA (9.6%), Switzerland (6.9%), the United Arab Emirates (2.4%), Israel (1.7%) and Turkey (1.3%). The share of other countries was 13.1%, and for most individual countries it was significantly less than 1%.

The largest partner in trade in services for Ukraine in 2021 was the European Union, which is due to both the geographical proximity of the countries and the intensification of the European integration process after the signing of the Ukraine-EU Association Agreement. The dynamics of exports and imports of services between Ukraine and the EU have undergone significant changes under the influence of geopolitical factors. Thus, in 2013, exports of services from Ukraine to the EU amounted to 4.19 billion USD, which was slightly less than imports of services from the EU to Ukraine (4.21 billion USD), resulting in a negative trade balance. Russia's annexation of Crimea and occupation of part of Donetsk and Luhansk regions led to a reduction in exports of services to the EU by 30% in 2014 compared to 2013, and imports by 34.7% over the same period.

The signing of the Association Agreement between Ukraine and the EU and the introduction of a free trade zone in 2016 have become a favorable geopolitical factor for restoring the positions of Ukrainian exporters in the European market. Starting from 2016, the volume of

exports of services from Ukraine has been growing every year, and in 2019 exports reached 4.5 billion US dollars, which exceeded the pre-crisis figure of 2013. In 2019-2021, the volume of exports of services to the EU remained practically unchanged and exceeded the figure of 2015 by more than 50%, which indicates the consolidation of Ukrainian exporters in the European market.

The dynamics of imports of services from the EU to Ukraine differed in that, after a significant reduction in 2015-2016, imports recovered more slowly than exports. In particular, in 2017, exports of services increased by 15% compared to 2016, while imports grew by only 4.5%. Such low growth rates of imports compared to exports contributed to an improvement in the trade balance and ensured an increase in Ukraine's positive balance in trade in services during 2017-2021.

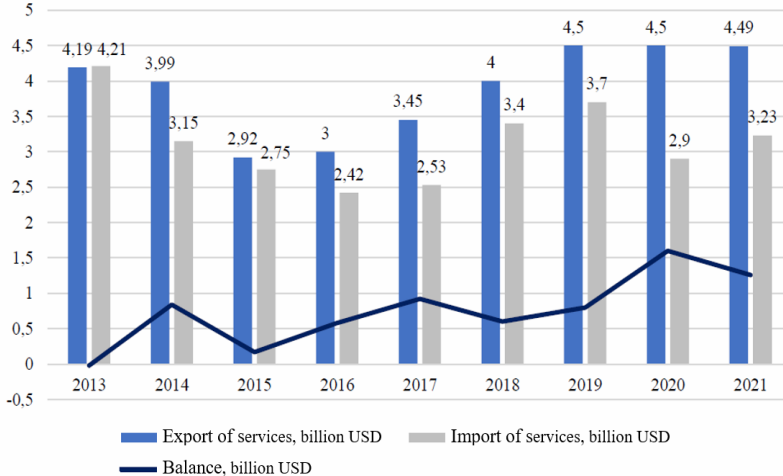


Fig. 5.4. Dynamics of Ukraine's trade in services with EU countries in 2013-2021<sup>330</sup>

<sup>330</sup> Compiled based on data: Geographical structure of foreign trade in services with EU countries. [https://www.ukrstat.gov.ua/operativ/operativ2019/zd/gsztp\\_ES/gsztp\\_ES\\_u/arh\\_gsztp\\_ES\\_2019\\_u.html](https://www.ukrstat.gov.ua/operativ/operativ2019/zd/gsztp_ES/gsztp_ES_u/arh_gsztp_ES_2019_u.html)

Among the EU countries, the largest exporters of services from Ukraine in 2021 were Germany, which purchased Ukrainian services worth 717.3 million USD, which accounted for 15.96% of the total volume of exports of services to the EU countries, and Poland – 462.7 million USD or 10.29%, respectively (Figure 5.5). The volume of exports of services from Ukraine to Cyprus (396 million USD or 8.81%) and the Netherlands (324.7 million USD or 7.22%) was somewhat smaller. It is also worth noting a number of countries whose share in exports of services from Ukraine did not exceed 6%: Austria (251.6 million USD or 5.6%), Malta (254 million USD or 5.65%), Hungary (254.3 million USD or 5.66%), France (250.1 million USD or 5.56%).

In the import of services to Ukraine from the EU countries in 2021, Germany was also the leader, providing Ukrainian consumers with services worth a total of USD 458.8 million, which accounted for 14.19% of the import of services from the EU countries. The share of imports of services from Ireland (USD 374.7 million or 11.6%), Cyprus (USD 342.2 million or 10.6%), Poland (USD 273.2 million or 8.45%), Malta (USD 236.4 million or 7.31%), as well as from Belgium (USD 181.2 million or 5.61%) and France (USD 178.2 million or 5.51%) was also significant.

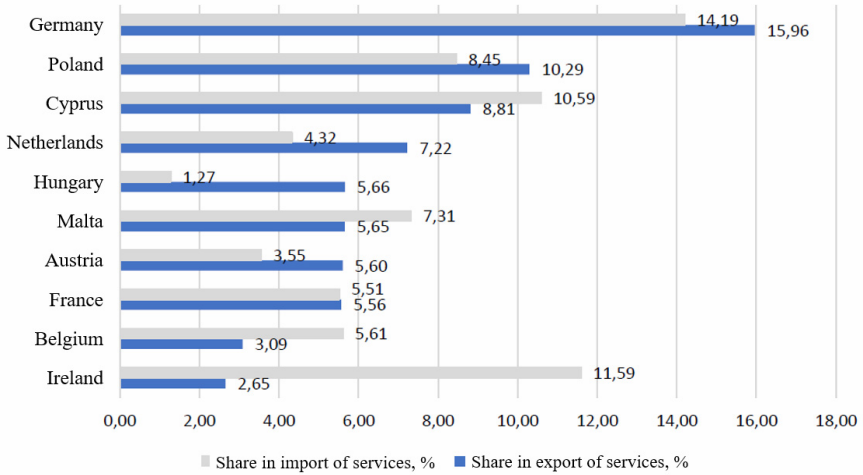


Fig. 5.5. Structure of Ukraine's foreign trade in services by main EU countries in 2021<sup>331</sup>

The time series published by the State Statistics Service of Ukraine on trade in services by country end in 2021. This makes it difficult to assess the dynamics of trade with EU countries after the start of a full-scale war and does not allow for the full reflection of changes in the geographical structure of Ukraine's exports and imports of services in 2022-2023, which occurred under the influence of martial law. Therefore, an assessment of changes in Ukraine's trade in services is possible only on the basis of the commodity structure, using statistical data published on the World Trade Organization website.

Thus, Ukraine's foreign trade in services has undergone significant transformations in recent years. This was manifested in a decrease in export volumes and a sharp increase in imports in 2022-2023, which led to a change from a positive trade balance to a negative one. The growth in

<sup>331</sup> Compiled based on data: Dynamics of foreign trade in services by countries of the world in 2000-2021. Official website of the State Statistics Service of Ukraine. URL: [https://www.ukrstat.gov.ua/operativ/menu/menu\\_u/zed.htm](https://www.ukrstat.gov.ua/operativ/menu/menu_u/zed.htm)

imports of services occurred as a result of a significant increase in demand for travel-related services due to the mass departure of Ukrainian citizens abroad since the beginning of the full-scale war. Among Ukrainian companies, the greatest resilience and ability to adapt to war conditions were demonstrated by firms exporting computer services. This is confirmed by the growth in exports of computer services in the period 2017-2022. Based on the research conducted, it can be concluded that Ukraine has a strong position in the international market for such types of services as transport, computer and business services.

The competitive position of a country in the global services market is determined by the volume of exports by main categories of services. Therefore, to assess Ukraine's competitiveness in the international market, it is necessary to analyze Ukraine's foreign trade by key types of services. According to the classification of services into large groups, in addition to transport and travel-related services, a significant part of Ukraine's service exports is made up of other commercial services (65% in 2022). Therefore, it is important to consider the main types of services in this category, which have a significant share in the total volume of exports.

A more detailed analysis of Ukraine's trade in other commercial services allows us to identify key types of services in exports, such as computer services, wholesale and retail trade, and professional, medical, and social services. The structure of exports of other commercial services was dominated by computer services, the volume of which grew even against the backdrop of the pandemic and the deterioration of the economic and security situation in Ukraine in the context of a full-scale war. Exports of computer services increased from \$2,485 million in 2017 to \$7,449 million in 2022, and their share in total exports of services

increased from 17.8% to 45.5% over this period (Figure 5.6). Other types of services had significantly lower export volumes compared to computer services. The share of wholesale and retail trade in services exports increased from 7.9% in 2017 to 8.8% in 2022, the share of professional services from 4.2% to 5.5%, while the share of medical and social services decreased from 8.2% to 4.4% over the same period.

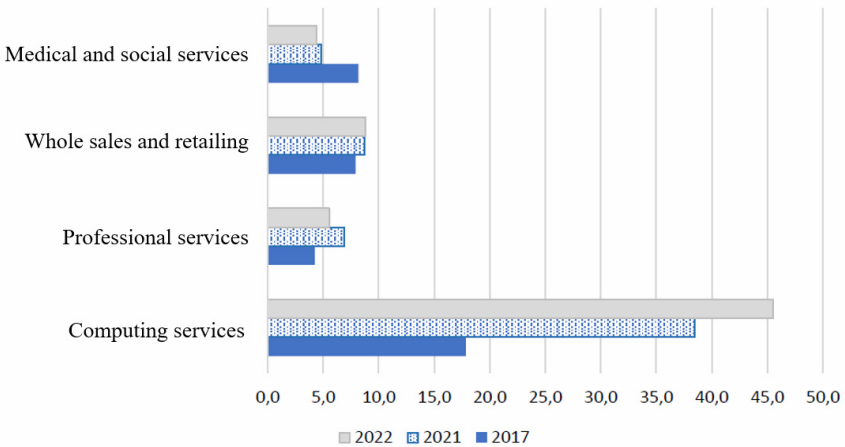


Fig. 5.6. Change in the share of other commercial services in exports of services from Ukraine in 2017-2022, %<sup>332</sup>

Imports of other commercial services to Ukraine were dominated by medical and social services, the volumes of which increased almost fourfold over the period from 2017 to 2022 (from 3853 million to 14828 million USD). Their share in total imports of services also increased significantly from 31.1% to 59.5% over this period (Figure 5.7). At the same time, the share of other types of services in total imports decreased significantly. In particular, the share of wholesale and retail trade

<sup>332</sup> Compiled based on data: Commercial Services Trade - Ukraine. World Trade Organization. URL: [https://www.wto.org/english/res\\_e/statis\\_e/gstdh\\_commercial\\_services\\_e.htm](https://www.wto.org/english/res_e/statis_e/gstdh_commercial_services_e.htm)

decreased from 6.6% in 2017 to 1.0% in 2022, the share of professional services from 3.5% to 1.2%, and the share of computer services from 2.9% to 2.2%.

During the first year of the full-scale war, the volume of imports of medical and social services increased almost 6 times - from \$2,522 million in 2021 to \$14,828 million in 2022. This growth was caused by an increase in demand for these services due to the insufficient capabilities of the Ukrainian medical system to serve a large number of victims of military actions and the lack of technical capabilities to provide certain types of services.

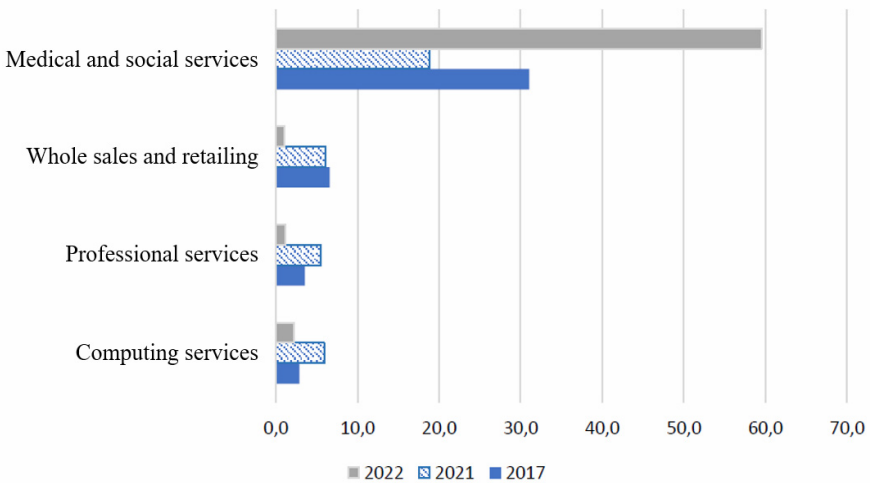


Fig. 5.7. Change in the share of other commercial services in imports of services to Ukraine in 2017-2022, %<sup>333</sup>

At the same time, during the war, there was a significant reduction in wholesale and retail trade imports, which decreased from USD 811 million in 2021 to USD 256 million in 2022. Imports of computer services

<sup>333</sup> Compiled based on data: Commercial Services Trade - Ukraine. World Trade Organization. URL: [https://www.wto.org/english/res\\_e/statis\\_e/gstdh\\_commercial\\_services\\_e.htm](https://www.wto.org/english/res_e/statis_e/gstdh_commercial_services_e.htm)

decreased from USD 795 million to USD 557 million, and professional services from USD 733 million to USD 294 million over the same period. This led to a significant decrease in the share of these types of services in total imports. In particular, in 2022, imports of computer services decreased by 30%, and professional services by 59.9% compared to 2021. This was due to a decrease in demand for these services due to a significant restriction of economic activity during the war.

Based on the calculations made based on WTO statistics, it can be assumed that Ukraine has a good competitive position in the international market in sectors such as business and computer services, the share of which in total exports in 2022 was 15.7% and 45.5%, respectively. In further research, it is also necessary to take into account transport and travel-related services, which are traditionally highlighted in statistics as the main types of services along with other commercial services that are not detailed. The low share of professional services, wholesale and retail trade services, as well as medical and social services (at the level of 5-6%) in Ukrainian exports indicates their low competitiveness, therefore these services will not be considered in further research.

To assess Ukraine's competitive position in the international services market, it is proposed to use the revealed comparative advantage index (RCA), which is defined as the ratio of the share of a certain type of service in Ukraine's total service exports to the share of world exports of the same type of service in global exports. At the first stage of the study, the shares of world exports of the main types of services in world exports for the period 2017-2022 will be determined, using the databases of the World Trade Organization and UNCTAD (Table 5.2).

Table 5.2

Share of main types of services in world exports of services in 2017-2022, %<sup>334</sup>

Type of services	Years					
	2017	2018	2019	2020	2021	2022
Transport services	17	17	17	17	20	21
Travelling	24	24	24	11	10	16
Professional services	18.6	17.4	17.1	25.8	25.5	24.4
Computing services	9.4	9.3	10.9	13.7	14.3	13.6

The next stage of our research is to calculate the shares of the main types of services in the total volume of Ukrainian exports for the period 2017-2022 based on statistical data from the World Trade Organization (Table 5.3). As the table shows, during this period there have been changes in the structure of Ukrainian exports of services, in particular, the share of transport services has decreased and the share of computer services has increased significantly.

The decrease in the share of transport services in Ukraine's exports by almost half may indicate a deterioration in the competitiveness of Ukrainian carriers in the international market or even a loss of competitive positions. In the period from 2017 to 2019, the share of transport services in Ukraine's exports decreased by 4 percentage points (pp) each year. In 2020, despite the crisis caused by the pandemic, the decrease was slightly smaller and amounted to 3 pp, but the largest reduction occurred in 2021 - by 7 pp, which reflects the long-term impact of the pandemic on the transport sector. In 2022, the reduction in the share of transport services

<sup>334</sup> Calculated by the author based on the data: International trade in services – 2022.; International trade in services – 2021. UNCTAD/STAT/INF/2022/2. URL: [https://unctad.org/system/files/official-document/statinf2022d2\\_en.pdf](https://unctad.org/system/files/official-document/statinf2022d2_en.pdf); International trade in services – 2020. UNCTAD/STAT/INF/2021/5. URL: [https://unctad.org/system/files/official-document/gdsdsimisc2021d5\\_en.pdf](https://unctad.org/system/files/official-document/gdsdsimisc2021d5_en.pdf); Key Statistics and Trends in International Trade 2019. [https://unctad.org/system/files/official-document/ditctab2019d7\\_en.pdf](https://unctad.org/system/files/official-document/ditctab2019d7_en.pdf).

was the smallest for the entire period under study, which can be explained by the important role of cargo transportation in wartime conditions.

The share of computer services in Ukraine's total exports showed stable growth during 2017-2022. The increase in this indicator by almost 2.5 times indicates an increase in the international competitiveness of Ukrainian IT companies that provide services to foreign customers. It is important to note that the share of computer services in Ukraine's exports grew faster than the growth rate of this sector in world exports. For example, in 2018-2019, the share of computer services in Ukraine's exports grew annually by an average of 3.2 pp. p., and in 2020-2022, despite the pandemic and the full-scale invasion of Russian troops, this indicator grew by 7 pp. each year.

Table 5.3

Share of main types of services in Ukraine's service exports in 2017-2022, %<sup>335</sup>

Type of services	Years					
	2017	2018	2019	2020	2021	2022
Transport services	42	38	36	33	26	24
Travelling	9	9	9	2	5	5
Professional services	14.1	14.6	15.1	17.6	17.0	15.7
Computing services	17.8	20.6	24.3	32.9	38.4	45.5

Instead, the share of computer services in world exports in 2018 decreased by 0.1 pp compared to 2017, in 2019-2021 it grew on average by only 1.69 pp each year, and in 2022 it decreased by 0.74 pp. Therefore, our assumption also concerns the faster growth of the competitiveness of the Ukrainian computer services sector compared to the global trend of changing the competitive positions of the main exporters of these services.

Let us calculate the index of revealed comparative advantages of Ukraine by main types of services, using the data given in Tables 5.2 and

<sup>335</sup> Compiled by the data: Commercial Services Trade - Ukraine. World Trade Organization. ...

5.3. The results of the calculation of the RCA index, given in Table 5.4, indicate the absence of revealed comparative advantages of the Ukrainian sector of travel-related services and business services. The values of the RCA index for these two types of services during the studied period were less than 1. It should be noted that the competitiveness of business services can be considered higher than the competitiveness of travel-related services, since the index values for business services were higher.

Table 5.4

Index of Revealed Comparative Advantages (RCA) of Ukraine by main types of services in 2017-2022.

Type of services	Years					
	2017	2018	2019	2020	2021	2022
Transport services	2.47	2.24	2.12	1.94	1.30	1.14
Travelling	0.38	0.38	0.38	0.18	0.50	0.31
Professional services	0.76	0.84	0.88	0.68	0.67	0.64
Computing services	1.90	2.22	2.23	2.40	2.68	3.35

Comparing the dynamics of the RCA index for the two types of services, it can be seen that the decline in their competitiveness occurred in 2020 due to the pandemic. However, travel services demonstrated a better potential for restoring competitive positions in international markets, as their index increased threefold. At the same time, the international competitiveness of the Ukrainian business services sector gradually declined in 2021-2022, although enterprises in this sector proved to be more resilient to the risks and threats of war in 2022. This is confirmed by a slight decrease in the index for business services, while the index for travel-related services decreased significantly. Based on these results, it can be concluded that the business services sector in Ukraine is resilient to changing environmental conditions and has high adaptive potential, which

is an important prerequisite for strengthening the international competitiveness of enterprises in this sector.

The results of the calculations show a decrease in the index from 2.47 to 1.14 for transport services, which confirms previous assumptions about a significant decrease in the level of international competitiveness of Ukrainian enterprises that provide transport services to foreign companies and consumers. However, even despite the decrease in the index in 2022 due to the deterioration of transport logistics during the war, the index value remains higher than 1, which indicates the presence of comparative advantages of Ukrainian transport companies in the international market.

The study also confirmed the presence of competitive advantages of Ukrainian IT companies that export computer services. Throughout the entire period under study, the computer services sector in Ukraine demonstrated the presence of identified comparative advantages at the international level. The increase in the index from 1.9 in 2017 to 3.35 in 2022 indicates a significant strengthening of the competitive positions of this sector in the global market.

Thus, the Ukrainian computer services sector has the best competitive position in the international market. The main factors of this level of competitiveness are: (1) a high level of education and professional training of IT specialists, their participation in international projects, use of modern technologies; (2) significant innovative potential of enterprises that actively develop new software products and implement the latest technologies; (3) competitive pricing policy, which includes low labor and rental costs compared to other countries. Thus, IT education in Ukraine is at a high level, there is significant innovative potential and competitive

prices, but there is a need to improve the regulatory environment and ensure economic stability, which is a difficult task in wartime.

### **5.3. Problematic issues of Ukraine's foreign trade in services in times of war**

Despite a significant reduction in the share of transport services in Ukraine's exports and imports in 2022 compared to 2019, the role of transport in ensuring the functioning of vital sectors has significantly increased in the conditions of a full-scale war. The process of providing and consuming transport services has undergone significant changes due to the complication of logistics routes, the destruction of transport infrastructure, the inability to use transit corridors through Belarus to the Baltic and Scandinavian countries, as well as the blockade of Ukraine's Black Sea ports by Russian troops. Ukrainian transport services have gained particular importance, ensuring the export of food to Africa, Asia and the Middle East, as well as the import of humanitarian cargo, fuel and lubricants and ammunition from partner countries.

In order to facilitate logistics and solve other transport problems, at the initiative of the European Commission, “solidarity routes” were created, which partially reduced the crisis phenomena in the field of cargo delivery. However, despite the efforts of the parties to this agreement, queues of cargo vehicles formed at all crossing points of the Ukrainian border with the EU countries, waiting for passage for 7 to 14 days. These delays were caused, on the one hand, by the low throughput capacity of the operating border crossing points, and on the other hand, by the difficulties created by European carriers, especially Polish ones, who began to actively block the border since November 2023.

Thus, one of the promising directions for increasing the export of transport services in Ukraine is the development of border transport infrastructure, the opening of new border crossing points, the development of new logistics routes, as well as the improvement of cargo inspection and clearance procedures. In addition, Ukraine's acquisition of the status of a candidate country for accession to the EU stimulates the intensification of the work of the Ukrainian government and parliament on the implementation of the provisions of the Association Agreement with the EU, which will allow our country to gain access to the common market with EU countries.

From this point of view, an important step towards the rapprochement of the Ukrainian and European transport services markets was the signing of two documents – the Agreement on a Common Aviation Area (2021) and the Agreement on Road Freight Transportation (2022). And if in wartime Ukraine was unable to take advantage of the benefits of the development of aviation services due to the closure of airspace and the suspension of flights, then simplifying access for Ukrainian road carriers to the European market became an important factor in supporting the functioning of the road transport sector and significantly slowed down the decline in export volumes, which occurred due to logistical problems and the general economic downturn.

Unlike the planned conclusion of the Agreement on a Common Aviation Area between Ukraine and the EU, the Agreement on Road Freight Transportation was signed in order to quickly provide Ukrainian carriers with the opportunity to deliver humanitarian aid and critical import goods to Ukraine without restrictions, as well as to export Ukrainian goods to partner countries, which until February 24, 2022 were mainly delivered

by sea. Given the critical importance of this agreement for Ukraine in wartime conditions and the actual unpreparedness of our country to sign it in terms of compliance of domestic norms and standards with European requirements, this document is temporary in nature and was signed for a period of 1 year with the possibility of an annual extension.

The Road Freight Transport Agreement abolished the need for Ukrainian carriers to obtain permits for transporting goods to EU countries, which effectively opened the national markets for transport services of EU member states in the passenger and freight transport sector for Ukrainian companies and increased competition in this market. The implementation of this agreement, although it had a positive impact on Ukraine's foreign trade in transport services, also led to a number of negative consequences that offset the expected benefits and created additional difficulties in road transport.

Starting from November 6, 2023, Polish owners of transport companies and drivers blocked Polish-Ukrainian truck crossing points (Hrebenne, Dorohusk, Korchowa). The main demand of the protesters was the restoration of special permits for Ukrainian transport companies for transportation through the territory of EU countries. Before the full-scale war, Poland issued about 160 thousand such permits annually, and after the introduction of "visa-free transport", the number of Ukrainian transportations to Poland increased by 7.5 times, to 880 thousand<sup>336</sup>. This caused concern among Polish carriers, who called on the government to protect the internal market by reinstating the issuance of permits for Ukrainian transport companies for transit and bilateral transportation to the EU.

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<sup>336</sup> Strajk polskich przewoźników na granicy z Ukrainą. <https://www.3cargo.com/strajk-polskich-przewoznikow-na-granicy-z-ukraina>

In these conditions, the main task for Ukraine is to reach agreements with the Polish side on preserving the regime of free access of Ukrainian carriers to the Polish transport services market. This is important, since the logistical capacity of the sea route has not yet been restored to the pre-war level, rail transportation is less flexible and more expensive compared to road transportation, and certain types of goods require specialized trucks. It is important to continue the provisions of the Agreement on Road Freight Transportation, which will allow not only to improve Ukraine's foreign trade in transport services, but also to preserve this industry, restrain the growth of the cost of delivering goods thanks to Ukrainian transport companies, whose services are cheaper compared to Polish and other European carriers. The continuation of this agreement is extremely important, and its provisions should be preserved at least until the end of the war and for several years after it. At the same time, it is necessary to conclude a document that will regulate the issue of liberalization of transit freight transportation between Ukraine and the EU countries, which will contribute to the stability of trade until Ukraine joins the EU.

The problems that arose in connection with the export and import of transport services significantly affected the e-commerce sector. In 2022, the e-commerce market in Ukraine contracted in dollar terms due to the devaluation of the national currency, a decrease in consumer demand and purchasing power of the population, disruption of logistics chains for the delivery of imported goods, the occupation of a significant part of the country's territory and the economic blockade of these regions, as well as the risks of destruction of logistics warehouses and vehicles due to missile attacks. Export-oriented e-commerce enterprises suffered losses due to the loss of the Russian and Belarusian markets, which accounted for 16% of

their export supplies. In other markets, including the European one, the competitiveness of Ukrainian sellers decreased due to the increase in delivery times of goods, as sea and air routes were inaccessible, and road transportation was complicated by queues at the EU border that could last for weeks.

In the context of the war, this sector has proven vulnerable, as sellers are small businesses and buyers are individuals. In addition, digital services, in particular computer and telecommunications, which accounted for a significant share of exports, have also suffered due to the destruction of infrastructure. According to World Bank estimates, as of June 2022, losses in the digital services sector exceeded 0.7 billion US dollars, including 0.6 billion US dollars in losses for fixed and mobile operators and 0.08 billion US dollars in postal services<sup>337</sup>.

The war caused significant damage to the digital sector of the economy, which led to a decrease in economic growth and employment in the field of communication services, e-commerce, IT. A feature of the functioning of these companies is the need for reliable mobile communications, broadband coverage and high-speed Internet, which is difficult to provide during the war. This led to job losses, reduced productivity, risks of non-fulfillment of orders and emigration of workers abroad.

In war conditions, the main task was to restore energy and digital infrastructure, ensure the functioning of telecommunications networks, which requires significant financial resources and qualified specialists. It is difficult for Ukrainian enterprises to solve these financial problems on

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<sup>337</sup> The Ukraine Rapid Damage and Needs Assessment – August 2022.  
<https://documents1.worldbank.org/curated/en/099445209072239810/pdf/P17884304837910630b9c6040ac12428d5c.pdf>

their own, so it is necessary to attract financial assistance, grants and receive high-tech equipment from foreign partners on free or preferential terms to accelerate the recovery process.

Since April 2022, the EU has been implementing the EUtech4Ukraine initiative, which was implemented as a result of the signing of a joint statement on roaming by European and Ukrainian telecommunications operators. This initiative provides for a reduction in wholesale roaming charges, a reduction in tariffs for calls from Ukrainian numbers to harmonised EU tariffs. The joint statement provided for a reduction in tariffs for termination of calls to Ukraine and from Ukrainian telephone numbers when roaming in the EU, as well as a reduction in wholesale roaming charges for customers located in the EU<sup>338</sup>.

Improving communication and internet conditions for Ukrainians in the EU allows them not only to stay in touch with relatives and friends in Ukraine, but also to work in e-commerce, computer services and other digital industries. Many IT professionals were forced to leave Ukraine after the war began, as they could not work due to shelling, power outages and internet access. However, while abroad, they continue to work for Ukrainian IT companies, which has a positive impact on the export of services from Ukraine.

The Joint Statement discussed above is important in terms of facilitating communication between Ukrainian citizens residing in EU countries and makes a significant contribution to the process of Ukraine's European integration. However, the measures envisaged in this statement do not solve the problem of financing projects to restore the destroyed

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<sup>338</sup> EUtech4Ukraine: telecommunications actions to support refugees from Ukraine. URL: <https://digital-strategy.ec.europa.eu/en/library/eutech4ukraine-telecommunications-actions-support-refugees-ukraine>

energy and telecommunications infrastructure. Given this, it is necessary to begin work on preparing an appropriate state program to restore digital infrastructure during the war, involving loan and grant funds from the European Commission, the European Investment Bank, the World Bank and other international organizations. A team of specialists should be involved in the development of this program, including representatives of leading global companies in the field of digital technologies. This will allow not only to rebuild the destroyed facilities, but also to improve them through the introduction of modern innovative technologies.

The state program for financing the process of restoring digital infrastructure should become an integral part of the Digital Development Strategy of Ukraine, which outlines the long-term perspective of the development of the domestic digital services sector and strengthening the positions of Ukrainian exporters in international markets, primarily the European one. It is important that the Digital Development Strategy of Ukraine be consistent with the current EU strategic document "Digital Compass 2030", which will contribute to the acceleration of Ukraine's European integration.

To address the problems that have arisen in the functioning of the digital services sector in wartime conditions, the following organizational and economic measures are important:

Ensuring the operational stability of enterprises in conditions of internal instability and the impact of external threats.

Developing a state program to finance the reconstruction of digital infrastructure with the assistance of international partners, coordinating its measures with the Digital Development Strategy of Ukraine.

Improving the structure of digital networks in accordance with the needs of ensuring the stability of the digital services sector.

Expanding cooperation with EU countries in the direction of financial and technological support for the restoration of digital infrastructure in Ukraine.

Given the priority of the European market for exporters of digital services, Ukraine should take measures to accelerate integration into the EU single market for digital services and meet the relevant requirements for the quality and cost of services. Integration into the European market will allow Ukrainian companies to gain access to a developed infrastructure that provides a high level of security and reliability.

To overcome the lag in the introduction of new generations of mobile communications and the Internet, which is hindering the technological development of digital services exporting companies, it is necessary to improve the regulatory framework in terms of state regulatory policy on the radio frequency spectrum. It is important to develop a network of small base stations and antennas to accelerate the implementation of 5G technology, which will positively affect the functioning of the telecommunications sector, IT services and related sectors, as well as strengthen their positions in the international market<sup>339</sup>.

In addition, it is necessary to create institutional conditions to address the problems that hinder European integration in the digital sphere. This includes measures to strengthen cybersecurity, protect personal and commercial data, ensure electronic privacy and transparency of online platforms. Access to the European market for Ukrainian

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<sup>339</sup> Ukraine's Integration into the EU Internal Market in a Time of War: Challenges and Opportunities. Ukrainian Center for European Policy; Konrad Adenauer Foundation Office in Ukraine. Kyiv, 2023. 64 p.

telecommunications companies is possible subject to obtaining a license or registration, depending on the field of activity, which does not require significant changes in legislative documents. In summary, the biggest problem in the functioning and implementation of export operations of service enterprises is the lack of appropriate security conditions. The transport sector, which before the war occupied a significant share in the export of services, suffered significant losses due to disruption of logistics routes, which limited the use of maritime corridors. Logistics and infrastructure problems simultaneously negatively affected enterprises operating in the field of e-commerce. The volume and structure of Ukraine's foreign trade in services will continue to be determined by changes in world prices for key export commodities, the state of logistics routes, and the security of energy and telecommunications infrastructure.

#### **5.4. Industry 4.0 as a factor in Ukraine's foreign trade**

The impact of Industry 4.0 on the national economy is manifested through the renewal of production processes and the significant development of information technologies, which leads to an increase in the international competitiveness of national producers of goods and services. The introduction of 4.0 technologies in various sectors of the economy directly affects the structure of foreign trade, in particular, an increase in exports and imports of high-tech goods, as well as an increase in trade in science-intensive services. Thus, the structure of the country's foreign trade reflects the level of integration of the national economy into the global process of the fourth industrial revolution.

To assess Ukraine's foreign trade taking into account the impact of Industry 4.0, we will consider changes in trade in goods and services over

the past decade, in particular in the export and import of high-tech products and science-intensive services. In the context of Industry 4.0, promising industries include information and communication technologies, the production of electrical machines and electronics, the military-industrial complex, alternative energy sources, the aerospace industry, engineering and consulting services. It is important to consider these areas when analyzing foreign trade taking into account Industry 4.0 factors.

Consider Ukraine's trade in high-tech goods, such as electrical machinery, aircraft, optical instruments and apparatus. The share of high-tech goods in Ukraine's exports remained small during 2012-2022, fluctuating from a high of 7.1% in 2018 to a low of 5.4% in 2021, rising to 6.7% in 2022. The share of electrical machinery in exports in 2022 was 5.8%, aircraft – 0.1%, optical instruments and apparatus – 0.3%. At the same time, the share of high-tech products in imports was higher, increasing from 12.4% in 2012 to 17.2% in 2020, and then decreasing slightly to 15.1% in 2022. In 2022, the share of electric vehicles in imports was 9%, aircraft – 0.6%, optical instruments and devices – 2.1%.

From 2012 to 2022, exports of high-tech goods from Ukraine decreased by 37.3% - from 4.69 billion USD to 2.94 billion USD, and imports decreased by 20.7% - from 10.55 billion USD to 8.37 billion USD (Figure 5.8). It is worth noting that the reduction in exports of high-tech goods in 2022 compared to 2021 was 20.1%, which was less than in the crisis year 2015, when this indicator decreased by 27.3% compared to 2014. Imports in 2022 were 24.6% less than in 2021, while in 2015 the decrease was 34.6% compared to 2014.

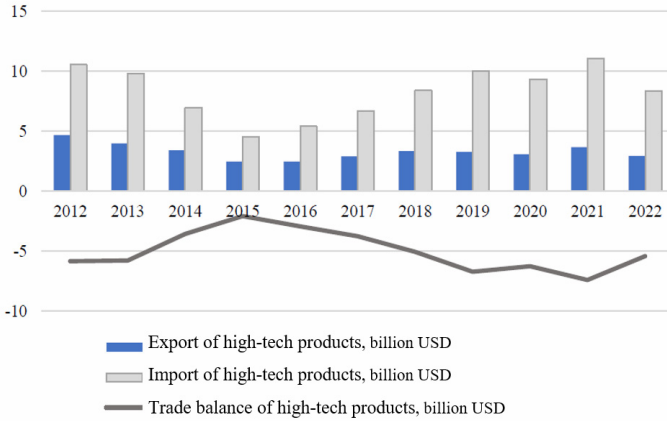


Fig. 5.8 Exports, imports and trade balance of Ukraine in high-tech goods in 2012-2022<sup>340</sup>

The sharp decline in imports of high-tech goods into Ukraine during the economic crisis of 2014-2015, caused by the annexation of Crimea and the outbreak of the conflict in Donbas, indicates the significant dependence of the national economy on imports of such goods. The crisis caused a decline in the production of products using imported components and a decrease in the consumption of imported goods on the domestic market. Thus, exports of high-tech products appear to be more resilient to crisis situations in Ukraine, since the demand for these products on international markets remains more stable compared to production capabilities in times of crisis.

The balance of foreign trade in high-tech products remained negative during the period under review. The worst indicator was recorded in 2021 (-7.41 billion USD), which is associated with a significant increase in

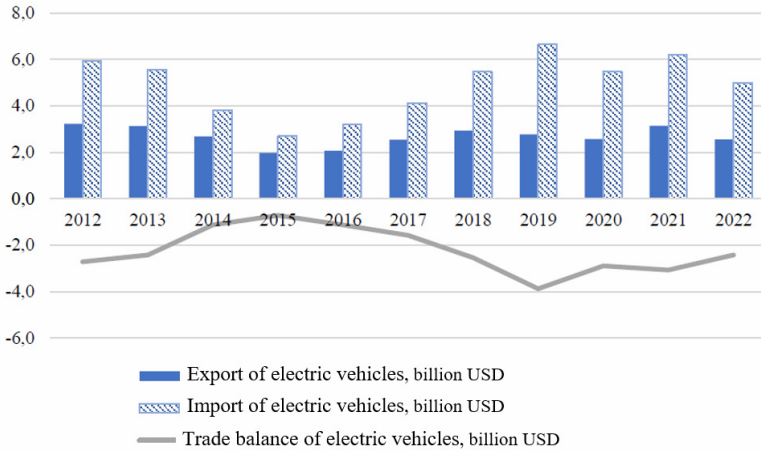
<sup>340</sup> Compiled based on data: Commodity structure of foreign trade of Ukraine in 2012-2022. State Statistics Service of Ukraine. URL: [https://www.ukrstat.gov.ua/operativ/operativ2023/zd/tsztt/arh\\_tsztt2023\\_u.html](https://www.ukrstat.gov.ua/operativ/operativ2023/zd/tsztt/arh_tsztt2023_u.html)

imports of such goods. The best situation was observed in 2015, when the rate of reduction in imports was higher than the decrease in exports.

Trade in electric vehicles in Ukraine over the period 2012-2022 was characterized by a decrease in export and import volumes during the crisis of 2014-2015 and during the pandemic in 2020 (Figure 5.9). For example, in 2014, exports of electric vehicles decreased by 14.5% compared to 2013, and in 2015 - by 26.1% compared to 2014. Imports decreased by 31.5% in 2014 and by 29.2% in 2015. This sharp decrease in trade in electric vehicles can be explained by the loss of a significant part of machine-building enterprises located in the occupied territories of Donetsk and Luhansk regions.

Machine-building has proven to be more resilient to the crisis associated with the Covid-19 pandemic. In 2020, exports of electric vehicles decreased by 7.2% compared to 2019, while imports decreased by 17.7%. Despite the restrictions, mechanical engineering companies quickly resumed their activities after the easing of quarantine measures. In 2021, exports of electric vehicles increased to 3.1 billion USD, exceeding the figure in 2019 (2.8 billion USD). Imports also increased in 2021 to 6.2

billion USD, but remained lower than in 2019 (6.2 billion



USD).

Fig. 5.9. Export, import and trade balance of Ukraine in electric vehicles in 2012-2022<sup>341</sup>

The full-scale invasion of Russian troops into Ukraine has caused a serious economic shock, especially in the machine-building industry. This is confirmed by a significant decrease in exports of electric machines to \$2.6 billion (by 18.5%) and imports to \$4.9 billion (by 19.8%) in 2022 compared to 2021. Such negative dynamics are associated with the occupation of part of the eastern regions of Ukraine, where many machine-building enterprises are located, which have proven difficult to relocate to safer regions. Enterprises that continue to operate in Ukrainian-controlled regions close to the combat zone are constantly under threat of destruction due to missile attacks. Despite the difficult conditions, the volumes of exports and imports of electric machines in 2022 were higher than in 2014.

<sup>341</sup> Compiled based on data: Commodity structure of foreign trade of Ukraine in 2012-2022. State Statistics Service of Ukraine .....

During 2012-2022, Ukraine's foreign trade balance in electric vehicles remained negative. However, during crises, this balance decreased due to a faster reduction in imports compared to exports. The smallest negative balance was recorded in 2015 (-0.715 billion USD), and the largest negative balance was observed in 2019 and amounted to 3.88 billion USD, which was due to high import growth rates (+21.5%) while exports decreased (-5.4%).

Over the past 10 years, there have been significant changes in aircraft trade, although their share in Ukraine's total trade did not exceed 1%. In 2012, aircraft exports were nine times larger than imports, which provided a positive balance (Figure 5.10). However, since 2013, a sharp decline in exports began, which in 2013 amounted to 313.7 million USD, which is 66.1% less than in 2012. Imports decreased by only 34.4%, to 70.4 million USD in 2013. In 2014-2015, aircraft exports decreased by an average of 21% annually, and in 2016-2017 - by 60% annually, which led to a change in the balance from a positive balance in 2017 (0.3 million USD) to a negative balance in 2018 (-3.0 million USD). The main reason for the decline in exports was the closure of the Russian market for Ukrainian aerospace products and low competitiveness in the European market.

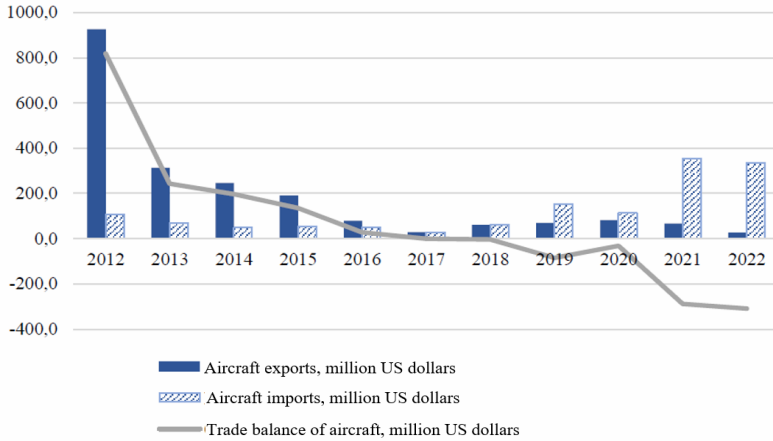


Fig. 5.10. Ukraine's exports, imports and trade balance in aircraft in 2012-2022<sup>342</sup>

Since 2018, the dynamics of aircraft trade in Ukraine have changed from declining to slowly growing. However, export volumes remain insignificant, although during the pandemic in 2020 they increased by 16.7% compared to 2019. The growth rate of imports was much higher: in 2021, imports increased by 312% compared to 2020. At the same time, aircraft exports in 2021 decreased by 19.1% compared to 2020, and in 2022, the first year of a full-scale war, they decreased by another 59.9%.

The negative dynamics of exports is explained by the fact that the existing production capacities of enterprises in this industry are insufficient to simultaneously meet the needs of defense during the war and fulfill international contracts. In addition, aerospace enterprises operating under martial law are at risk of destruction due to enemy shelling, as they are located mainly in the eastern and southern regions of Ukraine.

<sup>342</sup> Compiled based on data: Commodity structure of foreign trade of Ukraine in 2012-2022. State Statistics Service of Ukraine ....

The growth in domestic demand for aircraft in 2021-2022 was largely due to Ukraine's defense needs. This was reflected in an increase in imports of this group of goods from US\$113.7 million in 2020 to US\$335.6 million in 2022, which indicates the importance of supplying these products from abroad and the inability of domestic enterprises to fully meet the needs of the Armed Forces of Ukraine in the relevant equipment.

Trade in optical instruments and apparatus in Ukraine during 2012-2022 was characterized by a decrease in exports against the background of an increase in imports, which led to an increase in the negative balance from 893.2 million USD to 1034.3 million USD (Figure 5.11). During this period, the volume of exports of optical instruments and apparatus decreased from 293.8 million USD in 2012 to 118.6 million USD in 2022. At the same time, imports increased from 1187 million USD in 2012 to 1484.1 million USD in 2021, although in 2022 it decreased slightly to 1152.9 million USD. This indicates a low level of competitiveness of products of domestic instrument-making enterprises both in the foreign and domestic markets, since the needs of enterprises and the population in instruments are met mainly through imports.

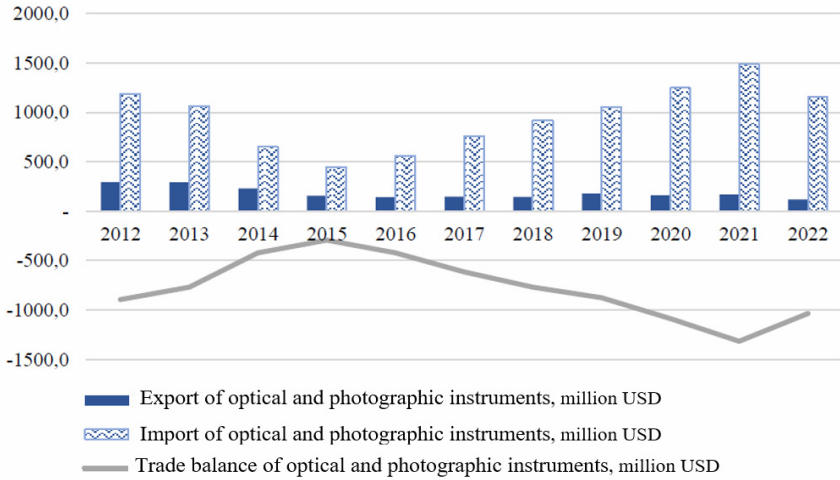


Fig. 5.11. Export, import and trade balance of Ukraine in optical instruments and apparatus in 2012-2022<sup>343</sup>

Thus, the analysis of the dynamics and structure of Ukraine's foreign trade in high-tech goods indicates a deterioration in the competitive positions of domestic manufacturers of electrical machines, aircraft, instruments and optical devices in foreign markets over the past 10 years. The growth of the negative balance of foreign trade in high-tech goods is mainly due to a reduction in export volumes against the background of an increase in imports of aircraft, instruments and optical devices, as well as a significantly faster growth in imports of electrical machines compared to their export volumes.

The development of the national economy in the context of Industry 4.0 is also reflected in the dynamics and structure of foreign trade in knowledge-intensive services. The most important types of such services include: royalties and other services in the field of intellectual property; telecommunications, computer and information services; business services

<sup>343</sup> Compiled based on data: Commodity structure of foreign trade of Ukraine in 2012-2022. State Statistics Service of Ukraine ....

covering research and development, professional and consulting services, as well as scientific and technical services.

In total, Ukraine's exports of services in 2022 were dominated by telecommunications, computer and information services, which accounted for 40.5%. The volume of exports of these services amounted to 3.71 billion US dollars, of which 74.1% was computer services, 22.5% was information services, and 3.4% was telecommunications. Imports of telecommunications, computer and information services were slightly lower, amounting to 3.29 billion US dollars, which accounted for 13.7% of total imports of services.

Exports of professional services in 2022 amounted to 1.03 billion US dollars, or 11.2% of total exports of services. The largest share of business services exports was occupied by professional and consulting services – 52.7%, while scientific and technical services accounted for 20.7%, and research and development – 9.6%. In imports, business services accounted for 17.8%, of which 70.4% was occupied by professional and consulting services, while research and development and scientific and technical services accounted for only 4.3% and 9%, respectively.

Exports of royalties and other services in the field of intellectual property in 2022 amounted to 31.6 million US dollars, which was only 0.4% of total exports of services. At the same time, imports of such services were much higher – 292.9 million US dollars, which was 9.7% of total imports of services. The largest share of exports of royalties and other services was accounted for by licensing services – over 60% of the total, while franchising services and trademark use accounted for 12.9%, and patent activities – only 4.3%. Imports were dominated by licensing

services (47%), franchising and trademark use (38.7%), and patent activities accounted for only 0.1%.

As a result of the full-scale war, exports of services from Ukraine have significantly decreased. Travel-related services (-57.4%), transport services (-36.4%), and business services (-31.8%) were the most affected. However, it is worth noting the growth in exports of telecommunications services (+21.6%) and information services (+8.9%) in 2022 compared to 2021. This indicates the economic resilience and ability of these sectors to adapt to work in crisis conditions, which emphasizes the prospects for the implementation of Industry 4.0 technologies and their importance for the Ukrainian economy.

A positive trend for the spread of Industry 4.0 in Ukraine's foreign economic activity is the significant growth in exports of telecommunications, computer and information services. The volume of exports of these services increased from 1,113.5 million USD in 2012 to 3,712.9 million USD in 2022. At the same time, import volumes remained significantly smaller and showed a downward trend in the long term, decreasing from 456.2 million USD in 2012 to 414.2 million USD in 2022.

Due to the rapid growth in exports of telecommunications, computer and information services during this period, the positive balance in trade in these services has increased significantly - from 657.3 million US dollars in 2012 to 3298.7 million US dollars in 2022. This indicates a strengthening of the competitive positions of Ukrainian enterprises in the international services market and an increase in trade efficiency.

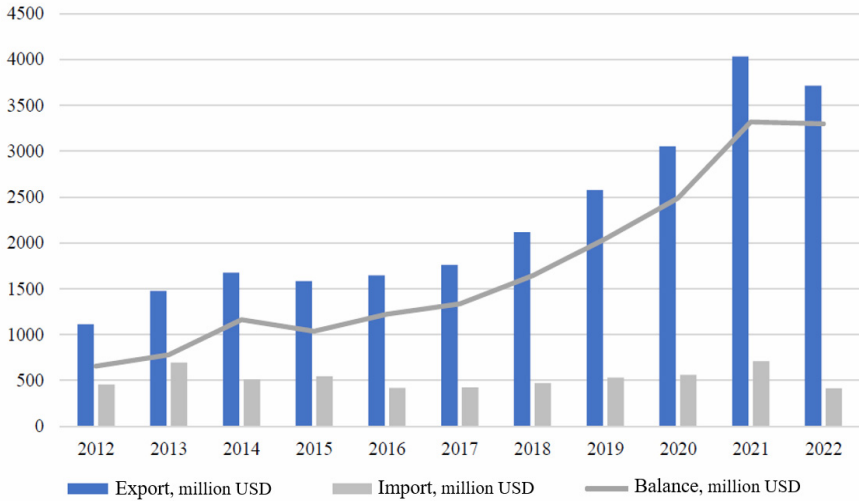


Fig. 5.12. Indicators of Ukraine's trade in telecommunications, computer and information services in 2012-2022, million US dollars<sup>344</sup>

Although professional and consulting services accounted for more than half of business services exports, their volume was significantly smaller compared to exports of telecommunications, computer, and information services. The volume of exports of professional and consulting services increased from USD 503.9 million in 2012 to USD 766 million in 2021, but decreased slightly in 2022 to USD 540.7 million. Imports of these services mostly showed an increasing trend, increasing from USD 431.5 million in 2012 to USD 644.8 million in 2021, although it also decreased in 2022 to USD 378 million. However, the trade balance in professional and consulting services remained positive and increased from USD 72.4 million in 2012 to USD 162.7 million in 2022.

Ukraine's foreign trade in research and development services showed a downward trend. Exports of these services decreased from USD 240.7

<sup>344</sup> Compiled based on data: Dynamics of foreign trade in services by type in 2000-2021. [https://www.ukrstat.gov.ua/operativ/menu/menu\\_u/zed.htm](https://www.ukrstat.gov.ua/operativ/menu/menu_u/zed.htm); Structure of foreign trade in services by type in 2022. [https://www.ukrstat.gov.ua/operativ/operativ2023/zd/ztp\\_kv/arh\\_ztp\\_kv2022\\_u.html](https://www.ukrstat.gov.ua/operativ/operativ2023/zd/ztp_kv/arh_ztp_kv2022_u.html)

million in 2012 to USD 154.5 million in 2021, and in 2022 they decreased to USD 98.2 million. Imports of these services almost halved during the period under review, from USD 44.6 million to USD 23.2 million. Although the trade balance in these services remained positive, it decreased from USD 196.1 million in 2012 to USD 75 million in 2022.

In general, in 2022, there was a decrease in the volume of exports of knowledge-intensive services from Ukraine, which was due to the increased risks of destruction and power outages of enterprises in war conditions. The full-scale war affected the supply of services to foreign consumers in different ways. The decrease in exports of computer and business services was caused by the mass departure of specialists abroad, the deterioration of working conditions in Ukraine due to the destruction of infrastructure and power outages, which led to the termination of contracts between Ukrainian companies and foreign customers. The decrease in imports of information and business services in 2022 compared to 2021 was due to a decrease in demand for these services due to restrictions on certain types of economic activity during the war.

### **5.5. Ukraine's trade with Middle East**

The prospects for trade with the Middle East are confirmed by the growing dynamics of trade in goods in this region. Thus, according to the World Trade Organization, in 2022 the countries of the Middle East demonstrated the highest growth in foreign trade in goods compared to 2021 among all regions of the world – the value of trade increased by 31%, and the volume of trade increased by 9.6%, while in Europe such growth was 11.8% and 3.8%, respectively, and in Asia the growth rates

were the lowest (8.4% and 0.1%, respectively)<sup>345</sup>. The value of global merchandise trade grew faster than its volume in 2022, partly due to high global commodity prices. The growth in international trade with Middle Eastern countries was mainly due to rising demand for oil and higher oil prices.

The largest volume of foreign trade turnover (FTR) in 2021 was observed between Ukraine and such Middle Eastern countries as Turkey, Egypt, and Saudi Arabia (Table 5.5). It should be noted that trade turnover with Turkey increased by 1.7 times compared to 2010, with Egypt by 1.5 times, and with Saudi Arabia by 1.4 times. However, it is worth paying attention to the high dynamics of Ukraine's trade with Yemen, Qatar, and Oman, with foreign trade turnover increasing by 12.2, 10.3, and 12.8 times, respectively, over the same period, which indicates more effective use of the potential of trade with these countries.

The largest volumes of exports of goods from Ukraine in 2021 were directed to Egypt and Turkey and exceeded exports to other Middle Eastern countries by an order of magnitude. Exports of Ukrainian goods to Turkey in 2021 exceeded exports in 2010 by 36.9%, and to Egypt by 46.4%. At the same time, the largest increase in the value of exports of goods in 2021 compared to 2010 was observed to countries such as Yemen (by 1,119% or 12.2 times), Qatar (by 1,019% or 11.2 times) and Oman (by 1,101% or 12 times). That is, these countries can be considered as growing markets that are promising for increasing exports of goods from Ukraine, while the potential for increasing trade with leading partner countries from this region (Turkey, Egypt) is used to a greater extent. In 2021, the value of imports of goods to Ukraine was the largest from Turkey, and imports

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<sup>345</sup> World Trade Statistical Review 2023. [https://www.wto.org/english/res\\_e/publications\\_e/wtsr\\_2023\\_e.htm](https://www.wto.org/english/res_e/publications_e/wtsr_2023_e.htm)

from Israel, Saudi Arabia, Libya, Egypt and other countries were more than 10 times smaller.

Table 5.5

Dynamics of Ukraine's trade volume indicators with the Middle East countries in 2010-2021<sup>346</sup>

Country	Export, mln USD		Import, mln USD		Trade balance, mln USD		Foreign trade turnover, mln USD	
	2010	2021	2010	2021	2010	2021	2010	2021
Algeria	159,3	452,7	4,9	109,1	154,5	343,5	164,2	561,8
Bahrain	2,3	6,6	0,13	0,51	2,2	6,1	2,4	7,1
Djibouti	10,2	83,9	0	3,1	10,2	80,8	10,2	86,9
Egypt	1327,9	1944,6	84,2	149,1	1243,8	1795,4	1412,2	2093,7
Yemen	20,0	243,9	0,06	2,6	19,9	241,3	20,1	246,5
Israel	467,6	730,9	91,5	225,1	376,1	505,8	559,1	956,0
Iraq	345,0	694,3	0,48	0,127	344,5	694,1	345,5	694,4
Iran	1030,7	624,9	49,9	98,8	980,8	526,1	1080,6	723,8
Jordan	518,9	207,9	21,1	7,9	497,8	199,9	540,1	215,9
Qatar	13,2	148	2,9	18,7	10,3	129,3	16,2	166,7
Kuwait	22,7	42,5	0,31	2,1	22,4	40,4	23,0	44,5
Lebanon	1033,2	389,1	4,2	4,6	1029,1	384,5	1037,4	393,7
Libya	201,5	468	0,33	181,5	201,1	286,5	201,8	649,5
Morocco	103,5	482,8	9,2	124,5	94,3	358,2	112,6	607,3
UAE	277,3	530,8	50,9	85,5	226,4	445,3	328,1	616,3
Oman	15,6	187,1	0,32	16,3	15,2	170,8	15,9	203,4
Saudi Arabia	644,5	768,6	37,4	188,5	607,2	580,1	681,9	957,1
Syria	646,8	3,4	44,6	20,7	602,2	-17,3	691,4	24,2
Tunisia	232,0	407,4	3,6	41,5	228,4	365,9	235,6	448,8
Turkey	3026,7	4142,6	1298,3	3260,3	1728,4	882,4	4324,9	7402,9

The significant predominance of exports over imports during the studied period determines the positive balance of Ukraine's foreign trade with all Middle Eastern countries, with the exception of Syria in 2021. As can be seen from Table 2.3, the largest positive balance of Ukraine's foreign trade balance was observed in trade in goods with Egypt, and in

<sup>346</sup> Calculated by the author based on data from: Geographical structure of Ukraine's foreign trade in goods. [https://www.ukrstat.gov.ua/operativ/operativ2022/zd/ztt/arh\\_ztt2022.html](https://www.ukrstat.gov.ua/operativ/operativ2022/zd/ztt/arh_ztt2022.html)

2021 it increased by 1.4 times compared to 2010. The highest growth rates of the positive balance for the period 2010-2021 are characteristic of Ukraine's trade with Qatar (1158%), Yemen (1110%) and Djibouti (689%). At the same time, a decrease in the positive balance of Ukraine's foreign trade with Iran (by 46%), Jordan (by 60%), Lebanon (by 63%) and Turkey (by 49%) was observed. In addition, during the period under study, the positive balance of Ukraine's trade with Syria changed to negative, which was caused by a significant reduction in the volume of exports of Ukrainian goods to this country (more than 200 times).

Of all the countries of the Middle East, the most significant place in Ukraine's trade belongs to Turkey, whose share in our country's foreign trade turnover is traditionally the highest (Table 5.6). Thus, Turkey's share in Ukraine's exports in 2021 increased by 0.2 percentage points (pp) compared to 2010, and the share of imports of Turkish goods in Ukraine's total imports increased by 2.34 pp. In second place in terms of the share in exports of goods from Ukraine is Egypt, at the same time, this country's share in imports was insignificant, although it increased slightly.

Other countries have significantly smaller shares in both exports of goods from Ukraine and imports of goods. Bahrain's share in exports of goods from Ukraine did not exceed 1.5% and remained practically unchanged during 2010-2021, while this country's share in imports of goods to Ukraine significantly decreased (by 2.26 pp) over the period under study. Despite the developed contractual and legal framework for cooperation and active relations in the field of trade and investment, Saudi Arabia's share in the total volume of exports of Ukrainian goods over the period under study decreased by 0.12 pp and only slightly exceeded 1%. We also note that in 2010, Iran's share in Ukraine's exports was 2%, and in

2021 significantly decreased – to 0.92%, a similar situation is also characteristic of exports from Ukraine to Lebanon – the decrease in the share of this country in total exports in 2021 was 1.44 pp compared to 2010. Syria's share in exports of goods from Ukraine decreased from 1.26% to 0.01%, which indicates a decrease in the significance of trade between countries for national economies. Along with these downward trends, it should be noted the increase in the shares of Ukraine's exports of countries such as Israel and Iraq (by 0.16 pp and 0.35 pp).

Table 5.6

Dynamics of the share of Middle Eastern countries in Ukraine's exports and imports in 2010-2021<sup>347</sup>

Country	Share in export, %		Share in import, %	
	2010	2021	2010	2021
Algeria	0,31	0,66	0,01	0,15
Bahrain	1,46	1,46	2,73	0,47
Djibouti	0,02	0,12	0,00	0,00
Egypt	2,58	2,86	0,14	0,20
Yemen	0,04	0,36	0,00	0,00
Israel	0,91	1,07	0,15	0,31
Iraq	0,67	1,02	0,00	0,00
Iran	2,00	0,92	0,08	0,14
Jordan	1,01	0,31	0,03	0,01
Qatar	0,03	0,22	0,00	0,03
Kuwait	0,04	0,06	0,00	0,00
Lebanon	2,01	0,57	0,01	0,01
Libya	0,39	0,69	0,00	0,25
Morocco	0,20	0,71	0,02	0,17
UAE	0,54	0,78	0,08	0,12
Oman	0,03	0,27	0,00	0,02
Saudi Arabia	1,25	1,13	0,06	0,26
Syria	1,26	0,01	0,07	0,03
Tunisia	0,45	0,60	0,01	0,06
Turkey	5,88	6,09	2,14	4,48

<sup>347</sup> Calculated by the author based on data from: Geographical structure of Ukraine's foreign trade in goods. [https://www.ukrstat.gov.ua/operativ/operativ2022/zd/ztt/arh\\_ztt2022.html](https://www.ukrstat.gov.ua/operativ/operativ2022/zd/ztt/arh_ztt2022.html)

According to our calculations, the trade intensity index in 2021 was the highest for Yemen (15.86) and significantly increased compared to 2010, when it was 0.64 (Figure 5.13), which indicates the highest efficiency of bilateral trade relations with this country among all partners from the Middle East region. A high level of trade efficiency of Ukraine in 2021 was also observed with Lebanon, Libya, Egypt. The intensity of Ukraine's trade with Turkey, Tunisia, Morocco, Jordan, Iran, Iraq, Israel, Djibouti and Algeria was somewhat lower, however, trade is considered efficient, since the index exceeded the normative value (1.0) several times. It should also be noted a significant increase in the efficiency of Ukraine's bilateral trade with Oman and Qatar, the trade intensity index with which increased from 0.23 and 0.17 in 2010, respectively. to 1.98 and 1.74 in 2021.

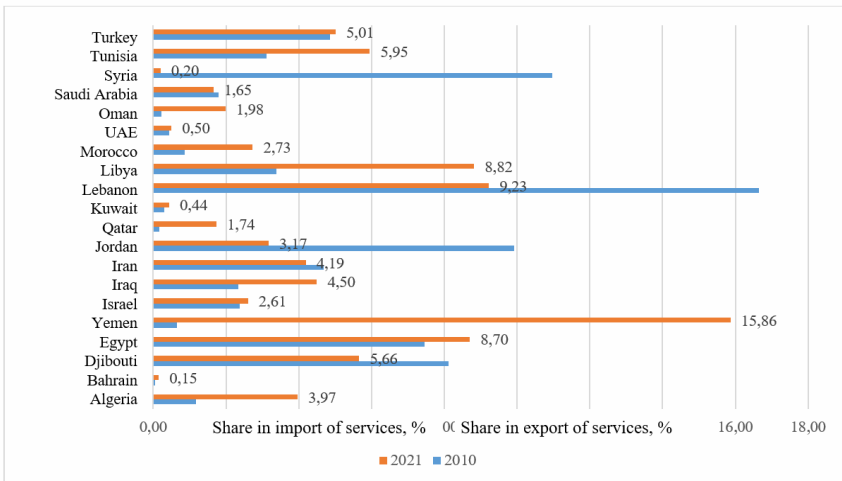


Fig. 5.13. Dynamics of Ukraine's trade intensity index with Middle Eastern countries in 2010-2021<sup>348</sup>

<sup>348</sup> Calculated by the author based on data from: Geographical structure of Ukraine's foreign trade in goods. [https://www.ukrstat.gov.ua/operativ/operativ2022/zd/ztt/arh\\_ztt2022.html](https://www.ukrstat.gov.ua/operativ/operativ2022/zd/ztt/arh_ztt2022.html); Merchandise exports by product group – annual (Million US dollar). <https://stats.wto.org>

At the same time, it should be noted that the lowest values of the trade intensity index in 2021 were recorded for the United Arab Emirates (0.5), Kuwait (0.44), Syria (0.2), Bahrain (0.15), which indicates low efficiency of bilateral trade. Such values of the trade intensity index also indicate the presence of significant potential for increasing trade flows. This is primarily due to the fact that these countries have not yet become Ukraine's main trading partners, but with further deepening of relations, there is significant potential for increasing foreign trade turnover.

In order to conduct a more detailed analysis of Ukraine's trade with the countries of the Middle East and to identify the most important and promising trading partners, we will group these countries using cluster analysis using the following bilateral trade indicators for 2021: exports from Ukraine to the partner country; imports from the partner country to Ukraine; the share of the partner country in Ukraine's exports; the share of the partner country in imports to Ukraine; the balance of foreign trade turnover; the export-import coverage ratio; foreign trade turnover; trade intensity index.

According to the results of the cluster analysis of Ukraine's trading partners in the Middle East region, five groups of countries were identified, which combined countries similar in terms of bilateral trade parameters (Fig. 5.14).

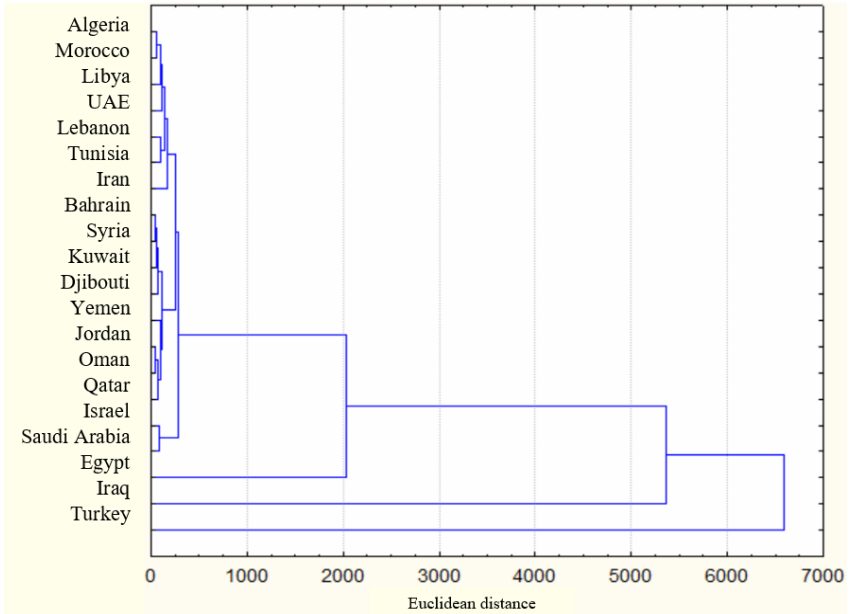


Fig. 5.14. Tree of combinations of Ukraine's partner countries into clusters by foreign trade indicators in 2021.

As can be seen from Figure 5.14, separate clusters are Turkey, Egypt and Iraq, which is confirmed by the results obtained at the second stage of cluster analysis using the k-means method (Fig. 5.15). Each of these countries is located in the center of its cluster, which indicates significant differences between them. Thus, Turkey is the main trading partner of Ukraine, and therefore significantly exceeds the indicators of other groups of countries (export volumes, import volumes, foreign trade turnover, share in exports and imports). Egypt is also a separate cluster, but stands out among other countries by a significant excess of exports of Ukrainian goods over imports from this country, which ensures a significant positive balance for Ukraine in bilateral trade in goods. Ukraine's trade with Egypt

is also characterized by a relatively high value of foreign trade turnover, although somewhat lower than in Ukraine's trade with Turkey. Iraq was singled out in a separate cluster due to the highest value of the export-import coverage ratio, which was 5428, which is due to the high value of export volumes (694.3 million USD) with practically imperceptible imports (0.127 million USD).

The fourth cluster includes Algeria, Israel, Iran, Lebanon, Libya, Morocco, the United Arab Emirates, Saudi Arabia, and Tunisia. Ukraine's trade with the countries of this group is characterized by a relatively high average value of the volume of exports of Ukrainian goods, which, although smaller than the volume of exports to Turkey and Egypt, significantly exceed the average value of exports to other countries. A common feature of trade with these countries was also a relatively high average value of the positive balance of foreign trade, which was slightly lower than the corresponding indicator for Turkey, Egypt, and Iraq. It should be noted that the average value of the intensity index of Ukraine's bilateral trade with the countries of the fourth cluster was also significant, and for some countries of this group (Lebanon, Libya, Tunisia), this indicator was higher than the indicator for Iraq and Turkey. This indicates the presence of significant potential for the development of Ukraine's trade relations with the countries included in the fourth cluster.

The fifth cluster includes such countries as: Bahrain, Djibouti, Yemen, Jordan, Qatar, Kuwait, Oman, Syria. This group of countries is characterized by the lowest average volume of exports and imports of goods in trade with Ukraine, a relatively low balance of bilateral trade. At the same time, Ukraine's trade with the specified partner countries had a high export-import coverage ratio, in particular, for Djibouti this indicator

was 27.2, Yemen – 93.6, Jordan – 26.1, Kuwait – 20.7. This indicates the attractiveness of the markets of these countries for Ukrainian exporters, which is also confirmed by the relatively high index of intensity of trade of Ukraine with Djibouti (5.66), Yemen (15.86), Jordan (3.17).

Members of Cluster Number 1 (Spreadsheet13) and Distances from Respective Cluster Center Cluster contains 1 variables	
Variable	Distance
Turkey	0.00

Members of Cluster Number 2 (Spreadsheet13) and Distances from Respective Cluster Center Cluster contains 1 variables	
Variable	Distance
Egypt	0.00

Members of Cluster Number 3 (Spreadsheet13) and Distances from Respective Cluster Center Cluster contains 1 variables	
Variable	Distance
Iraq	0.00

Members of Cluster Number 4 (Spreadsheet13) and Distances from Respective Cluster Center Cluster contains 9 variables	
Variable	Distance
Egypt	53.5172
Israel	134.4784
Iran	53.6663
Lebanon	117.9003
Libya	58.8252
Morocco	35.1523
UAE	20.6352
Saudi Arabia	146.9116
Tunisia	93.4023

Members of Cluster Number 5 (Spreadsheet13) and Distances from Respective Cluster Center Cluster contains 8 variables	
Variable	Distance
Bahrain	66.98380
Djibouti	19.68543
Yemen	82.55515
Jordan	56.64191
Qatar	21.69397
Kuwait	44.91178
Oman	44.39018
Syria	69.51735

Fig. 5.15. Grouping of Ukraine's trading partners in the Middle East region based on cluster analysis using the k-means method

Thus, the results of the cluster analysis allowed us to identify the countries that are currently the main trading partners of Ukraine (Egypt, Turkey), which is confirmed by the extremely high indicators of trade and the intensity of bilateral trade between the countries. Iraq can be considered a promising market in terms of exports of Ukrainian goods, which significantly exceeds imports of goods from this country, contributing to the improvement of the balance of payments. The countries

of the Middle East, which are included in the fourth group, are important markets for the sale of Ukrainian goods, and entering these markets and consolidating competitive positions of exporters on them ensures high efficiency of bilateral trade. The least significant role in Ukraine's foreign trade is currently played by the countries of the Middle East, which are included in the fifth cluster, but this direction is also characterized by significant potential for expanding trade, especially with those partner countries, in trade with which there is a relatively high intensity of trade.

To further confirm the above conclusions about the state and prospects of Ukraine's trade with each of the selected groups of Middle Eastern countries, it is important to examine the commodity structure of exports and imports. In the export of goods from Ukraine to the Middle Eastern countries, which we have identified as separate clusters, grain crops and ferrous metals prevail, and in exports to Iraq, in addition to grain and metallurgical products, the share of fats and oils of animal or vegetable origin is significant (Table 5.7).

Ukraine imported mainly edible fruits and nuts from Iraq, and other goods accounted for less than 3% of the total volume of imports from this country. The basis of imports from Egypt was also edible fruits and nuts, as well as mineral fuels; oil and its distillation products, which together accounted for slightly more than 50% of the total volume of imports. The most diversified was the import of goods from Turkey, in which the share of no product group in imports exceeded 10%, and the largest share was nuclear reactors, boilers, and machines.

Table 5.7

Characteristics of the commodity structure of Ukraine's trade with countries included in clusters I, II and III in 2021<sup>349</sup>

Country	Share of basic goods in exports, %	Share of basic goods in imports, %
Turkey I cluster	10 grains (22.2%), 72 ferrous metals (47.7%)	84 nuclear reactors, boilers, machines (9.8%), 27 mineral fuels; oil and its distillation products (7.3%)
Egypt II cluster	10 grains (71.3%), 72 ferrous metals (10.2%)	08 edible fruits and nuts (26.9%), 27 mineral fuels; petroleum and its distillation products (27.8%)
Iraq III cluster	10 cereals (17.1%), 15 fats and oils of animal or vegetable origin (45.4%), 72 ferrous metals (28.1)	08 edible fruits and nuts (97.2%)

Ukraine's exports to most of the countries included in the fourth cluster (Table 5.8) were dominated by grain crops (Israel, Iran, Lebanon, Libya, Morocco, Saudi Arabia, Tunisia). At the same time, the basis of Ukrainian exports to Algeria was ores, slag and ash, and ferrous metals dominated exports to the United Arab Emirates. Fats and oils of animal or vegetable origin also accounted for a significant share in exports from Ukraine to countries such as Iran, Lebanon, Libya, the United Arab Emirates, and Saudi Arabia. It should be noted that a significant share of Ukrainian exports to Saudi Arabia was meat and edible by-products, which indicates the competitiveness of these products in the markets of the Middle East and confirms the prospects for the development of trade cooperation in conditions when EU countries significantly restrict the import of Ukrainian meat products.

Imports of goods to Ukraine from the Middle East countries belonging to the fourth cluster mainly consist of mineral fuels, oil and its distillation products (Algeria, Israel, Libya, Tunisia), plastics, polymeric materials (Iran, Lebanon, United Arab Emirates, Saudi Arabia), edible

<sup>349</sup> Compiled by the author based on data from: Countries by commodity structure of Ukraine's foreign trade for January-December 2021. [https://www.ukrstat.gov.ua/operativ/operativ2022/zd/kr\\_tstr/arh\\_kr\\_2022.htm](https://www.ukrstat.gov.ua/operativ/operativ2022/zd/kr_tstr/arh_kr_2022.htm)

fruits and nuts (Iran, Lebanon). However, some countries supplied goods with higher added value to Ukraine. Thus, Ukraine imported pharmaceutical products from Iran, land transport vehicles, except for railways, from Morocco, nuclear reactors, boilers, and machines from the United Arab Emirates.

Table 5.8

Characteristics of the commodity structure of Ukraine's trade with countries included in the IV cluster in 2021<sup>350</sup>

Country	Share of basic goods in exports, %	Share of basic goods in imports, %
Algeria	10 cereals (29.8%), 26 ores, slags and ash (52.9%)	27 mineral fuels; oil and its distillation products (95.8%)
Israel	10 grains (37.9%), 72 ferrous metals (23.4%)	27 mineral fuels; oil and its distillation products (18.3%), 38 various chemical products (29.1%)
Iran	10 cereals (85.3%), 15 fats and oils (12.5%)	08 edible fruits and nuts (22.9%), 20 processed vegetable products (12.8%), 30 pharmaceutical products (11.1%), 39 plastics, polymeric materials (36.1%)
Lebanon	10 cereals (59.2%), 15 fats and oils (19.3%), 72 ferrous metals (15.8%)	08 edible fruits and nuts (14.7%), 24 tobacco and industrial tobacco substitutes (63%), 39 plastics, polymeric materials (10.5%)
Libya	10 cereals (73%), 15 fats and oils (10.2%)	27 mineral fuels; oil and its distillation products (99.9%)
Morocco	10 grain crops (55.1%), 23 residues and waste from the food industry (11.7%)	31 fertilizers (47.7%), 87 land transport other than rail (17.9%)
UAE	12 seeds and fruits of oil plants (11%), 15 fats and oils (16.6%), 72 ferrous metals (28.6%)	39 plastics, polymeric materials (17.8%), 84 nuclear reactors, boilers, machines (27%)
Saudi Arabia	02 meat and edible offal (24.7%), 10 cereals (34.7%), 15 fats and oils (15.2%)	39 plastics, polymeric materials (82%)
Tunisia	10 grains (75.1%), 72 ferrous metals (21.4%)	27 mineral fuels; oil and its distillation products (59.5%), 64 footwear (10.2%)

<sup>350</sup> Compiled by the author based on data from: Countries by commodity structure of Ukraine's foreign trade for January-December 2021. [https://www.ukrstat.gov.ua/operativ/operativ2022/zd/kr\\_tstr/arh\\_kr\\_2022.htm](https://www.ukrstat.gov.ua/operativ/operativ2022/zd/kr_tstr/arh_kr_2022.htm)

Export of goods from Ukraine to the countries included in the fifth cluster are also poorly diversified (Table 5.9), as well as to the countries considered above. The basis of Ukrainian exports to the countries of this group in 2021 was grain crops (Djibouti, Yemen, Jordan, Oman, Syria), fats and oils of animal or vegetable origin (Bahrain, Djibouti, Yemen, Jordan, Qatar, Syria), ferrous metals (Jordan, Qatar, Kuwait). Only to individual countries does the export structure differ slightly with a significant share of food industry products. Thus, Ukraine exported alcoholic and non-alcoholic beverages and vinegar, tobacco and industrial tobacco substitutes to Bahrain, and meat and edible offal to Kuwait.

Among the countries of the fifth group, the most diversified was the import of goods to Ukraine from Bahrain, the structure of which differed from the structure of imports from other countries of this group, in particular, a high share of mineral fuels, oil and its distillation products, and inorganic chemistry products. The import of goods from Djibouti was less diversified, but it consisted of two main groups of goods that belong to medium-high technologies. Two types of goods prevailed in imports from Jordan, Qatar, and Kuwait. It should be noted that, along with pharmaceutical products that belong to high-tech, products made of ferrous metals were imported from Jordan, which have a higher added value than the ferrous metals that Ukraine exported to this country. Imports of goods from Yemen and Oman mainly consisted of plastics and polymeric materials.

Characteristics of the commodity structure of Ukraine's trade with countries included in the V cluster in 2021<sup>351</sup>

Country	Share of basic goods in exports, %	Share of basic goods in imports, %
Bahrain	15 fats and oils of animal or vegetable origin (13.2%), 22 alcoholic and non-alcoholic beverages and vinegar (11.1%), 24 tobacco and manufactured tobacco substitutes (12%)	27 mineral fuels; oil and its distillation products (33.8%), 28 inorganic chemical products (27.7%), 39 plastics, polymeric materials (13.9%), 70 glass and glass products (14.9)
Djibouti	10 cereals (58%), 15 fats and oils of animal or vegetable origin (28.1%)	84 nuclear reactors, boilers, machines (48.8%), 88 aircraft (42.5)
Yemen	10 cereals (84.6%), 15 fats and oils of animal or vegetable origin (7.4%)	39 plastics, polymeric materials (99.8%)
Jordan	10 cereals (34.7%), 15 fats and oils (16.5%), 72 ferrous metals (18.6%)	30 pharmaceutical products (61.9%), 73 ferrous metal products (15%)
Qatar	15 fats and oils (13.2%), 72 ferrous metals (52.9%)	29 organic chemical compounds (13.9%), 39 plastics, polymeric materials (79%)
Kuwait	02 meat and edible offal (45.7%), 72 ferrous metals (17.2%)	29 organic chemical compounds (11.2%), 39 plastics, polymeric materials (77.9%)
Oman	10 grain crops (63.5%), 19 finished grain products (16.5%)	39 plastics, polymeric materials (84.4%)
Syria	10 cereals (84.3%), 15 fats and oils (15.2%)	25 salt; sulfur; earth and stones (92.9%)

A study of the commodity structure of Ukraine's trade with the Middle East countries showed that the basis of Ukraine's exports was raw materials. Agricultural raw materials, metallurgical products, and vegetable oil were supplied to both the countries that are Ukraine's largest trading partners and the countries that are considered potential growing

<sup>351</sup> Compiled by the author based on data from: Countries by commodity structure of Ukraine's foreign trade for January-December 2021. [https://www.ukrstat.gov.ua/operativ/operativ2022/zd/kr\\_tstr/arh\\_kr\\_2022.htm](https://www.ukrstat.gov.ua/operativ/operativ2022/zd/kr_tstr/arh_kr_2022.htm)

markets for Ukrainian exporters. Imports of goods to Ukraine from the Middle East countries consisted of products with a relatively higher degree of processing, while high-tech products and medium-high-tech goods came from individual countries. In this regard, the issue of the impact of foreign trade with the Middle East countries on Ukraine's economic growth requires further research.

## CHAPTER 6. PROMISING AREAS FOR STRENGTHENING UKRAINE'S POSITION IN FOREIGN MARKETS

### 6.1. Development and main factors of Ukraine's foreign trade after the pandemic

The recovery of the Ukrainian economy after the pandemic was facilitated by increased cooperation with international financial institutions and assistance from the European Union. Even during the pandemic, in June 2020, Ukraine signed an agreement with the IMF to receive financing under the Stand-By program in the amount of 5 billion USD. These funds were intended for the implementation of measures to overcome the negative consequences of the pandemic, ensure economic recovery, and introduce structural reforms to reduce Ukraine's institutional vulnerability. However, only in November 2021 did IMF representatives monitor Ukraine's economic indicators and decide to provide Ukraine with 700 million USD, as well as extend the financing program until July 2022<sup>352</sup>. According to the agreement with the IMF, the Ukrainian government committed to implementing economic, financial and structural measures to overcome the economic and health crisis caused by the pandemic, and the funds provided by the IMF were to help ensure macroeconomic and financial stability, reduce vulnerability and overcome key obstacles to attracting private investment. Among the main measures implemented during this period, it is worth highlighting strengthening the independence of the National Bank of Ukraine, fiscal consolidation and tax reforms, judicial reform and improving the management system of state-owned enterprises.

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<sup>352</sup> OECD, 2022. The COVID-19 crisis in Ukraine. URL: <https://www.oecd.org/eurasia/competitiveness-programme/eastern-partners/COVID-19-CRISIS-IN-UKRAINE.pdf>

In February 2022, the European Commission launched a new macro-financial assistance program for Ukraine in the amount of €1.2 billion, paying almost immediately the first tranche of €600 million to mitigate the impact of global instability on our country's economy<sup>353</sup>. This assistance was an important addition to the loan agreement, which was signed back in July 2020 and provided Ukraine with 1.2 billion euros to quickly overcome the consequences of the pandemic.

The support of Ukraine by the World Bank, which has provided financing of 2.3 billion USD since the beginning of the pandemic to balance the state budget and implement investment projects, has also been important. In December 2021, the World Bank decided to provide Ukraine with a second loan of 300 million euros to finance measures under the Development Policy Plan (DPL) for implementing reforms to accelerate economic recovery, ensure economic growth and mitigate the negative consequences of the pandemic<sup>354</sup>. In June 2020, Ukraine received the first tranche of the DPL loan in the amount of \$350 million, which was intended to implement land reform measures and accelerate investment inflows to the agricultural sector, as well as to implement social programs to protect the poor from the economic crisis in the context of the pandemic. In addition, in December 2021, the World Bank provided Ukraine with financing in the amount of \$150 million for the implementation of the Covid-19 Emergency Measures and Vaccination Project.

Thanks to financial assistance aimed at addressing the threats posed by the pandemic and rising geopolitical tensions with Russia, Ukraine's

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<sup>353</sup> OECD, 2022. The COVID-19 crisis in Ukraine....

<sup>354</sup> *ibid*

economic situation improved, with GDP growing by 3.2% in 2021. This growth followed a 4% decline in 2020 and was lower than expected due to a fourth wave of Covid-19 in October-November, as well as a sharp increase in gas prices and increased military tensions with Russia. Little progress in reforms and the slow rollout of vaccination campaigns also slowed the pace of economic recovery. Ukraine's GDP growth forecast for 2022 was between 3.2% and 3.4% (Figure 6.1) amid escalating tensions with Russia and further rising gas prices, while Latvia, Poland and Lithuania recovered at a faster pace.

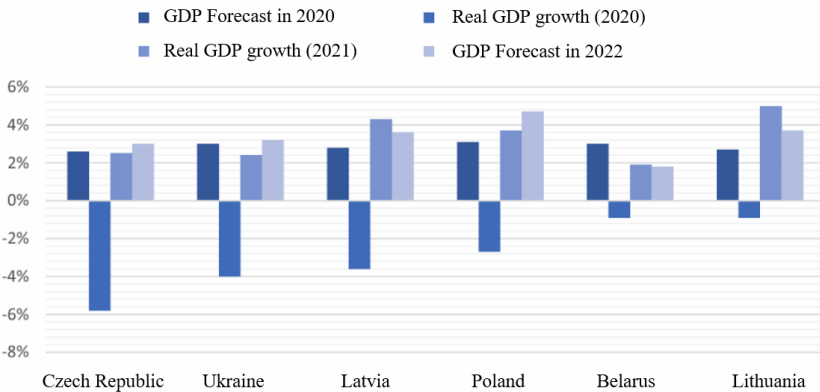


Fig. 6.1. GDP growth in 2020, 2021 and forecast for 2022 for Ukraine and individual countries<sup>355</sup>

Ukraine experienced a net investment outflow in 2020 (-USD 860 million), after four years of relatively stable annual net inflows of between USD 3.8 and 5.9 billion. To attract more foreign investment and support the recovery, the government adopted a new law in early 2021 that provides significant financial incentives and operational support for large investments in Ukraine (the “investment nanny” law). In addition, the

<sup>355</sup> OECD, 2022. The COVID-19 crisis in Ukraine...

European Union planned to channel up to USD 7 billion in investment over the next seven years, primarily into green energy, digitalization, infrastructure projects, and support for small and medium-sized businesses in Ukraine. According to the Ministry of Finance of Ukraine, in the first half of 2021, net FDI inflows to Ukraine amounted to USD 2.83 billion, of which USD 2.33 billion came from the EU<sup>356</sup>.

The gradual resumption of industrial production and the reduction in the threat of a worsening pandemic contributed to an increase in Ukraine's foreign trade in 2021. According to the State Statistics Service of Ukraine, exports of goods in 2021 increased to 68.2 billion USD compared to 49.2 billion USD in 2020, with export growth rates of 138.4% compared to 2020 and exceeding import growth rates (134.1%)<sup>357</sup>. The improved terms of trade helped maintain a positive current account, which increased the supply of foreign exchange and contributed to the revaluation of the hryvnia. In addition, Ukraine's net international reserves increased by 7% during 2021 and reached USD 31 billion as of January 1, 2022. On the other hand, inflation reached 10% in 2021, the highest level since 2017, due to factors other than the pandemic.

In 2021, the world economy began to recover rapidly and emerge from the deep crisis caused by the pandemic. The key factor in the reduction of global imports in 2020 was a significant decrease in consumption, which led to a decrease in the production of industrial goods and consumer goods. The significant increase in demand that occurred in 2021 after the lifting of most quarantine restrictions led to the inability of

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<sup>356</sup> Foreign Direct Investment (FDI) in Ukraine. Ministry of Finance of Ukraine.

<https://index.minfin.com.ua/ua/economy/fdi/>

<sup>357</sup> Commodity structure of foreign trade in 2021 State Statistics Service of Ukraine.

[https://www.ukrstat.gov.ua/operativ/operativ2021/zd/tsztt/tsztt\\_u/arh\\_tsztt2021\\_u.html](https://www.ukrstat.gov.ua/operativ/operativ2021/zd/tsztt/tsztt_u/arh_tsztt2021_u.html)

industry to respond quickly and meet consumer needs, which, in turn, led to an increase in world prices for raw materials. Given the significant raw material component of Ukraine's exports, the simultaneous increase in demand and prices for these products contributed to the intensification of the activities of Ukrainian exporters of raw materials and ensured the recovery of the Ukrainian economy and an increase in nominal GDP in 2021 by more than 3%<sup>358</sup>.

Thus, Ukraine's foreign trade in 2021 was characterized by positive dynamics, as evidenced by an increase in exports by 38.4% and imports by 34.1% compared to 2020. Accordingly, the negative balance of Ukraine's foreign trade increased slightly - from 5.0 billion USD in 2020 to 5.2 billion USD in 2021. The high growth rates of Ukraine's foreign trade indicators in 2021 compared to 2020 are to some extent due to the low base of comparison, since in 2020 there was a significant reduction in trade turnover due to the introduction of quarantine restrictions and a slowdown in business activity in Ukraine and other trading partner countries. Therefore, if we compare the foreign trade indicators of 2021 with the indicators of 2019, we can conclude that exports grew by 35.9% and imports by 19.8%, which ensured an increase in trade turnover by 28%.

The positive dynamics of the restoration of Ukraine's foreign trade was interrupted in 2022 by the full-scale invasion of Russian troops. As a result of the war, the logistics routes used for export and import deliveries of goods were disrupted. If significant volumes of raw material exports in 2021 became one of the key factors in the recovery of the economy, then in 2022 the blockade of Ukraine's Black Sea ports made it impossible to

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<sup>358</sup> Trends in Ukraine's foreign trade in goods in 2021. National Institute for Strategic Studies. 2022. URL: <https://niss.gov.ua/doslidzhennya/mizhnarodni-vidnosvny/tendentsiyi-zovnishnoyi-torhivli-tovaramy-ukrayiny-za>

deliver significant volumes of agricultural raw materials, iron ore and ferrous metals to other countries. Exporters had to use land routes and transport products across the western border of Ukraine, the throughput of which was insufficient for such significant volumes of exports.

In the first year of the war, the negative balance of foreign trade turnover increased to 15.3 billion USD, the main reason for which was a sharp increase in the volume of imports of goods, the demand for which increased due to the growing needs of the armed forces and strategic industries (energy resources, fuels and lubricants, machinery, equipment, vehicles, chemical industry products). This led to the fact that the reduction in imports in 2022 compared to 2021 was significantly smaller (-24.1%) than the reduction in exports (-35.2%) (Figure 6.2).

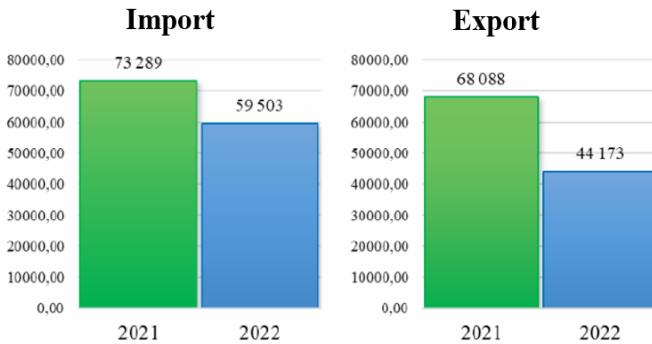


Fig. 6.2. Dynamics of exports and imports of goods of Ukraine in 2021-2022, million USD<sup>359</sup>

It should be noted that the real negative impact of the full-scale war on Ukraine's foreign trade was more significant, since official statistics

<sup>359</sup> Compiled based on data: Foreign trade in goods. State Statistics Service of Ukraine. [https://www.ukrstat.gov.ua/operativ/menu/menu\\_u/zed.htm](https://www.ukrstat.gov.ua/operativ/menu/menu_u/zed.htm)

include two months of 2022 before the start of hostilities, during which the Ukrainian economy demonstrated a rapid recovery from the Covid-19 pandemic. The recovery of the Ukrainian economy after the pandemic resulted in a monthly increase in the volume of exports of goods in 2021, which allowed us to expect this trend to continue in 2022.

As can be seen from Figure 6.3, in January 2022, export volumes almost doubled compared to 2021, and such positive dynamics could have been maintained until the end of the year if the full-scale war had not begun. However, already in March 2022, There was a sharp reduction in exports, the volumes of which were half as much as in February 2022 and March 2021.



Fig. 6.3. Dynamics of exports of goods from Ukraine in 2021-2022<sup>360</sup>

In the post-pandemic period, a feature of exports of goods from Ukraine was the increase in the cost of export supplies while simultaneously reducing their physical volumes, which was due to an increase in world prices and an increase in demand for raw materials that form the basis of Ukrainian exports (grains, vegetable oil, iron ore, ferrous

<sup>360</sup> Compiled by the author for: Monthly volumes of the commodity structure of foreign trade in 2021-2022.  
[https://www.ukrstat.gov.ua/operativ/operativ2008/zd/str\\_eit/arh\\_s\\_eit\\_u.htm](https://www.ukrstat.gov.ua/operativ/operativ2008/zd/str_eit/arh_s_eit_u.htm)

metals). Despite the World Bank's forecasts of a decrease in world prices due to a decrease in consumer demand, the situation on world raw materials markets turned out to be positive for Ukrainian exporters in 2021, which led to the reorientation of many agricultural holdings to the production of agricultural raw materials, the demand and prices for which increased, which, in turn, led to a further increase in the share of agri-food in the total volume of Ukrainian exports.

Such structural transformations became a source of a number of threats for Ukrainian exporters of raw materials in 2022 after the start of a full-scale war, as producers could not export products in full. Therefore, in March 2022, the volume of exports of goods decreased by 50% compared to February of this year. However, already in May 2022, there was a slight increase in the volume of exports of Ukrainian goods, its recovery was slow. The maximum value of exports for 2022 was recorded in September, when exports reached 4135 million USD as a result of the unblocking of Ukraine's Black Sea ports within the framework of the UN Black Sea Grain Initiative. The creation and operation of the "grain corridor" contributed to a partial solution to the problems of export logistics, which positively affected the income of Ukrainian exporters of agricultural products, preserved Ukraine's positions in the world market, and improved the economic situation in the country. Thanks to the Black Sea Grain Initiative, during 2022, 615 vessels were dispatched from Ukrainian ports, which loaded 16.2 million tons of agri-food products (7.4 million tons of corn, 4.7 million tons of wheat, 256.2 thousand tons of sunflower seeds, 997.6 thousand tons of vegetable oil)<sup>361</sup>.

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<sup>361</sup> Volumes of agricultural exports via the grain corridor. 2023. URL: <https://uga.ua/ru/statistika-zernovogo-koridora>

During 2021, there was also a monthly increase in the volume of imports of goods, as domestic demand for imported goods, raw materials and components recovered. Thus, over the year, the value of imports almost doubled (Figure 6.4), which allowed us to predict positive dynamics of economic recovery and foreign trade of Ukraine throughout 2022. However, as a result of the full-scale war, there was a sharp, almost twofold, decrease in the volume of imports of goods in March 2022 compared to February.

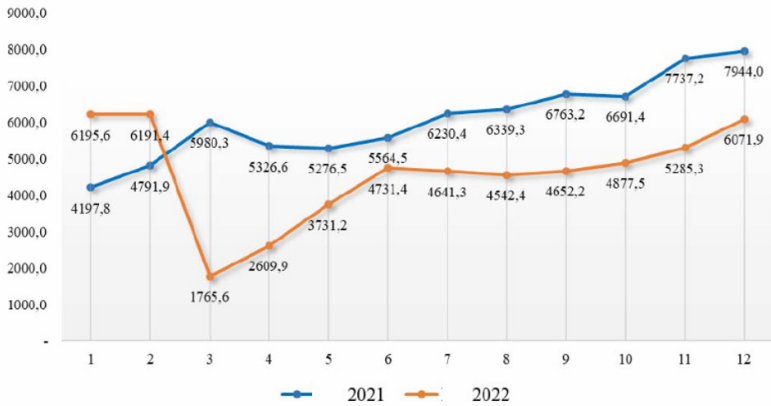


Fig. 6.4. Dynamics of imports of goods to Ukraine in 2021-2022<sup>362</sup>

In order to ensure the operation of domestic enterprises in wartime conditions, a list of critical import goods was determined, as well as the procedure for cross-border currency transactions to pay for the import of these goods, in accordance with the Resolution of the Cabinet of Ministers of Ukraine dated February 25, 2022. Critical import goods included oil and

<sup>362</sup> Compiled by the author for: Monthly volumes of the commodity structure of foreign trade in 2021-2022. [https://www.ukrstat.gov.ua/operativ/operativ2008/zd/str\\_eit/arh\\_s\\_eit\\_u.htm](https://www.ukrstat.gov.ua/operativ/operativ2008/zd/str_eit/arh_s_eit_u.htm)

petroleum products, petroleum gas and coal, pharmaceutical products and medical products and equipment<sup>363</sup>.

To summarize, we note that the Ukrainian economy has proven to be more resilient to the pandemic crisis than to a full-scale war. In 2021, Ukraine's foreign trade volumes increased, indicating our country's ability to effectively use internal resources and opportunities created in the external environment due to the recovery of the global economy after the pandemic and the improvement of the situation on global commodity markets. The positive dynamics of exports and imports were interrupted by the full-scale invasion of Russian troops into Ukraine, resulting in a significant reduction in foreign trade in March 2022, and the restoration of its volumes was very slow and did not ensure a return to the pre-war level by the end of 2022. However, in the conditions of war, the negative consequences of structural changes in Ukraine's trade were manifested, which occurred not only as a result of large-scale military operations. Transformations in the export structure that occurred in the post-pandemic period and consisted in an increase in raw materials in exports led to difficulties in transporting these products during the war.

## **6.2. Priority areas for improving public administration of foreign economic activity**

In the context of a full-scale war, the conditions and priorities of Ukraine's foreign economic policy have changed, with the main focus now on protecting national interests and sovereignty, which affects the country's ability to create safe conditions for the functioning of foreign

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<sup>363</sup> Some issues of critical import goods: Resolution of the Cabinet of Ministers of Ukraine dated March 16, 2022. № 289. URL: <https://zakon.rada.gov.ua/laws/show/289-2022-%D0%BF#Text>

economic entities. At the same time, the expectations of business and society regarding positive changes in foreign policy during the war have become higher than in peacetime. An important role in modern conditions is played by economic support for Ukraine by international partners, obtaining security guarantees and the necessary weapons from allies, as well as active diplomatic cooperation.

The Russian-Ukrainian war is increasingly becoming part of a global geopolitical conflict, which complicates and sometimes slows down decision-making by international partners on supporting Ukraine, deepening the crisis not only in the Ukrainian economy, but also in its positioning on the international arena. In these conditions, the formation of Ukraine's foreign economic policy faces new challenges that require increasing the efficiency of decisions made and the effectiveness of communications with international partners.

The main challenge during the war is the need for an adequate and realistic assessment of the state of the national economy, which has suffered due to the loss of industrial, human, energy and infrastructure potential. This affects the country's export capabilities, the need for imported goods and the level of balance of foreign trade. The war led to the loss of labor resources, especially highly qualified ones, made it difficult to finance defense spending in the required volume and restrained the introduction of the latest technologies into industry, in particular into the military-industrial complex. These factors will determine Ukraine's position in the global economy in the medium term. In contrast, support from the EU is ambiguous: the trade advantages obtained are often offset by stricter restrictions on the import of Ukrainian products from certain countries.

The weakening of the national economy increases Ukraine's dependence on international partners. The conditions of the war contributed to the growth of asymmetry in Ukraine's trade and investment cooperation with other countries. Although Russia's invasion brought the strategic interests of the West and Ukraine closer together, many disagreements remain regarding the further development of economic, defense, and political cooperation, as well as Ukraine's participation in integration associations. Despite the provision of Western weapons, financial, and consulting assistance to Ukraine, the simplification of trade regimes, and the improvement of transport conditions, challenges arise related to competition in international markets and double standards of member states of integration associations.

To solve security problems in wartime, it is necessary to form a coalition of Ukraine's allies who would provide security guarantees at the bilateral or multilateral level. Thus, the intensification of diplomatic work to obtain such guarantees should become an important element of Ukraine's foreign economic policy. This will reduce the risks of losses of human and financial capital, production facilities and finished products. Reducing these threats will increase the efficiency of using domestic economic potential and international assistance, as well as preferential regimes within the framework of free trade agreements with various countries and associations, such as Montenegro, Canada, Turkey, EFTA and the EU.

In wartime, an extremely important requirement for foreign economic policy is to ensure its flexibility, innovation, and strategic focus of decisions. Ukraine's foreign policy is shaped by geopolitical processes and external economic factors that the country cannot always influence,

and the set of possible political decisions is limited. This leads to the fact that policy becomes predictable and dependent on the decisions of governments of other countries. Therefore, Ukraine needs to deepen cooperation with key international partners, creating coalitions to solve problems and achieve common interests. This does not necessarily mean integration into the EU or creating a coalition with all its member states. It is important to spread the positive experience of cooperation, as was done within the coalition with Turkey and Romania to ensure the export of Ukrainian grain through the Black Sea corridor and the ports of the Danube, to other areas where Ukraine and its partners have common strategic interests, for example, in issues of mine clearance and environmental safety of the Black Sea.

The full-scale war has exacerbated Ukraine's economic problems, which negatively affect its foreign economic activity. In this context, the key elements of foreign economic policy should be: an adequate assessment of the real state of the national economy, an analysis of trends in foreign trade and foreign investment, as well as the compliance of institutional conditions with these realities; an objective determination of Ukraine's strengths and weaknesses in international markets; a detailed study of the interests of partner countries and the identification of their points of contact with the national interests of Ukraine; forecasting the positive and negative consequences of the introduction of regulatory measures in the national economy and the conclusion of international agreements.

Thus, an important component of Ukraine's foreign economic policy is the use of state instruments of influence to create a favorable institutional environment for the activities of Ukrainian exporters. To

increase the effectiveness of this policy, it is necessary to improve the institutional, economic and organizational mechanisms that determine the conditions for the functioning of economic entities that export their products (Table 6.1).

The key instrument for creating a favorable institutional environment should be considered the new Export Strategy of Ukraine, the development of which is necessary after the end of the previous strategy in 2021. The new Export Strategy must take into account significant changes in the conditions of production in Ukraine and external factors affecting foreign economic activity after the start of the full-scale invasion of Russian troops. This strategy should define tasks to strengthen the positions of Ukrainian exporters in foreign markets and provide for measures that take into account the liberalization of trade with the EU, granting Ukraine the status of a candidate country for EU membership, and possible negative reactions from individual member states, such as Poland, Hungary, and Slovakia.

Table 6.1

Directions for improving the components of the mechanism of state management of foreign economic activity in Ukraine

Tools	Measures	Lever
1. Institutional	Adoption of the Export Strategy of Ukraine Optimization of the activities of the export credit agency Improvement of the customs administration system Intensification of negotiations within the framework of the "Industrial Dialogue"	<ul style="list-style-type: none"> <li>- state support for manufacturers exporting products with a high level of added value;</li> <li>- guaranteeing payments, lending and insurance of export operations of enterprises;</li> <li>- minimizing discriminatory burdens when going through customs procedures, strengthening cooperation between customs control bodies of Ukraine and neighboring countries that are members of the EU;</li> <li>- application of European quality standards in industrial production;</li> <li>- promoting the involvement of technological and innovative solutions.</li> </ul>
2. Economic	Development of industrial parks Restoration of free economic zones (FEZ)	<ul style="list-style-type: none"> <li>- exemption from income tax for 5 years and for the next 5 years a rate of 9%, provided that these funds are reinvested in the development of export production;</li> <li>- exemption from income tax for 5 years and for the next 5 years a half-rate of this tax, provided that the released funds are reinvested in the development of export production;</li> <li>- preferential lending for production activities (at 2% per annum);</li> <li>- preferential price for land lease or purchase of a land plot for the construction of an enterprise.</li> </ul>
3. Organizational	Creation of trade representations at the embassies of Ukraine in EU countries	<ul style="list-style-type: none"> <li>- promoting the development of trade and economic relations of Ukraine, promoting the export of goods and services originating in Ukraine, attracting foreign investments into priority areas of the Ukrainian economy;</li> <li>- preparing conclusions on the feasibility of exporting or importing goods and services, developing new forms of cooperation with foreign countries with the aim of increasing the volume of exports of goods and services originating in Ukraine.</li> </ul>

Taking into account worsening situation with the export of agricultural products to the EU, the new strategy should provide for state

support for priority sectors of the processing industry, which will contribute to increasing the volume of exports of goods to the European market. Thus, the strategy should include measures not only to promote Ukrainian agricultural products to foreign markets, but also to increase the export of industrial goods, which from June 2022 can be supplied to EU countries without paying customs duties. Today, the export of Ukrainian industrial products to the EU is limited only by the non-compliance of these products with technical standards and quality requirements from consumers.

To promote Ukrainian industrial products on EU markets, it is important to use the opportunities of the “Ukraine-EU High-Level Dialogue on Horizontal Issues and Individual Industrial Sectors” (Ukraine-EU Industrial Dialogue), launched in 2016. Deepening cooperation within the framework of this dialogue will contribute to the development of high-tech industries in Ukraine by attracting foreign investment and integrating enterprises into global value chains, which will ensure an increase in exports of industrial products from Ukraine. It is also worth considering the experience of other countries in state support for the production of export-oriented industrial products and ensuring their compliance with EU quality standards, including taking into account the need to implement Industry 4.0 technologies.

To facilitate the conclusion of international contracts by enterprises and provide support in their implementation, it is necessary to improve the organizational instruments of state regulation of foreign economic activity. It is necessary to create trade representations at the embassies of Ukraine in EU countries, which will assist Ukrainian exporters in obtaining payment for commercial agreements and VAT refunds on export

transactions, provide legal support to exporters in the event of anti-dumping and anti-subsidy investigations, facilitate the resolution of trade disputes, inform about the results of marketing research on the EU market, and participate in exhibitions, fairs, and business forums.

Economic instruments of state regulation of Ukraine's foreign economic activity should also be aimed at strengthening the competitive potential of export-oriented industries. The main measures include the development of industrial parks, the restoration of the functioning of special economic zones, the specialization of which should be the production of export products in priority industries, the introduction of tax breaks, preferential lending and other preferences for enterprises that manufacture and export products with a high level of added value.

The effective use of economic instruments and measures of state influence to strengthen the export potential of Ukrainian enterprises depends on the financial support of their activities. Due to the lack of domestic capital investment resources, it is important to create attractive conditions for attracting foreign investment to Ukraine. The main areas of improvement of the investment climate in Ukraine include improving the legislative framework, regulating economic processes and measures to simplify doing business with foreign investment (Figure 6.5).

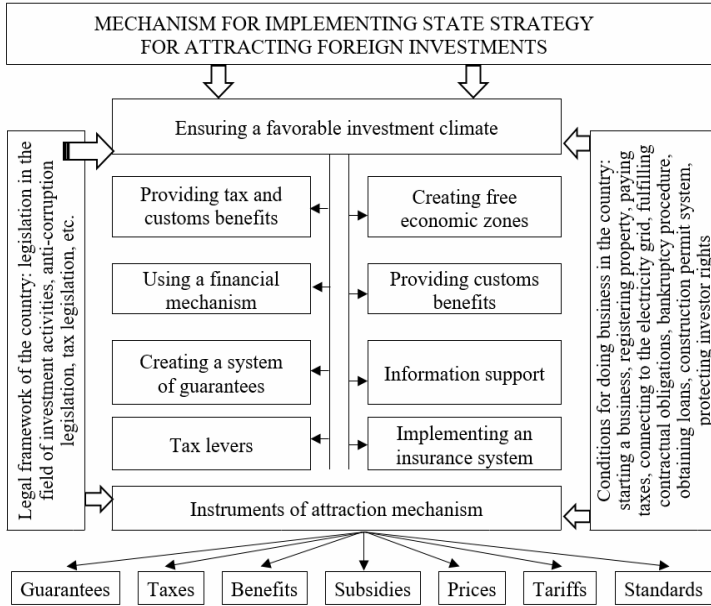


Fig. 6.5. Mechanism for implementing foreign economic policy in terms of stimulating FDI attraction<sup>364</sup>

Improving the regulatory framework should take into account industry specifics and create favorable conditions for the activities of foreign and domestic investors. An effective regulatory policy of the state should be aimed at creating effective instruments to stimulate investment activity. This includes increasing the volume of foreign direct investment (FDI), their annual inflows and improving the sectoral efficiency of investment, in particular by directing resources to priority sectors of the processing industry that produce and export products with a high level of added value.

The priority industries identified in the Export Strategy will require significant investment resources for technical modernization of production

<sup>364</sup> Fedorchuk O.S., Storozhuk O.V. Practice of using instruments to stimulate foreign direct investment by foreign countries. Mukachevo State University. 2017. URL: [http://www.economyandsociety.in.ua/journal/9\\_ukr/20.pdf](http://www.economyandsociety.in.ua/journal/9_ukr/20.pdf)

processes and updating the product range through the introduction of innovations. Levers such as tax breaks and duty exemptions should be directed primarily at enterprises with foreign investments that create a high share of added value, are competitive in foreign markets, are active in innovations and introduce the latest technologies.

Wartime conditions require the adaptation of traditional economic policy instruments, such as preferential loans, grants, and tax breaks. In addition, it is necessary to develop and implement new instruments to increase the investment attractiveness of domestic enterprises, including:

Insurance of enterprises against war risks.

State target programs to support the development of high-tech industries (pharmaceuticals, production of electrical machines, electronics, devices) and science-intensive services (computer, information, telecommunications services).

Creation of industrial parks based on enterprises of the military-industrial complex with the implementation of joint projects with enterprises of NATO countries.

Currently, Ukrainian legislation does not provide for tax benefits for enterprises with foreign investments due to high risks of abuse. Therefore, the use of such fiscal levers as tax benefits and duty exemptions should be based on a proven dependence of the level of taxation on the volume of investments, the sectoral direction of investments and their impact on the creation of added value.

At the legislative level, it is necessary to clearly define the conditions for granting tax benefits (period, size, sectors) for foreign and domestic investors. Additional criteria may be established, such as the number of

jobs created, the opening of new high-tech enterprises, the production of innovative products.

The application of preferential regimes for enterprises in priority sectors of the economy and high-tech enterprises may be accompanied by abuse. To reduce these risks, it is necessary to monitor the activities of enterprises that have been granted benefits and assess their compliance with the criteria for the preferential regime.

To attract investment in enterprises of priority industries, it is necessary to apply differentiated VAT rates depending on the level of added value. For the modernization of enterprises and the increase in production capacities, it is possible to provide for a reduction in income tax if part of the profit is reinvested in new technologies, equipment or the acquisition of industrial property rights.

Financing of investment and innovation projects can be carried out in the form of a public-private partnership, where the state also acts as an investor. For the effective application of such a partnership, it is necessary to strengthen the protection of the interests of all participants, create an information network about investment projects in priority industries of the economy, introduce a compensation mechanism to compensate for losses to foreign investors in the event of early termination of the investment agreement.

The practical implementation of the considered measures is possible through industrial parks, technopolises and special economic zones, which will contribute to the modernization and development of enterprises, increase their international competitiveness and export efficiency.

Given the deterioration of the investment climate in Ukraine and the increased risks of enterprises operating under martial law, it is advisable to

apply a comprehensive mechanism for state management of foreign economic activity, which includes institutional, economic and organizational instruments. Economic instruments are the basis of this mechanism, but their effective use is possible only if the institutional environment is improved and appropriate organizational measures are developed. The beginning of the process of improving the mechanism for state regulation of foreign economic activity during the war will create favorable conditions for the post-war recovery of the Ukrainian economy.

### **6.3. Potential for improving Ukraine's role in the global services market**

Ukraine's foreign trade in services is carried out in extremely difficult conditions of martial law, which creates significant obstacles for the functioning of enterprises in this sphere. External factors, such as disruption of logistics, destruction of infrastructure, economic sanctions and other military threats, negatively affect not only the external environment, but also the internal situation of Ukrainian enterprises. As a result, export activity is characterized by high uncertainty, and the implementation of forecasts is often unlikely.

Despite these challenges, macroeconomic forecasters continue to work on developing forecasts for Ukraine's foreign trade to assess possible changes in the balance of payments and state budget planning. For example, the "Inflation Report" published by the National Bank of Ukraine in January 2024 predicts that by the end of the year, Ukraine's exports of goods and services will grow by 5% and imports by 3% compared to 2023<sup>365</sup>. At the same time,

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<sup>365</sup> Inflation Report, January 2024. National Bank of Ukraine. <https://bank.gov.ua/ua/news/all/inflyatsiyniy-zvit-sichen-2024-roku>

the forecast of the Ministry of Economy of Ukraine is more optimistic and predicts an increase in exports by 9% in 2024, based on the positive trends of the fourth quarter of 2023<sup>366</sup>.

Based on data published by the World Trade Organization for 2015-2023, a forecast can be developed for the dynamics of Ukraine's services exports (Fig. 6.6). The construction of trends shows that the optimistic scenario, which predicts growth in exports in 2024-2026, has a lower probability of implementation (70.1%) compared to the probability of the pessimistic scenario, which predicts a decrease in this indicator (80.5%).

Under the most likely, pessimistic scenario, the volume of services exports could decrease to \$15,148.5 million in 2024, with a further decrease to \$14,019.4 million in 2025 and \$12,581.4 million in 2026. The rate of change in services exports in 2024 compared to 2023 will be insignificant (96.2%), while in subsequent years the deterioration of this indicator will become more noticeable - 89.1% in 2025 and 79.9% in 2026.

Thus, under the pessimistic scenario, the volume of services exports from Ukraine may with a high probability decrease by 3.75% in 2024 compared to 2023, and in subsequent years this decrease may accelerate, reaching 10.9% in 2025 and 20% in 2026 compared to the previous year.

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<sup>366</sup> Ukrainian exports may grow by 9% in 2024 – Ministry of Economy.  
<https://www.epravda.com.ua/news/2024/01/5/708431/>

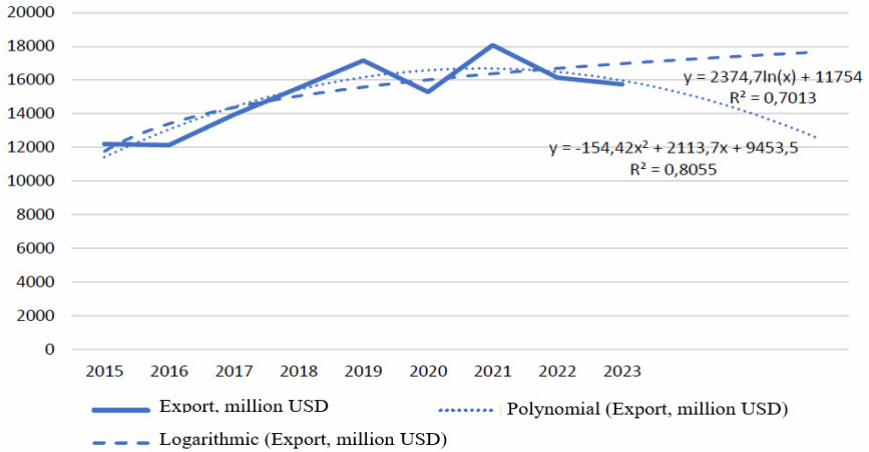


Fig. 6.6. Dynamics and forecast of services exports from Ukraine in 2015-2026<sup>367</sup>

The optimistic forecast is expected to be slightly less likely to materialize. According to our calculations, based on the logarithmic function, export volumes could grow to 17,221.9 million USD in 2024, to 17,448.3 million USD in 2025, and to 17,654.9 million USD in 2026. According to the optimistic scenario, the growth rate of services exports in 2024 compared to the previous year will be the highest during the entire forecast period (109.4%), while in subsequent years this growth will be less noticeable – 101.3% in 2025 and 101.2% in 2026. Therefore, under the optimistic scenario, the volume of exports of services from Ukraine may increase by 9.4% in 2024 compared to 2023, which corresponds to the forecast of the Ministry of Economy of Ukraine, and in the following years the growth rate will slow down and will be 1.3% in 2025 and 1.2% in 2026.

<sup>367</sup> Compiled by the author based on data: Commercial Services Trade - Ukraine. World Trade Organization. URL: [https://www.wto.org/english/res\\_e/statis\\_e/gstdh\\_commercial\\_services\\_e.htm](https://www.wto.org/english/res_e/statis_e/gstdh_commercial_services_e.htm)

Given the small difference in the probabilities of these two forecast scenarios, it is important to identify service sectors that can ensure the growing dynamics of Ukraine's service exports in the near term according to the optimistic forecast.

According to our analysis of the international competitiveness of commercial service sectors, Ukraine has the best prospects for further increasing its service exports in the field of computer services trade. The index of revealed comparative advantages of this sector significantly exceeded 1 and had a tendency to grow during 2017-2022. Therefore, it is important for Ukraine not only to maintain, but also to strengthen the high competitive positions of Ukrainian IT companies in the international market.

To assess Ukraine's prospects in the international computer services market, we conducted a forecast of exports of these services for the near term, using the trend extrapolation method based on time series for the period 2017-2022. Thus, unlike the forecast of total exports of services for the period 2024-2026, the forecast of exports of computer services was developed for 2023-2025. As shown in Figure 6.7, we obtained three possible scenarios for changes in exports of computer services of Ukraine. The scenario of moderate growth in exports according to the linear function has the highest probability of realization (97.4%) and is considered the basic and most likely in the conditions of war in Ukraine. The optimistic forecast of growth in exports of computer services according to the exponential function has a slightly lower, but still high probability of realization (96.3%). The pessimistic forecast of export changes using the logarithmic function is characterized by a lower, but significant probability (87.8%).

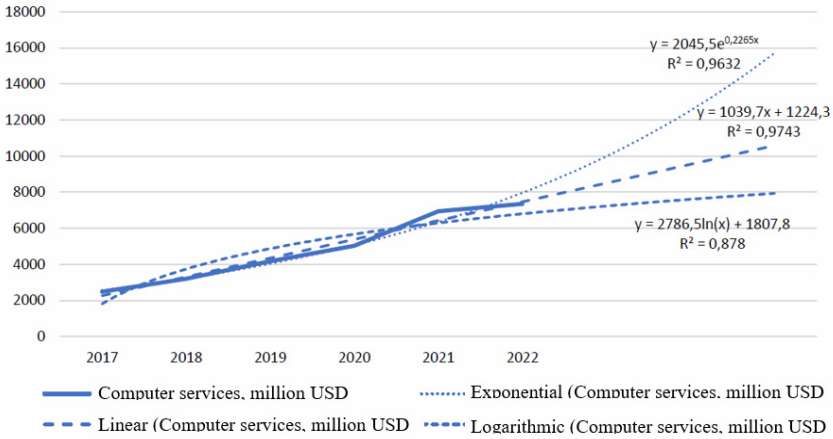


Fig. 6.7. Dynamics and forecast of exports of computer services from Ukraine, 2017-2025<sup>368</sup>

We will begin a detailed analysis of the forecast scenarios with the baseline forecast, which is based on a linear function. The forecast values show that Ukraine's computer services exports in 2023 could reach 8,502.2 million USD, and in 2024 they are expected to increase to 9,541.9 million USD, and in 2025 – to 10,581.6 million USD. According to the baseline scenario, the growth rate of computer services exports in 2023, compared to the previous year, was the highest for the entire forecast period (115.7%), while in subsequent years this growth will be slower – 112.2% in 2024 and 110.9% in 2025. Thus, under the baseline scenario, the volume of exports of computer services from Ukraine may increase by 12.2% in 2024 compared to 2023, which exceeds the forecast values of the Ministry of Economy of Ukraine, and in 2025 - by 10.9% compared to 2024.

<sup>368</sup> Compiled by the author based on data: Commercial Services Trade - Ukraine. World Trade Organization. URL: [https://www.wto.org/english/res\\_e/statis\\_e/gstdh\\_commercial\\_services\\_e.htm](https://www.wto.org/english/res_e/statis_e/gstdh_commercial_services_e.htm)

According to the optimistic scenario based on the exponential function, Ukraine's exports of computer services can be expected to increase to 9,985.6 million USD in 2023, and to 12,523.9 million USD and 15,707.6 million USD in 2024 and 2025, respectively. The optimistic scenario assumes the highest growth rate of computer services exports in 2023 (135.9%), and in the following two years this figure will be 125.4% each year. Thus, the forecasted export growth rates will be 35.9% in 2023, and 25.4% in 2024 and 2025.

The pessimistic scenario according to the logarithmic function assumes a decrease in exports of computer services to 7,230.1 million USD in 2023, but in the following years, exports are expected to increase to 7,602.1 million USD in 2024 and to 7,930.4 million USD in 2025. The rates of change in 2023 were 98.4% compared to 2022, and in 2024-2025 - 105.1% and 104.3%, respectively. Thus, the pessimistic forecast is characterized by a decrease in exports in 2023 by 1.6% compared to 2022, but an increase of 5.1% in 2024 and 4.3% in 2025 is expected. Although the pessimistic scenario assumes slower growth, it still demonstrates positive dynamics in the medium term, but with lower growth rates compared to the baseline and optimistic scenarios.

Thus, computer services sector should become the main direction of strengthening Ukraine's position in the international market. As noted above, Ukraine has significant comparative advantages in providing computer services to foreign consumers. This is due to such factors as: a high level of qualification of IT specialists, high-quality technical education, a large number of universities and training centers that train highly qualified specialists; relatively low labor costs compared to Western countries; competitive prices for software development services

and other IT services; convenient time zone for cooperation with European and American clients.

To effectively use these comparative advantages, the following measures should be taken:

Improving infrastructure: investments in the development of technology parks and innovation hubs, supporting startups and small businesses through grants and other financial incentives.

Improving regulatory standards: creating favorable conditions for doing business, simplifying the tax and legal environment, protecting intellectual property, ensuring legal protection for IT companies.

Education development: supporting and expanding IT education programs, deepening cooperation between universities and IT companies to provide students with modern knowledge and skills.

State support: promotion of Ukrainian IT business abroad, participation in international exhibitions and conferences, establishment of partnerships with international organizations and companies.

Activation of innovative development: support for research and development, investment in the latest technologies, such as artificial intelligence, blockchain, cybersecurity; creation of innovation clusters, where startups and large companies can cooperate on joint projects.

Ukraine has every opportunity to become a leader in the international computer services market, but for this it is necessary to work systematically and strategically on the development of this industry. War is a difficult phenomenon to predict, and it is difficult to predict when security problems will be resolved. However, both during the war and after its end, measures must be taken to ensure political and economic stability in Ukraine, which will contribute to attracting foreign investment,

developing economic stability and reducing risks associated with political factors. In addition, it is important to address the problem of migration of specialists by implementing programs that encourage Ukrainian IT specialists to stay in the country, increasing salaries, and improving working conditions for IT specialists.

Our estimates also show that transport services remain a sector where Ukraine has competitive advantages in the international market, although the RCA index has shown a downward trend and is lower compared to computer services. The forecast trends for changes in Ukraine's transport services exports allow us to identify three scenarios (Figure 6.8). The pessimistic scenario of export dynamics, based on a second-order polynomial function, has the highest probability (78.8%). According to this forecast, the volume of transport services exports will decrease in 2024 by 24.7% compared to 2023 and will amount to 2,750.7 million US dollars; In 2025, a 32.2% reduction is expected compared to 2024, to \$1,864.8 million, and in 2026, the annual rate of decline in exports will be the largest for the entire forecast period (53.3% compared to the previous year), and exports will decrease to \$870.3 million.

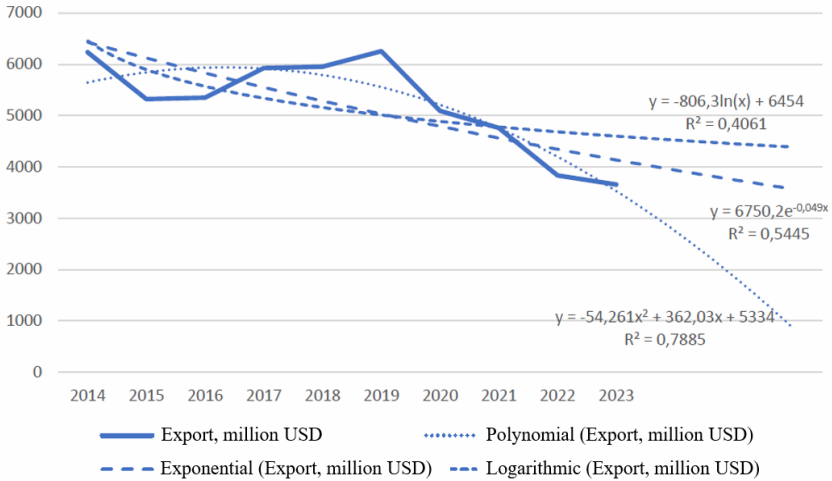


Fig. 6.8. Dynamics and forecast of exports of transport services from Ukraine, 2014-2026<sup>369</sup>

As can be seen from Figure 6.8, the base case scenario based on the exponential function has a lower probability of realization (54.4%) compared to the pessimistic scenario. This scenario also assumes a decrease in export volumes, but at a slower pace. According to our calculations, after growing by 7.7% (to 3,937.6 million USD) in 2024, export volumes will decrease annually by an average of 4.8% in the next two years, amounting to 3,749.3 million USD in 2025 and 3,570 million USD in 2026.

The scenario based on the logarithmic function, which we consider optimistic, has an even lower probability of realization (40.6%). Under this scenario, in 2024, we can expect a significant increase in Ukrainian transport services exports by 23.7% compared to the previous year,

<sup>369</sup> Compiled by the author based on data: Commercial Services Trade - Ukraine. World Trade Organization. URL: [https://www.wto.org/english/res\\_e/statis\\_e/gstdh\\_commercial\\_services\\_e.htm](https://www.wto.org/english/res_e/statis_e/gstdh_commercial_services_e.htm)

reaching 4,520.6 million USD. However, in the next two years, export volumes will decrease annually by an average of 1.5%, amounting to 4,450.4 million USD in 2025 and 4,385.9 million USD in 2026, which will still exceed the export volumes recorded in 2023 by 20%. Although this scenario is the most desirable for Ukraine, the probability of its realization remains extremely low, especially in conditions of war, when threats affecting the international activities of transport companies increase.

To ensure opportunities for increasing the export of transport services by Ukraine, it is necessary to implement measures that will help increase the competitiveness of Ukrainian carriers in the international transport services market. In particular, it is necessary to modernize the transport infrastructure, reconstruct and build new roads, railways, ports, and attract investments in the development of logistics centers and hubs to increase the efficiency of transportation.

The digitalization and automation of transport systems will also play an important role. This can be achieved through the implementation of modern IT solutions for managing transport flows, the use of automated systems for monitoring and controlling transportation.

In addition, the following institutional measures are necessary:

Simplification of customs procedures: improving customs legislation and procedures, including the use of electronic declarations.

Reducing administrative barriers to international transport.

Harmonizing the regulatory framework with European and international standards: harmonizing Ukrainian standards and regulations with the norms of the EU and international organizations, such as the International Maritime Organization (IMO) and the International Air Transport Association (IATA).

The implementation of these measures will contribute to increasing Ukraine's competitiveness in the international transport services market, making Ukrainian companies more attractive to partners and customers, and increasing the overall level of economic development of the country.

#### **6.4. Prospects for increasing Ukraine's competitiveness based on Industry 4.0 technological solutions**

The competitive position of Ukraine in international markets, as well as other countries of the world, is currently determined by the level of technological development and the speed of implementation of Industry 4.0 technologies. The international competitiveness of a country in the context of Industry 4.0 depends not only on the ability to develop and implement innovative technologies, but also on the state of the institutional environment, which can both facilitate and inhibit their spread in various sectors of the economy. In this context, the development and implementation of an effective state strategy for the implementation of Industry 4.0 is a key institutional factor for increasing the international competitiveness of Ukraine.

In the 2019 Global Competitiveness Index 4.0, Ukraine ranked 85th with 57 points out of 141 countries. In terms of the level of perception of information and communication technologies, the country ranked 78th (51.9 points). Ukraine showed the best results in this subindex in the indicators “Fiber optic Internet per 100 subscribers” (46th place) and “Mobile cellular phone subscriptions per 100 people” (60th place). However, the positions were weaker in other indicators: in terms of the number of “Mobile broadband subscriptions per 100 people”, Ukraine

ranked 109th, and in terms of the share of “Internet users among the adult population” – 84th<sup>370</sup>.

In terms of innovation capacity, in 2019, the Ukrainian economy received 40 points and took 60th place in the ranking of countries according to the Global Competitiveness Index 4.0. The improvement in the position in this sub-index compared to the previous year was due to an increase in the rating for such indicators as “International joint inventions per 1 million population” (55th place), “Scientific publications rating” (50th place), “Voice of research institutions” (44th place), and “Trademark applications per 1 million population” (59th place).

In the IMD World Competitiveness Index 2021, Ukraine ranked 54th (50,073 points) out of 64 countries included in the 2021 ranking, an improvement from the previous year, when it ranked 58th. Ukraine ranked 37th in the Knowledge component, 58th in the Technology component, and 58th in the Future Readiness component. Among countries with a population of over 20 million, Ukraine ranked 22nd in digital competitiveness, behind Brazil (20th) and Indonesia (21st). In the Europe-Middle East-Africa group of countries, Ukraine ranked 38th, behind Romania (36th) and Bulgaria (37th).

Thus, according to estimates by leading international institutions, Ukraine lags significantly behind most developed countries in the world in terms of the level of technological development, the activity of introducing innovations, the renewal of industrial enterprises, and the intensity of use of telecommunications and information technologies in various sectors of the economy. Ukraine's low positions in global competitiveness rankings

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<sup>370</sup> Global Competitiveness Report 2019. World Economic Forum. <https://www.weforum.org/publications/how-to-end-a-decade-of-lost-productivity-growth>

taking into account Industry 4.0 indicate the difficulties in spreading these technologies in industry and the service sector. As a result, the volume of exports of high-tech products and science-intensive services remains at a low level.

This emphasizes the need to develop and implement a state competitiveness strategy for Ukraine with an emphasis on the development of those sectors of the economy that have significant potential for the effective use of Industry 4.0 technologies. Currently, the state strategy for the development of Industry 4.0 in Ukraine has not yet been approved at the legislative level, and its draft has been under discussion since 2019. The adoption and implementation of this strategy will contribute to increasing the competitiveness of the national economy, increasing enterprise revenues by accelerating digitalization processes in strategically important sectors of the economy, reducing Ukraine's import dependence, and increasing the technological level of enterprises of the military-industrial complex.

According to the project "Strategy for the Development of Industry 4.0 in Ukraine", the main goals planned to be achieved by 2030 are "an annual increase in efficiency by 4.1%, a rapid return on investment in Industry 4.0 projects (within 3–5 years), and a reduction in the cost of production by 3.6%"<sup>371</sup>. Thanks to the implementation of Industry 4.0 projects that ensure the achievement of the above strategic goals, the Ukrainian economy can expect "an annual growth in industrial production volumes by 10%; an increase in the production of high-tech products by 20% each year; attracting a larger volume of foreign direct investment." Despite the fact that the strategy has not yet been approved at the state

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<sup>371</sup> Development strategy "Industry 4.0". URL: <https://mautic.appau.org.ua/asset/42:strategia-rozvitku-4-0-v3pdf>

level, individual projects for the development of Industry 4.0 are already being implemented, and some of them have shown some progress (Figure 6.9).

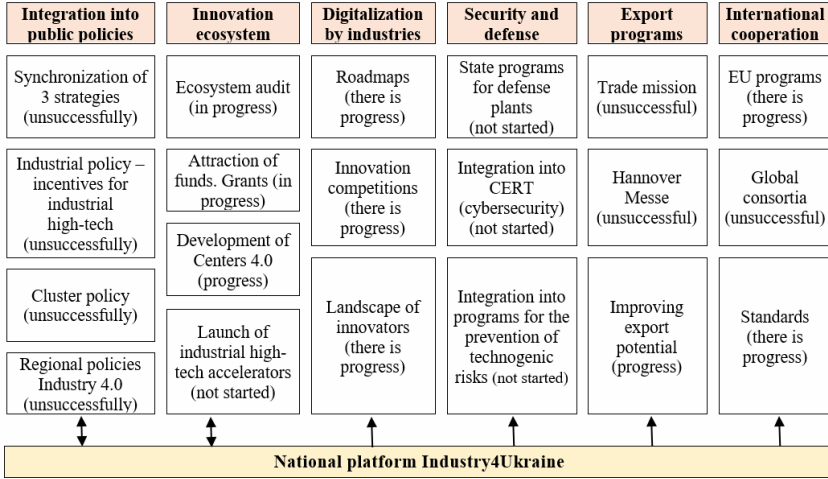


Fig. 6.9. Status of implementation of Industry 4.0 projects in Ukraine<sup>372</sup>

As can be seen from the figure, most projects were not launched or were unsuccessfully completed due to significant obstacles in the implementation of Industry 4.0 technologies. The main problem remains the low level of technological development of most Ukrainian industrial enterprises, whose equipment has hardly been updated since the times of the USSR. Due to technological backwardness, enterprises in key industries, such as machine tool manufacturing, tool production and the chemical industry, have lost their competitive positions. More than 50% of the products manufactured are low-tech. However, Ukraine still has highly qualified personnel, who, however, cannot fully realize their potential due to the lack of jobs in Industry 4.0 industries.

<sup>372</sup> Development strategy "Industry 4.0". URL: <https://mautic.appau.org.ua/asset/42:strategia-rozvitku-4-0-v3pdf>

The development of Ukrainian industry takes place in conditions of fierce global competition, which requires rapid adaptation to the changing requirements of the world market with limited resources. This problem can be solved only by introducing innovations in production technologies. Despite the introduction of various types of information and communication technologies, electronics and robotics, production processes in Ukraine remain predominantly local. Individual enterprises or their divisions use their own management systems, which are sometimes incompatible with each other.

The integration of the Industry 4.0 concept will allow combining various business processes using IT technologies. The introduction of innovations into industry will contribute to an increase in production volumes and an increase in the quality of products, which will lead to an increase in profits that can be invested in the further development of enterprises. The benefits of the implementation of Industry 4.0 technologies will be felt by both manufacturers and consumers, who will gain access to higher-quality, more functional products at reduced costs for their production or purchase.

According to many macroeconomic indicators, Ukraine lags behind economically and innovatively developed countries. However, the country has potential resources that cannot be fully realized due to the use of outdated technologies and worn-out fixed assets. One of the ways to overcome the technological gap between Ukraine and other countries is the systematic introduction of IT technologies into enterprise management. Experts believe that “for the domestic market of Ukraine, Industry 4.0 should become a catalyst for the growth of industry and the defense-industrial complex,” but the key challenge is to involve the IT sector and

science in the process of digitalization of Ukrainian industry and energy<sup>373</sup>. At the same time, the national economy is significantly lagging behind in the implementation of Industry 4.0 technologies in industrial production and the energy sector.

Given the low level of high-tech exports, it is currently difficult to determine the niche that Ukrainian machine-building enterprises could occupy on the world market and effectively compete with leading manufacturers. However, in the conditions of war, the Ukrainian economy has received a chance and a need to develop weapons production, since new types of equipment and weapons have been actively developed since 2014. Given Ukraine's relatively better positions in the export of high-tech services, the development of the military-industrial complex based on Industry 4.0 technologies should take place using the existing potential in the field of research, consulting and engineering services. Among the priorities, it is worth highlighting: development of software for high-tech industries using the latest 4.0 technologies; design of new types of electrical and electronic equipment, in particular for the military-industrial complex; comprehensive automation of production facilities and engineering of industrial enterprises; creation of new unique, technically complex types of equipment for small-scale production.

The Fourth Industrial Revolution opens up enormous opportunities for the development of industry and knowledge-intensive services in Ukraine. The wider implementation of Cyber-Physical Systems (CPS) at domestic enterprises will increase the competitiveness of processing industry products by increasing production efficiency. In addition, the

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<sup>373</sup> Yurchak O. Ukrainian Strategy of Industry 4.0 – 7 Development Directions. URL: <https://industry4-0-ukraine.com.ua/2019/01/02/ukrainska-strategiya-industrii-4-0-7-napriankiv-rozvvutku>

development of CPS technology creates significant opportunities for the export of technologies and finished products. Accordingly, the implementation of the Industry 4.0 initiative should be aimed at using the market potential of the Ukrainian processing industry by institutionalizing the process of introducing relevant technologies and reforming the industrial sector taking into account the priorities of Industry 4.0. To achieve this goal, a dual strategy is needed that combines the implementation of CPS in production and marketing of CPS technologies and products in order to strengthen the competitiveness of Ukrainian high-tech products in both domestic and foreign markets.

The military-industrial complex of Ukraine and enterprises of related industries should adhere to the strategy of leading suppliers, which is focused on the implementation of Industry 4.0 in the production of military and dual-use goods. In the medium term, Ukrainian machine-building enterprises will be able to provide industrial sectors with new technological solutions, which will contribute to improving Ukraine's competitive position by updating the processes of development, production and international marketing of products based on Industry 4.0 technologies. However, for the successful implementation of this task, it is necessary to find effective ways to combine unique technological solutions with new capabilities created by information technologies, which will allow achieving significant progress in the innovation sphere. It is this systematic combination of information and communication technologies with traditional high-tech strategies that will allow us to quickly respond to changes in the market situation and adapt to complex global processes, opening up new market opportunities for companies.

To adapt existing basic IT technologies in Ukraine to specific production requirements, it is necessary to continue their improvement and development of new technological solutions, taking into account the specific needs of strategic industries. To achieve a large-scale effect and increase the overall efficiency of production processes, it is necessary to modernize production technologies and IT systems at existing enterprises, using the capabilities of cyber-physical systems (CPS) as part of the transition to Industry 4.0. At the same time, it is necessary to develop models and strategies for the design and implementation of CPS at new enterprises.

To improve Ukraine's competitive position in the international market of high-tech products in the long term, it is important to intensify the development and implementation of research, technological and educational activities that support the implementation of priority projects using automated engineering modeling and optimization systems.

Another key challenge is to create new value chains through technology, which involves developing new business models that combine products with related services. In the context of war and post-war reconstruction, the main market for Industry 4.0 should be the domestic processing industry. To form and expand this market, it is necessary to create a network of enterprises operating in different areas and ensure closer cooperation between them. This requires end-to-end digital integration of all stages of value creation and product life cycles, which includes large enterprises with international experience and small and medium-sized enterprises that still operate at the regional level. However, many small and medium-sized enterprises are not ready for structural changes in the context of Industry 4.0 due to a lack of qualified personnel

or an unwillingness to take risks by implementing new technological strategies.

An important condition for ensuring the international competitiveness of Ukraine based on Industry 4.0 technologies is the creation of innovative clusters of high-tech enterprises. To do this, it is necessary to conduct an audit of existing enterprises, determine measures to establish their interaction and create new production structures that will meet the level of Industry 4.0. This task requires close interaction between developers of new technologies and enterprises interested in their implementation, as well as attracting investors to finance innovative projects for the production of high-tech products, including export ones.

Large-scale digitalization of processes in the processing industry, energy sector and infrastructure facilities of Ukraine requires improving state regulatory policy, in particular, the introduction of financial and fiscal incentives for business entities that use information and communication technologies and improve the skills of employees in the field of digitalization.

Taking into account strategic importance of the development of the military-industrial complex for protecting the independence of Ukraine, the integration of Industry 4.0 technologies into the production activities of these enterprises should be supported by a special state program aimed at stimulating innovation. This program can be combined with export programs in high-tech industries aimed at strengthening the export potential of high-tech enterprises and supporting the creation of trade missions for the export of Industry 4.0 products and services.

To more quickly implement Industry 4.0 technologies in the manufacturing sector and services, Ukraine should actively use the

opportunities provided by its status as a candidate country for accession to the EU. In particular, it is important to participate in European programs such as Horizon Europa, Factory of the Future, I4MS and cooperate with industry associations of European countries such as Orgalim, CECIMO, BEMAS.

The implementation of these measures will contribute to increasing the competitiveness of Ukrainian enterprises in the domestic and foreign markets, and strengthen the positions of exporters of telecommunications, computer, information and knowledge-intensive business services.

### **6.5. Substantiation of sectoral priorities for the development of Ukraine's foreign trade with the Middle East**

In order to identify problems and opportunities for more effective use of the potential of foreign trade cooperation between Ukraine and the countries of the Middle East, it is necessary to analyze the qualitative parameters of exports and imports, which involve, first of all, an assessment of the comparative advantages of our country in trade in the main commodity groups. Using the division of the countries of the Middle East into clusters and the results of the analysis of the dependence of Ukraine's economic growth on trade in goods with partner countries, we will determine the indices of comparative advantages of Ukraine and the corresponding partner country by the main types of export goods.

Based on a methodological approach to assessing the potential of bilateral cooperation, we will determine comparative advantages based on the comparative advantage indices of Ukraine ( $RCA_{Ukr}$ ) and Turkey ( $RCA_{Tur}$ ) for the main export goods.

Ukraine has the greatest comparative advantages in the export of such goods to Turkey as corn, barley, wheat, and semi-finished metal products (Table 6.2). As can be seen from the table, Ukrainian producers of these grains have significant advantages for the export of these products compared to Turkish producers, but in exports from Ukraine to Turkey, the share of each of the specified types of grains did not exceed 10% in 2021. At the same time, we note that most of the goods for which domestic producers are more competitive compared to Turkish enterprises producing similar goods are raw materials. The exception is locomotive parts, for which Ukrainian producers have a high comparative advantage (RCA=5.76), however, the share of this product group in the export of goods from Ukraine to Turkey is extremely small and amounted to 0.15% in 2021. A similar situation is observed in trade in power generating equipment. Electrical machinery and equipment in Ukraine's exports of goods to Turkey accounted for 0.16% (\$6.44 million), while these products are promising in terms of increasing the efficiency of foreign trade. For example, the RCA index for Ukrainian-made nuclear reactors was 1.04, while Turkey's comparative advantage in the production of this equipment was 0.0096. Another product with a relatively high comparative advantage of Ukrainian producers is insulated wire, however, in 2021 its share in exports of goods from Ukraine to Turkey was less than 0.1%.

Table 6.2

Results of calculating the comparative advantage index for export goods from Ukraine to Turkey, 2021<sup>374</sup>

Product name according to HS4 classification	Export volume, million USD	Share in export, %	RCA <sub>Ukr</sub>	RCA <sub>Tur</sub>	Delta RCA
Corn	254	6,17	34,1	0,25	33,85
Barley	186	4,5	33,7	0,33	33,37
Wheat	386	9,37	28,9	0,14	28,76
Iron semi-finished products	524	<b>12,7</b>	29,4	1,74	27,66
Iron ore	234	5,69	9,44	0,19	9,25
Hot-rolled iron bars	794	<b>19,3</b>	10,8	4,98	5,82
Locomotive parts	6,23	0,15	5,76	0,78	4,98
Insulated wire	3,82	0,093	3,34	1,95	1,39
Iron scrap	221	5,37	1,41	0,51	0,9

As can be seen from Table 6.2, Ukrainian export groups of goods are characterized by significant comparative advantages compared to similar Turkish goods. In contrast, Ukraine imports goods from Turkey whose comparative advantages are moderate or insignificant compared to Ukrainian goods of the corresponding groups (Table 6.3).

Table 6.3

Results of calculating the comparative advantage index for imported goods from Turkey to Ukraine, 2021<sup>375</sup>

Product name	Import volume, million USD	Share in import, %	RCA <sub>Ukr</sub>	RCA <sub>Tur</sub>	Delta RCA
Refined oil	334	11,1	0,078	0,79	-0,71
Airplanes, helicopters	121	4,02	0,051	0,63	-0,58
Coated flat products	102	3,4	1,57	3,44	-1,87
Citrus fruits	96,8	3,22	0,0042	5,28	-5,27
Unprocessed iron bars	51,1	1,7	5,86	17,6	-11,74
Stone processing machines	44,7	1,48	1,71	3,02	-1,31
Mixture of mineral or chemical fertilizers	44,0	1,46	0,071	0,74	-0,67
Tomatoes	41,4	1,38	0,16	3,33	-3,17

<sup>374</sup> Calculated from data: Bilateral Trade by Products: Ukraine to Turkey. <https://oec.world/en/profile/bilateral-country/ukr/partner/tur>

<sup>375</sup> Calculated from data: Bilateral Trade by Products: Ukraine to Turkey. <https://oec.world/en/profile/bilateral-country/ukr/partner/tur>

Turkey has a high advantage in growing and exporting citrus fruits to Ukraine, since such products are not produced in our country. At the same time, we should pay attention to Turkey's high comparative advantage in exporting unprocessed iron bars (Delta RCA=-11.74), although Ukrainian enterprises also produce similar products and could not only meet domestic demand, but also export them, since Ukraine's comparative advantage index significantly exceeds 1 and indicates our country's specialization in the production of these products. Thus, a situation has arisen where Ukraine exports iron ore to Turkey, and imports products made from this raw material with higher added value, which reduces the efficiency of trade for our country. We should also note that Ukraine's comparative advantage index in the production of coated flat rolled products also exceeds 1 and indicates the international competitiveness of this product, however, a significant part of it is imported to our country. The excess of comparative advantages of Turkish stone processing machines is insignificant (Delta RCA=-1.31), and the index of comparative advantages of Ukraine in their production is 1.71, which indicates the specialization of the Ukrainian machine-building industry in the production of this product and their relatively high international competitiveness. Given this, Ukraine has the opportunity to independently meet domestic demand for such machines.

Analyzing Ukraine's foreign trade with Egypt, as the second most important partner country in trade with the Middle East region, we note that more than half of Ukrainian exports in 2021 were agricultural raw materials – wheat, corn and barley, the production of which our country specializes, and the comparative advantage indices for these products for Ukraine significantly exceed the similar indicators for Egypt (Table 6.4). At the same time, only 0.043% of Ukrainian exports were pastries, in

which our producers have a higher comparative advantage ( $RCA=1.74$ ) than Egyptian producers ( $RCA=1.29$ ). Ukraine also has a high comparative advantage in the production of semi-finished iron products, but the share of these products in exports to Egypt did not exceed 3%. Ukraine supplies oilseeds to Egypt (3.12%), having a very high comparative advantage in the production of these products, while Ukrainian producers, who are leaders in the production of vegetable oil, could sell their products, with a relatively higher added value, to Egypt. Despite a significant share in the export of products in the production of which Ukraine has significant comparative advantages, exports to Egypt have had a negative impact on the economic growth of our country. This may be due to the export of a large volume of raw materials at a relatively low price, which leads to low efficiency of Ukraine's foreign trade with Egypt.

Table 6.4

Results of calculating the comparative advantage index for export goods from Ukraine to Egypt, 2021<sup>376</sup>

Product name according to HS4 classification	Export volume, million USD	Share in export, %	$RCA_{Ukr}$	$RCA_{Eg}$	Delta RCA
Wheat	851	42,3	28,9	0,00015	28,89
Corn	522	26,0	34,1	0,017	34,08
Hot-rolled iron	169	8,4	14,7	6,14	8,56
Barley	3,9	0,19	33,7	0,00000045	33,7
Iron ore	88,5	4,41	9,44	0,088	9,35
Oilseeds	62,7	3,12	115	1,87	113,1
Iron semi-finished products	58,1	2,89	29,4	0,042	29,35
Electric heaters	0,608	0,03	2,79	1,11	1,68

<sup>376</sup> Calculated from data: Bilateral Trade by Products: Ukraine to Egypt. <https://oec.world/en/profile/bilateral-country/ukr/partner/egy>

The largest share of imports of goods to Ukraine in 2021 was made up of citrus fruits and refined oil, in the production of which Egypt has high comparative advantages (Table 6.5). At the same time, a significant share of imports of Egyptian goods to Ukraine was made up of those in the production of which our country also has high comparative advantages. In particular, Ukraine imported coke from Egypt, which accounted for 11.2% of imports in 2021, but our country's comparative advantage in the production of this product is twice as high, 1.25 and 0.66. We will also pay attention to such a group of goods as electric heaters, the share of which in imports from Egypt was almost 4.5%, but Ukraine's comparative advantage in the production of these goods is much higher (Delta RCA=1.68). In addition, it is worth noting that, having a greater comparative advantage in the production of electric heaters, Ukraine could not import, but, on the contrary, export them to Egypt, but as of 2021, the share of this product in Ukrainian exports was only 0.03% (see Table 6.4).

Table 6.5

Results of calculating the comparative advantage index for imported goods from Egypt to Ukraine, 2021<sup>377</sup>

Product name	Import volume, million USD	Share in import, %	RCA <sub>Ukr</sub>	RCA <sub>Eg</sub>	Delta RCA
Citrus	32,8	26,0	0,0042	27,7	-27,69
Refined petroleum	26	20,6	0,078	3,02	-2,94
Coke	14,1	11,2	1,25	0,66	0,59
Electric heaters	5,66	4,49	2,79	1,11	1,68
Phosphate fertilizers	3,9	3,09	0,00000043	80,4	-80,4

Iraq was singled out as a separate cluster, with Ukraine's trade characterized by a significant excess of exports over imports, as well as a

<sup>377</sup> Calculated from data: Bilateral Trade by Products: Ukraine to Egypt. <https://oec.world/en/profile/bilateral-country/ukr/partner/egy>

negative impact of imports on the economic growth of our country. A detailed study of the structure of exports and imports showed that exports of goods are more diversified than imports. In 2021, Ukraine imported tropical fruits from Iraq in the amount of 119 thousand USD, which accounted for 97.4% of all imports from this country. Iraq's comparative advantage index in the production of this group of goods was 1.85, while for Ukraine this indicator was 0.0013. Slightly less than 1% of imports of goods from Iraq were electric ignition systems, the comparative advantage in the production of which was lower for Iraq ( $RCA=0.00014$ ) than for Ukraine ( $RCA=0.25$ ). This structure of imports largely explains the negative impact of the growth of its volumes on the economic growth of Ukraine, since imported fruits can slightly increase the added value created in wholesale and retail trade, but do not have a positive impact on economic growth.

The structure of exports of goods from Ukraine to Iraq was dominated by goods in the production of which our country has high comparative advantages and which largely determine the specialization of the Ukrainian economy on an international scale (Table 6.6). However, these are raw materials with a low level of added value, which is why Ukraine's economic growth does not depend on the volume of exports of goods to Iraq. It is worth noting that almost 2% of Ukrainian exports of goods were packaged medicines, in which Ukraine does not specialize as a world producer, but has a higher comparative advantage than Iraq. Considering that these products have a higher added value compared to agricultural raw materials, Ukraine should improve the technologies for the production of medical products and increase the volume of their exports to Iraq.

Table 6.6

Results of calculating the comparative advantage index for export goods  
from Ukraine to Iraq, 2021<sup>378</sup>

Product name according to HS4 classification	Export volume, million USD	Share in export, %	RCA <sub>Ukr</sub>	RCA <sub>Iraq</sub>	Delta RCA
Oilseeds	314	45,7	115	0,00000012	115
Raw iron bars	133	19,3	5,86	0,0058	5,85
Corn	118	17,1	34,1	0,0	34,1
Hot rolled iron	41,4	6,03	14,7	0,25	14,45
Packaged medicines	12,7	1,84	0,19	0,00024	0,19

Among the countries of the fourth cluster, with which there is a significant trade potential and which are considered promising markets for the export of Ukrainian goods, it is worth highlighting the United Arab Emirates. Ukrainian exporters mainly supplied goods in the production of which they had significant advantages. The largest share in the export of goods from Ukraine was oilseeds (Table 6.7), in the production of which our country has a significant comparative advantage, which provides it with a leading position in the global market as a whole. However, these products are raw materials and have a lower added value compared to vegetable oil produced from these raw materials. A similar situation is observed in the trade in rapeseed, the share of which in exports was almost 6%. Despite Ukraine's significant comparative advantage in the production of this raw material, Ukrainian producers also have a high comparative advantage in the production of rapeseed oil (RCA=4.31). At the same time, the United Arab Emirates can also be considered a country specializing in

<sup>378</sup> Calculated from data: Bilateral Trade by Products: Ukraine to Iraq. <https://oec.world/en/profile/bilateral-country/ukr/partner/ir>

the production of rapeseed oil ( $RCA=3.04$ ), and therefore this country imports raw materials for its production, providing jobs in the country and increasing added value. Although most of the goods exported by Ukraine to the United Arab Emirates belong to raw materials or raw material-intensive products, let us pay attention to gas turbines, which belong to technological goods and in the production of which our country has a comparative advantage. Therefore, we will define an increase in exports of goods with higher added value (gas turbines, iron pipes) as a promising direction for deepening Ukraine's trade with the United Arab Emirates.

Table 6.7

Results of calculating the comparative advantage index for export goods from Ukraine to the UAE, 2021<sup>379</sup>

Product name according to HS4 classification	Export volume, million USD	Share in export, %	$RCA_{Ukr}$	$RCA_{Emir}$	Delta RCA
Hot-rolled iron	79,8	13,3	14,7	0,14	14,56
Cast iron	73,2	12,2	68,4	0,2	68,2
Oilseeds	82,6	13,8	115	0,15	114,85
Iron pipes	71,9	12	9,35	1,08	8,27
Rapeseeds	35,8	5,97	29,5	0,017	29,48
Gas turbines	26,1	4,35	1,18	0,59	0,59

Both exports and imports of Ukraine in trade with the United Arab Emirates are diversified. However, in the import of goods, the largest share in 2021 was accounted for by packaged medicines, and the share of other goods did not exceed 8% (Table 6.8). It should be noted that, unlike other countries in the Middle East, Ukraine imports from the United Arab Emirates mainly goods with a high level of processing, and therefore these

<sup>379</sup> Calculated from data: Bilateral Trade by Products: Ukraine to United Arab Emirates. <https://oec.world/en/profile/bilateral-country/ukr/partner/are>

goods are mainly intended for further sale on the domestic market, which will determine the absence of a statistically significant impact of imports on the economic growth of our country. At the same time, as can be seen from Table 6.8, both countries do not specialize in the manufacture of medicines on a global scale, and the index of comparative advantages in the production of packaged medicines for Ukraine is even slightly higher than for the United Arab Emirates. In addition, identifying the export of gas turbines from Ukraine as a priority direction in trade with the United Arab Emirates, we note that this group of goods accounted for almost 6% of imports, but the trade balance was positive, and therefore Ukrainian products are competitive in the UAE market.

Table 6.8

Results of calculating the comparative advantage index for imported goods from the UAE to Ukraine, 2021<sup>380</sup>

Product name according to HS4 classification	Import volume, million USD	Share in import, %	RCA <sub>Ukr</sub>	RCA <sub>Emir</sub>	Delta RCA
Packaged medicines	23	14,2	0,19	0,16	0,03
Polyethylene	11,7	7,21	0,3	2,7	-2,4
Automobiles, their parts and accessories	10,6	6,56	0,069	0,37	-0,301
Gas turbines	9,58	5,91	1,18	0,59	0,59

Ukraine's economic growth directly depended on the volume of exports to Saudi Arabia, and vice versa – on the volume of imports to this country. Therefore, let's consider the commodity structure of foreign trade taking into account the comparative advantages of partner countries. In general, Ukrainian exports consist mainly of raw materials. The largest share in exports of goods belonged to wheat, in the production of which Ukraine has a significant comparative advantage (Table 6.9). Ukraine also

<sup>380</sup> Calculated from data: Bilateral Trade by Products: Ukraine to United Arab Emirates. <https://oec.world/en/profile/bilateral-country/ukr/partner/are>

exports significant volumes of oilseeds and barley, in which it has high indices of comparative advantages. Thus, Ukraine exports to Saudi Arabia raw materials with a low level of added value, in the production of which it has significant comparative advantages. We consider a significant share of poultry meat in exports of goods from Ukraine to be a positive sign of bilateral trade, since, having a high comparative advantage in the production of this product, domestic producers have difficult access to the EU market, and expanding their presence in the markets of the Middle East will contribute to the economic growth of the Ukrainian economy. Imports of goods from Saudi Arabia to Ukraine in 2021 consisted of more than 50% of chemical industry products, the production of which largely determines the international specialization of this country.

Table 6.9

Results of calculating the comparative advantage index for main goods in Ukraine's trade with Saudi Arabia, 2021<sup>381</sup>

Product name according to HS4 classification	Export/import volume, million USD	Share in export/import, %	RCA <sub>Ukr</sub>	RCA <sub>SA</sub>	Delta RCA
<b>Export</b>					
Wheat	303	31,8	28,9	0,00046	28,9
Poultry	194	20,4	7	0,39	6,61
Oilseeds	110	11,5	115	0,24	114,76
Barley	72,4	7,61	33,7	0,0002	33,7
Hot-rolled iron	50,3	5,29	14,7	0,64	14,06
<b>Import</b>					
Polyethylene	77,4	45	0,3	10,4	-10,1
Polypropylene	49,5	29,1	0,012	10,4	-10,38
Mixture of mineral or chemical fertilizers	44,0	1,46	0,071	5,61	-5,54

<sup>381</sup> Calculated from data: Bilateral Trade by Products: Ukraine to Saudi Arabia. <https://oec.world/en/profile/bilateral-country/ukr/partner/sau>

Among the Middle Eastern countries included in the fifth cluster and with which Ukraine does not fully use its existing foreign trade potential, Jordan is worth highlighting. Exports from Ukraine to Jordan are poorly diversified and consist mainly of four commodity groups, including agricultural raw materials and metallurgical products (Table 6.10). Ukraine has high comparative advantages in the production of all these products, but the highest are for oilseeds.

Imports of goods to Ukraine consist of three main products, of which Jordan has comparative advantages in only two commodity positions. Thus, Ukraine imports mixtures of mineral or chemical fertilizers, which are produced by domestic enterprises in insufficient quantities or of inadequate quality (Delta RCA=-24.83). Imports are dominated by packaged medicines, in the production of which Ukraine does not have a comparative advantage (Delta RCA=-1.86). At the same time, 11.3% of imports of goods from Jordan were other iron products, in the production of which Ukraine has higher comparative advantages than Jordan (Delta RCA=0.26).

Table 6.10

Results of calculating the comparative advantage index for main goods in  
Ukraine's trade with Jordan, 2021<sup>382</sup>

Product name according to HS4 classification	Export/import volume, million USD	Share in export/import, %	RCA <sub>Ukr</sub>	RCA <sub>Jor</sub>	Delta RCA
<b>Export</b>					
Barley	44,4	27,5	33,7	0,00017	33,69
Hot-rolled iron	36,7	22,7	14,7	0,076	14,6
Oilseeds	32,1	19,9	115	0,012	114,9
Wheat	14	8,66	28,9	0,45	28,45

<sup>382</sup> Calculated from data: Bilateral Trade by Products: Ukraine to Jordan. <https://oec.world/en/profile/bilateral-country/ukr/partner/jor>

<b>Import</b>					
Packaged medicines	6,68	64,5	0,19	2,05	-1,86
Other iron products	1,17	11,3	0,69	0,43	0,26
Mixture of mineral or chemical fertilizers	0,639	6,17	0,071	24,9	-24,83

A study of Ukraine's comparative advantage indices in trade with the Middle East countries showed that the competitive positions of Ukrainian exporters in these foreign markets are ensured by supplying mainly agricultural raw materials and metallurgical products. This structure of Ukrainian exports is inherent in trade with both the main partner countries and countries with which trade is still being established. In the import of goods to Ukraine from the Middle East, in addition to tropical fruits, goods with a higher degree of processing prevailed. In such imported goods as gas turbines, electric heaters, and stone processing machines, Ukraine also has high comparative advantages and could export them and independently meet domestic demand. Therefore, when determining the directions of deepening trade cooperation between Ukraine and the Middle East countries, it is necessary to take into account the need to diversify the commodity structure of trade and increase the share of goods with higher added value in total exports.

## **6.6. Strategic directions for deepening Ukraine's trade cooperation with the Middle East**

The long-running war in Ukraine is negatively affecting the world economy primarily due to difficulties in ensuring exports to countries that are dependent on Ukrainian food. Such countries include most Middle Eastern countries that import agricultural raw materials and certain food products from Ukraine. Resolving the problems that have arisen in Ukraine's trade with partner countries depends not only on the security situation in our country and the speedy end of hostilities, but is also determined by the effectiveness of the state trade policy in deepening cooperation and strengthening the positions of Ukrainian exporters in the markets of the Middle East.

Most of the Middle Eastern countries with which Ukraine trades are promising export markets for domestic enterprises, as evidenced by the growing dynamics of Ukrainian exports and the significant positive balance of Ukraine's foreign trade in trade with Turkey, Egypt, Israel, Saudi Arabia and other countries. However, further strengthening of the positions of Ukrainian exporters in the markets of the Middle East should be based on increasing exports of products with a higher level of added value. In this regard, state policy should focus on measures that contribute to the creation of a competitive environment for the development of enterprises that produce export products with a high level of added value, innovative activity of enterprises in the machine-building and food industries, and increasing the level of technological capacity of domestic goods.

At the same time, given the attractiveness of the Ukrainian market for enterprises from the Middle East that produce engineering products, in

which Ukrainian manufacturers also have competitive advantages, it is necessary to develop bilateral or multilateral cooperation and deepen the involvement of domestic enterprises in value chains in cooperation with Turkey, Egypt, the United Arab Emirates and Saudi Arabia. The specified direction of the state's economic policy will contribute not only to the deepening of trade cooperation between Ukraine and the countries of the Middle East, but also to the inflow of investments from these countries, which will become an important factor in the post-war reconstruction of the Ukrainian economy.

Based on the analysis of Ukraine's bilateral trade with the countries of the Middle East, as well as based on the works of domestic researchers, we have identified the strengths and weaknesses, opportunities and threats of trade cooperation (Table 6.11).

Accordingly, we will define as important tasks of state policy the introduction of tools for implementing measures to use such strengths as Ukraine's industrial potential and inexpensive and qualified labor force to reduce the threat of dependence on the price situation for raw materials at the expense of the opportunities that open up to countries in the globalized economy (mutual trade liberalization, participation in global value chains).

The positive dynamics of Ukraine's trade volumes with most Middle Eastern countries indicates the strengthening of trade cooperation and the prospects for its further development. Despite the difficult situation in the Ukrainian economy, exporters maintain their production potential in the main commodity groups. In the face of risks and threats of martial law, the state systematically solves the logistical problems of grain exports to the Middle Eastern countries. However, the complication of relations with individual EU countries regarding the transit and export of Ukrainian

agricultural products requires further diversification of transport routes and partial replacement of the European market (grain, oilseeds, meat products) with the markets of the Middle Eastern countries.

Table 6.11

SWOT analysis of Ukraine's trade cooperation with the Middle East countries<sup>383</sup>

<b>Strengths</b>	<b>Weaknesses</b>
<ul style="list-style-type: none"> <li>- high level of intensity of bilateral trade between Ukraine and partner countries;</li> <li>- significant potential of Ukrainian industry;</li> <li>- significant capacity of the consumer market of the Middle East countries;</li> <li>- high comparative advantages of Ukrainian exporters of agricultural and metallurgical products;</li> <li>- high level of qualification of employees;</li> <li>- relatively inexpensive labor force</li> </ul>	<ul style="list-style-type: none"> <li>- significant differences in the levels of development of Ukraine and the Middle East;</li> <li>- inefficient structure of Ukrainian exports;</li> <li>- low competitiveness of Ukrainian products of the processing industry;</li> <li>- insufficient level of development of information and business infrastructure</li> </ul>
<b>Opportunities</b>	<b>Threats</b>
<ul style="list-style-type: none"> <li>- creation of free trade zones and further liberalization of Ukraine's trade with partner countries;</li> <li>- cooperation and participation in global value chains;</li> <li>- development of the institutional framework for trade cooperation;</li> <li>- digitalization and informatization of the trade cooperation process</li> </ul>	<ul style="list-style-type: none"> <li>- long-term conflicts and unstable political situation in the Middle East region;</li> <li>- full-scale invasion of Russian troops into Ukraine;</li> <li>- deterioration of transport logistics and increase in trade costs;</li> <li>- religious and cultural differences between countries;</li> <li>- instability of exchange rates and fluctuations in world prices for raw materials</li> </ul>

<sup>383</sup> Compiled by the author for: Duhinets H., Omran Kh. Institutional support of Ukraine's foreign trade: the context of the Middle East countries. *Journal of European Economics*. 2021. No. 2 (Vol. 20). P. 272-290; Nebaba N. O., Kolpina A. G. Features of liberalization of trade and economic cooperation between Ukraine and the Middle East countries. *Economy and State*. 2020. № 4. P. 210–214; Zaliznyuk V. Competitive concept of trade and economic relations and cooperation between Ukraine and the countries of the Middle East. *Economy and society*. 2022. № 43. URL: <https://economyandsociety.in.ua/index.php/journal/article/view/1729/1666>

At the same time, given that Ukraine has comparative advantages in the production of certain types of mechanical engineering and electrical equipment, we consider cooperation in the innovative and scientific and technical spheres to be a promising direction. Ukraine needs to diversify its export product structure by increasing the share of products with a higher level of added value, in the production of which our country has comparative advantages. From this point of view, it is necessary to develop cooperation between Ukrainian enterprises and enterprises of countries that are major partners (Turkey, Egypt, Saudi Arabia, the United Arab Emirates), and their participation in global value chains.

Institutional tools for deepening such cooperation can be joint strategies for trade and scientific and technical cooperation and specialized intergovernmental commissions to ensure and support such cooperation, as well as increased participation of Ukrainian enterprises in international exhibitions and fairs held in the Middle East. In addition to measures to deepen cooperation and develop communication with partner countries, it is necessary to pay attention to state programs to support investment and innovation activities of machine-building enterprises in Ukraine in order to strengthen their international competitiveness. To develop trade with promising countries of the Middle East, it is necessary to extend the positive experience of introducing a free trade zone between Ukraine and Turkey to relations with such countries as Egypt, Algeria, Israel, Saudi Arabia, and the United Arab Emirates.

Further development of institutional support for trade cooperation between Ukraine and the Middle East countries should involve the development of a concept for the development of trade with the countries of this region and the inclusion of its main blocks, with appropriate detail,

in the Export Strategy of Ukraine. When developing conceptual principles for the development of trade cooperation between Ukraine and the countries of the Middle East, it is necessary to formulate goals and objectives in accordance with strategic priorities, taking into account factors that hinder the deepening of cooperation (Figure 6.10).

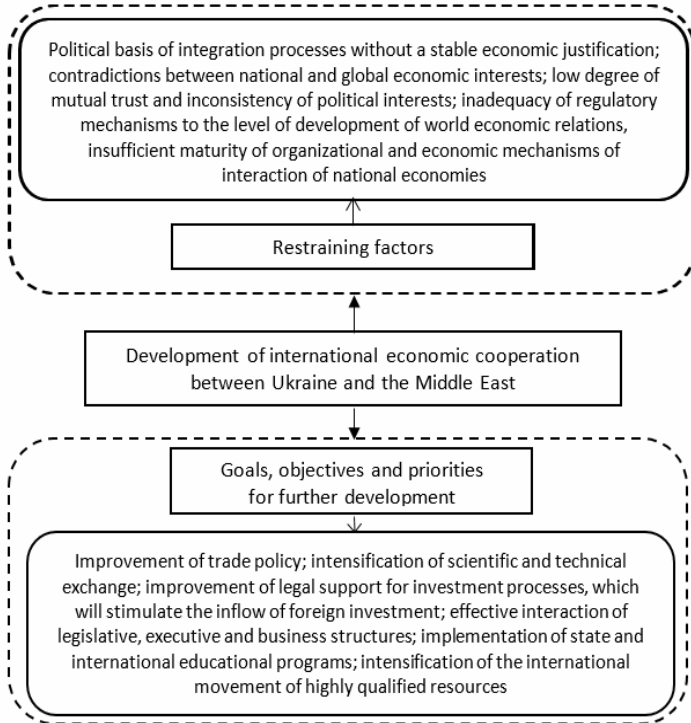


Fig. 6.10. Conceptual principles for deepening trade cooperation between Ukraine and the countries of the Middle East<sup>384</sup>

“Export Strategy of Ukraine (the “roadmap” of strategic trade development) for 2017–2021” was developed, but not implemented<sup>385</sup>, in

<sup>384</sup> Zaliznyuk V. Competitive concept of trade and economic relations and cooperation between Ukraine and the countries of the Middle East. *Economy and society*. 2022. № 43. URL: <https://economyandsociety.in.ua/index.php/journal/article/view/1729/1666>

which much attention is paid to defining the conceptual principles of the development of trade cooperation between Ukraine and the countries of the Middle East, which have not been implemented in practice. In this regard, it is advisable to use these provisions to formulate the goals and objectives of the Strategy for the Development of Trade Cooperation between Ukraine and the countries of the Middle East.

To substantiate the goals and objectives of the Trade Cooperation Strategy, it is necessary to take into account the results of a preliminary study of Ukraine's trade with the Middle East countries, which allowed us to identify the main trends in the dynamics of exports and imports of goods, structural features of trade, the presence of Ukraine's comparative advantages in trade with partner countries, and the impact of bilateral trade on Ukraine's economic growth. Therefore, we will highlight the main factors that determine both the strengths and weaknesses of cooperation, which must be taken into account when improving the institutional support for the development of Ukraine's trade cooperation with the Middle East countries (Figure 6.11).

The strategy of trade cooperation between Ukraine and the Middle East, as a component of institutional support for the deepening of trade relations between countries, should take into account a number of trade features. First of all, it is necessary to take into account that Ukraine's trade with most countries in this region is characterized by an average level of complementarity, which is due to the difference in the commodity structure of exports and imports and allows us to determine the further development of trade as a promising direction for both Ukraine and the

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<sup>385</sup> On approval of the Export Strategy of Ukraine (the "roadmap" of strategic trade development) for 2017–2021: Order of the Cabinet of Ministers of Ukraine; Strategy, Plan, Measures dated 12/27/2017 № 1017-p URL: <https://zakon.rada.gov.ua/laws/show/1017-2017-%D1%80#Text>

countries of the Middle East. At the same time, we note that along with the possibilities of increasing Ukrainian exports to the markets of the Middle East, a significant increase in imports of goods from these countries to Ukraine is not expected, since for most commodity groups of imports, domestic producers can independently satisfy domestic demand, especially in mechanical engineering products. Liberalization of Ukraine's trade with the countries of the Middle East has good prospects, since the threats of increased competition between exporters from different partner countries are low due to significant differences in the commodity structure of exports and imports.

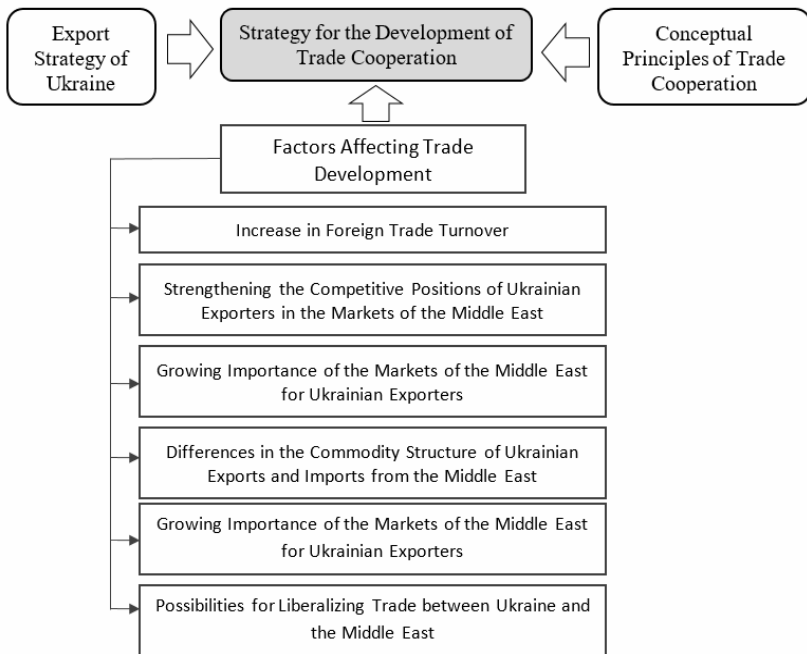


Fig. 6.11. Factors of trade development as a basis for improving institutional support for cooperation between Ukraine and the Middle East countries

Thus, the mission of the Trade Cooperation Strategy is to further promote Ukrainian products and strengthen the positions of Ukrainian exporters in the markets of the Middle East, which requires the implementation of a number of tasks in the long term. The strategic goal for achieving this mission is to diversify the commodity structure of Ukrainian exports to the Middle East based on increasing the share of mechanical engineering products by increasing their innovation and knowledge-intensiveness, increasing exports of goods with a higher level of processing, and gradually replacing agricultural raw materials with food products. This goal will be achieved by implementing tasks in three consecutive stages (Table 6.12). At the same time, institutional support for the activities of exporting enterprises in Ukraine should be aimed at improving the business environment, contributing to the achievement of high quality standards of export-oriented products, and stimulating investment in the processing industry that exports products or plans to enter the markets of the Middle East.

Table 6.12

Goals and objectives of the Strategy for trade cooperation of Ukraine with the countries of the Middle East<sup>386</sup>

Goal/ Objective	Duration	Content
Strategy Mission	10 years	Strengthening the positions of Ukrainian exporters and increasing the presence of Ukrainian products in the markets of the Middle East
Objective	8 years	Diversification of the commodity structure of Ukrainian exports to the Middle East
Task	1-2 years	Formation of an institutional framework in Ukraine to ensure adequate financing of

<sup>386</sup> Supplemented by the author based on: On the approval of the Export Strategy of Ukraine ...

1st Stage		domestic exporters of products with a higher level of added value
Task 2nd Stage	2-3 years	Improvement of regulatory and legal support in terms of state support for innovative activities of exporters; development of infrastructure to support entrepreneurship and promote investment activities
Task 3rd Stage	5 years	Improving trade conditions through the signing of agreements that provide for the liberalization of trade relations (reduction of customs tariffs, abolition of tariff restrictions, free trade zone)

The substantiation of main measures and expected results of the implementation of the Strategy for Trade Cooperation of Ukraine with the Middle East countries will be carried out in accordance with the tasks given in Table 6.12. In this case, it is necessary to take into account a number of specific features of the Middle East countries that determine favorable trade conditions or complicate it. Given that Ukraine has concluded free trade agreements with some partner countries (Turkey, Israel), and trade with other partner countries is characterized by tariff restrictions in a sectoral context, we will build a “tree of goals” that will reflect the tasks and measures to strengthen the positions of Ukrainian exporters in the markets of the Middle East, taking into account these features. Therefore, the main areas of implementation of the Strategy for Trade Cooperation will be: (1) strengthening the positions of exporters in the markets of the Middle East countries, which are Ukraine’s main trading partners; (2) increasing the presence of exporters in the markets of countries that are promising partners; (3) entering the markets of countries whose trade potential is not fully utilized (Table 6.13).

Table 6.13

Measures and expected results of implementing the tasks of the Strategy for Trade Cooperation between Ukraine and the Middle East countries

Directions of strategy implementation	Measures	Expected results
1. Strengthening the positions of exporters in the markets of major partner countries	1) conclusion of agreements on a free trade zone; 2) preferential conditions for investment in processing industry enterprises, 3) state support for innovative activities of enterprises and financing of scientific and technical developments of machine-building enterprises	1) increase in the volume of exports of goods; 2) diversification of the commodity structure of exports by increasing the share of high-tech goods; 3) cooperation and joint production of machinery and equipment, 4) increase in the economic efficiency of exports
2. Increasing the presence of exporters in promising markets of partner countries	1) improvement and further improvement of trade conditions based on mutual reduction of tariff and non-tariff restrictions; 2) state support for the participation of exporters in international exhibitions and fairs; 3) programs to support investors in the food industry and mechanical engineering	1) increase in exports through food products (meat products, fats and oils, eggs, milk); 2) improve consumer awareness in the Middle East regarding the quality and range of Ukrainian products; 3) increase in exports of mechanical engineering products;
3. Exporters' entry into the markets of countries with untapped trade potential	creating institutional conditions for financial and informational support for enterprises entering the markets of partner countries for the first time.	1) increasing export volumes and the share of Ukrainian goods in imports of partner countries; 2) ensuring a positive trade balance; 3) diversifying the commodity structure of exports.

An important component of the implementation of the Strategy for Trade Cooperation of Ukraine with the Middle East is the improvement of

the institutional support for foreign trade and the improvement of the operating conditions of domestic enterprises based on the results of diagnostics of the dynamics of industry markets and the efficiency of using the potential of the main export-oriented industries (agriculture, food industry, mechanical engineering). Given the significant losses of the Ukrainian economy as a result of the full-scale war, it is necessary to develop comprehensive measures to support exporters in the conditions of post-war recovery with special emphasis on structural transformations of the national economy in order to increase the level of added value of products produced and exported.

Thus, the deepening of trade cooperation between Ukraine and the countries of the Middle East involves increasing the volume of exports of Ukrainian goods and improving its commodity structure by increasing the share of products with a higher level of processing and high-tech goods. At the same time, we consider the liberalization of bilateral trade and deepening cooperation in the production of high-tech products as the basis for strengthening the positions of Ukrainian exporters in the markets of countries that are already major trading partners. To increase the presence of Ukrainian exporters in the markets of countries that are promising for deepening cooperation, it is necessary to improve trade conditions, conduct information campaigns, and increase exports of food and engineering products. Ensuring the process of active entry of Ukrainian exporters into the markets of countries with which the trade potential is not fully used requires significant state support.

## CONCLUSIONS

Foreign economic policy is an important tool for regulating economic relations with other countries and ensuring the sustainable development of the national economy. It includes various measures aimed at supporting exports, attracting investments, regulating trade and protecting national interests. Effective foreign economic policy contributes to economic growth, increasing competitiveness and creating jobs, which are the main factors of the economic well-being of the state. The country's economic development is influenced by many factors, in particular integration into the international system of division of labor. Therefore, the state's foreign economic policy is one of the key factors of economic growth. The country's participation in international relations requires the use of a set of instruments and regulatory measures that together form foreign economic policy. Currently, most countries form foreign economic policy on the basis of government decisions based on the principles of liberalism.

Globalization has a significant impact on foreign economic policy, and countries are adapting their strategies to take advantage of it by easing trade restrictions, encouraging investment, integrating into global production chains, and actively participating in international organizations. In the context of globalization, countries are reducing tariffs and non-tariff barriers, concluding bilateral and multilateral trade agreements, and improving mutual access to markets. The unification of standards and regulations simplifies trade, and cooperation within the WTO contributes to the creation of common rules and norms.

International trade is a critical component of the global economy, helping countries expand their access to foreign markets, resources and investment, which in turn increases employment and welfare. In the

context of globalization, international trade increases the competitiveness of domestic markets and ensures the stability of the global economy, promoting cooperation and economic integration. However, globalization also carries risks. The Covid-19 pandemic has shown the vulnerability of supply chains to external shocks, especially in the context of increased demand for medical goods. Protectionist measures in some countries, as well as discussions about the localization of production, have become typical responses to the crisis. Ukraine's economy, integrated into global markets, has also been affected by Covid-19. Exports in 2020 decreased by 4.71%, and imports by 18.13%, which reduced the negative foreign trade balance. In 2021, Thanks to international assistance and the recovery of global demand, exports increased by 38.4% and imports by 34.1%. However, the war in 2022 significantly limited Ukraine's opportunities for foreign trade, especially for the transportation of raw materials.

Ukrainian producers have been present in the markets of the Middle East for a long time, but currently the main trading partners of Ukraine are Turkey and Egypt, which is confirmed by extremely high indicators of trade and intensity of bilateral trade. Iraq is considered a promising market for the export of Ukrainian goods. A number of Middle Eastern countries (Algeria, Israel, Iran, Lebanon, Libya, Morocco, United Arab Emirates, Saudi Arabia, Tunisia) are important markets for the sale of Ukrainian goods, and entering these markets and consolidating competitive positions of exporters on them ensures high efficiency of bilateral trade. The least significant role in Ukraine's foreign trade is currently played by Bahrain, Djibouti, Yemen, Jordan, Qatar, Kuwait, Oman, Syria. However, this direction has significant potential for trade development, especially with those countries in trade with which there is a high intensity of trade.

The foreign economic policy of Ukraine is implemented through institutional instruments, which are a set of established norms and rules enshrined in legislation. Its basis is the provisions of the Constitution of Ukraine, the Economic and Customs Codes, as well as the Laws of Ukraine “On Foreign Economic Activity” and “On International Treaties of Ukraine”. An important place in the foreign economic policy of Ukraine is occupied by international treaties, in particular agreements on the creation of free trade zones with Montenegro, Turkey, Canada, EFTA and a free trade zone with the EU.

Ukraine's foreign economic policy during martial law underwent significant changes: a ban on trade with Russia was introduced, exports of basic food products were limited, and conditions were created for the uninterrupted import of critical goods for the needs of the economy and defense. The liberalization of freight traffic to the EU and the abolition of customs quotas significantly improved Ukraine's trade conditions with the EU, but complicated relations with individual countries. The war significantly affected Ukraine's foreign trade in 2022-2023. The decline in industrial potential reduced the volume of exports of industrial products and increased the share of agricultural products in exports. Imports of goods to Ukraine increased, especially products of mechanical engineering, electronics, transport, and medical products.

Ukraine's foreign trade in services in 2022-2023 shows a decrease in exports and a sharp increase in imports, which caused the balance of trade in services to shift to a negative indicator. The main factor in the growth of imports was the increase in demand for travel-related services due to the significant departure of Ukrainian citizens abroad due to the war. Despite the difficult conditions, domestic companies exporting computer services demonstrate steady export growth. The RCA index for computer services

increased from 1.9 in 2017 to 3.35 in 2022, which indicates increased competitiveness in the international market. The comparative advantage index for transport services decreased from 2.47 to 1.14, but remains higher than 1, which indicates relative competitive advantages. The main problem for enterprises remains the lack of proper security conditions. The transport sector has suffered significant losses due to disruptions in logistics, which limits the use of sea corridors. In the field of computer services, difficulties arise due to the destruction of energy and telecommunications infrastructure, which affects the work of specialists and e-commerce. Prospects for Ukraine in the international services market are primarily associated with the computer services sector, which demonstrates growth even in war conditions. To maintain competitive positions, especially in the transport sector, Ukraine must introduce a set of economic and institutional measures to support the activities of enterprises in the service sector.

Instability in global markets, geopolitical risks and the pandemic negatively affect international trade, so companies are striving to improve the management of production and sales in foreign markets. The use of technologies such as artificial intelligence and business analytics allows for the rapid analysis of big data, tracking the movement of the supply chain in real time and quickly adapting it to changing conditions. The competitiveness of companies within Industry 4.0 depends on the ability to adapt to the rapidly changing business environment in domestic and foreign markets. The structure of Ukraine's foreign trade reflects its integration into the global Industry 4.0. A study of the structure of Ukraine's exports for 2012-2022 showed a low level of implementation of modern technologies among exporters, since the share of high-tech products in exports did not exceed 7%, and in imports - 15%. Instead, the

structure of service exports was dominated by telecommunications, computer and information services (40.5%), which indicates the competitiveness of knowledge-intensive services. Ukraine's positions in international competitiveness rankings remain low. To reduce the technological gap with other countries, an international competitiveness strategy based on Industry 4.0 is needed. The main areas include the development of the defense-industrial complex, improvement of basic IT technologies, automation, integration of value creation processes, formation of innovation clusters, participation in European research projects and programs.

Taking into account the deterioration of the investment climate, it is advisable to apply a comprehensive mechanism for managing foreign economic activity, which includes institutional, economic and organizational instruments. The basis of this mechanism is economic instruments, since they include financial and fiscal levers to increase the investment attractiveness of Ukrainian enterprises. The effective use of economic instruments is possible only if the institutional environment and organizational measures to combine these components are improved. To improve the regulation of foreign economic activity and strengthen customs and tariff policy, it is necessary to balance its fiscal, regulatory and protective functions. Improving customs and tariff regulation involves optimizing import duty rates and expanding the use of tariff instruments, such as tariff nomenclature, benefits and preferences depending on the origin of goods, which will help protect domestic producers.

## REFERENCES

1. Commercial Code of Ukraine: Law of Ukraine, dated 16.01.2003 № 436-IV // Information of the Verkhovna Rada of Ukraine. 2003. № 18, 19–20, 21-22. P. 144.
2. Constitution of Ukraine: Law of Ukraine, dated 28.06.1996 № 254к/96-BP // Information of the Verkhovna Rada of Ukraine. 1996. № 30. P. 141.
3. Customs Code of Ukraine. Information of the Verkhovna Rada of Ukraine. 2012. № 44-45, № 46-47, № 48, P. 552.
4. Some issues of ensuring the conduct of economic activities under martial law. Cabinet of Ministers of Ukraine, Decree № 314 від 18.03.2022. <https://zakon.rada.gov.ua/laws/show/314-2022-%D0%BF#Text>.
5. Some issues of customs clearance of certain goods imported into the customs territory of Ukraine during the period of martial law. Cabinet of Ministers of Ukraine, Decree dated 09.03.2022 №236. <https://zakon.rada.gov.ua/laws/show/236-2022-%D0%BF#Text>.
6. Some issues of critical import goods. Cabinet of Ministers of Ukraine, Resolution of March 16, 2022. №289. URL: <https://zakon.rada.gov.ua/laws/show/289-2022-%D0%BF#Text>.
7. On amendments to Appendices 1 and 5 to the Resolution of the Cabinet of Ministers of Ukraine dated December 29, 2021. № 1424. Cabinet of Ministers of Ukraine, Decree № 207 dated 05.03.2022. <https://zakon.rada.gov.ua/laws/show/207-2022-%D0%BF#Text>.
8. On foreign economic activity. Law of Ukraine № 959-XII від 16.04.1991. <https://zakon.rada.gov.ua/laws/show/959-12#Text>.
9. On the operation of the banking system during the period of martial law. National Bank of Ukraine, Resolution of the NBU Board dated 24.02.2022 № 18. <https://zakon.rada.gov.ua/laws/show/v0018500-22#Text>.
10. On international treaties of Ukraine. Law of Ukraine dated 29.06.2004. No. 1906-IV // Bulletin of the Verkhovna Rada of Ukraine. 2004. № 50. P. 540.
11. On the legal regime of martial law. Law of Ukraine № 389-VIII. URL: <https://zakon.rada.gov.ua/laws/show/389-19#Text>.
12. On approval of the Export Strategy of Ukraine (the “roadmap” of strategic trade development) for 2017–2021: Order of the Cabinet of Ministers of Ukraine; Strategy, Plan,

Measures dated 27.12.2017 № 1017-p URL: <https://zakon.rada.gov.ua/laws/show/1017-2017-%D1%80#Text>.

13. Free Trade Agreement between Ukraine and the EFTA States. State Fiscal Service of Ukraine. URL: <http://sfs.gov.ua>.

14. Free Trade Agreement between the Government of Ukraine and the Government of Montenegro. Legislative Framework of Ukraine. URL: <https://zakon.rada.gov.ua>.

15. Unemployment (according to ILO methodology) by gender, type of area and age groups. State Statistics Service of Ukraine. URL: [https://www.ukrstat.gov.ua/operativ/operativ2017/rp/eans/eans\\_u/arch\\_bnsmv\\_u.htm](https://www.ukrstat.gov.ua/operativ/operativ2017/rp/eans/eans_u/arch_bnsmv_u.htm).

16. Bilyanskyi Yu. O. Formation of institutional support for the foreign economic activity of agricultural enterprises of Ukraine in the context of international trade agreements. *Effective economy*. 2020. №3. <http://www.economy.nayka.com.ua/?op=1&z=7745>.

17. Gross domestic product in the 1st–4th quarters of 2020 and in 2020. State Statistics Service of Ukraine. Express release dated 03/22/2021. [www.ukrstat.gov.ua](http://www.ukrstat.gov.ua).

18. Vasyliov O.S., Lylka O.S. Using the Holt method for time series analysis. *Problems of informatization and management*. 2010. №3(31). P. 26-29.

19. Execution of the State Budget of Ukraine from 2008 to 2024. Ministry of Finance of Ukraine. <https://index.minfin.com.ua/ua/finance/budget/gov/2021/>.

20. Geographical structure of foreign trade in services with EU countries. [https://www.ukrstat.gov.ua/operativ/operativ2019/zd/gsztp\\_ES/gsztp\\_ES\\_u/arh\\_gsztp\\_ES\\_2019\\_u.html](https://www.ukrstat.gov.ua/operativ/operativ2019/zd/gsztp_ES/gsztp_ES_u/arh_gsztp_ES_2019_u.html).

21. Holoven V. P. Diversification of foreign trade in Ukraine. *Magisterium*. 2004. №14. p. 64-70.

22. Hryhorova-Berenda L. I., Shuba M. V. *Theory and practice of foreign trade: a textbook*. V. Karazin Kharkiv National University. Kharkiv. 2016.

23. Hryneva V., Novikova M., *State regulation of the economy [Text]: textbook* K.: Znannia, 2008. - 398 p.

24. Hrushchynska N. M., Muzychenko M. P. Development of Ukraine's export potential in modern world economic processes. *Current economic problems*. 2010. № 7. P. 19–26.

25. Deysan I., Sholomytskyi Y. Pandemic foreign trade: How difficult times of the corona crisis affect Ukrainian trade with the world. Dzerkalo Tyzhnia, March 25, 2021. <https://zn.ua/ukr/international/pandemichna-zovnishnja-torhivlja.html>.
26. Dernova I.A. The world services market: current state and development trends. *Economy and Society*. 2023. Issue 50. <https://doi.org/10.32782/2524-0072/2023-50-45>.
27. Dynamics of the geographical structure of foreign trade in goods (1996-2023). URL: [https://www.ukrstat.gov.ua/operativ/menu/menu\\_u/zed.htm](https://www.ukrstat.gov.ua/operativ/menu/menu_u/zed.htm).
28. Dynamics of foreign trade in services by type in 2000-2021. [https://www.ukrstat.gov.ua/operativ/menu/menu\\_u/zed.htm](https://www.ukrstat.gov.ua/operativ/menu/menu_u/zed.htm).
29. Dynamics of foreign trade in services by countries of the world in 2000-2021. Official website of the State Statistics Service of Ukraine. URL: [https://www.ukrstat.gov.ua/operativ/menu/menu\\_u/zed.htm](https://www.ukrstat.gov.ua/operativ/menu/menu_u/zed.htm).
30. Dynamics of the aggregate public debt and GDP of Ukraine from 2009 to 2024. Ministry of Finance of Ukraine. <https://index.minfin.com.ua/ua/finance/debtgov/>.
31. Duhinets G., Omran Kh. Z. Trade relations of Ukraine with the countries of the Middle East and North Africa. *Journal of European Economics*. 2022. V. 21. №4(83). P. 482-498.
32. Enverov R.R. Development of Ukrainian-Turkish economic relations in the process of regional integration. Dissertation...candidate of economic sciences. Specialization 08.00.02 – world economy and international economic relations. Lviv: Lviv. Ivan Franko National University, 2014. 240 p.
33. The EU has finally approved "trade visa-free" for Ukraine. *Debet-Kredit*, May 14, 2024. URL: <https://www.qdpro.com.ua/uk/news/ies-ostatochno-shvaliv-torgovelnij-bezviz-dlya-ukrayini>.
34. Zanuda A. Trade unlimited: what two years without restrictions on the EU market gave Ukraine. URL: <https://www.bbc.com/ukrainian/articles/cv22lexmrnmo>.
35. Zaliznyuk V. Competitive concept of trade and economic relations and cooperation between Ukraine and the countries of the Middle East. *Economy and Society*. 2022. № 43. URL: <https://economyandsociety.in.ua/index.php/journal/article/view/1729/1666>.
36. Foreign trade in goods. Results of the first half of 2023. URL: <https://niss.gov.ua/doslidzhennya/mizhnarodni-vidnosyny/zovnishnya-torhivlya-tovaramy-pidsumky-i-pivrichchya-2023-roku>.

37. Ukraine's Integration into the EU Internal Market in a Time of War: Challenges and Opportunities. Ukrainian Center for European Policy; Konrad Adenauer Foundation Office in Ukraine. Kyiv, 2023. 64 p.

38. Inflation Report, January 2024. National Bank of Ukraine.  
<https://bank.gov.ua/ua/news/all/inflyatsiyniy-zvit-sichen-2024-roku>.

39. Information based on reports from WTO member countries. Department of Multilateral and Bilateral Trade Agreements. Ministry of Economic Development, Trade and Agriculture of Ukraine. URL: <https://me.gov.ua/Documents/List?lang=uk-UA&id=ef225f55-b6f8-4959-8d88-eed54adfb66&tag=InformatsiiaZaPovidomlenniamiZKrain-chlenivSot>.

40. Kozyubra M. I. The relationship between national and international legal systems. Scientific notes of the NaUKMA. Legal sciences. 2016. V. 181. P. 3–11.

41. Countries by commodity structure of Ukraine's foreign trade for January-December 2021.  
[https://www.ukrstat.gov.ua/operativ/operativ2022/zd/kr\\_tstr/arh\\_kr\\_2022.htm](https://www.ukrstat.gov.ua/operativ/operativ2022/zd/kr_tstr/arh_kr_2022.htm).

42. Krasnodyed T. L., Popova T. V. Ukraine's place in the world services market. Eastern Europe: economy, business, management. 2019. Issue 4 (21). P. 30-36.

43. Melnyk O., Peredalo H., Goroshko Y. Evaluation of the effectiveness of foreign economic activity management based on target indicators. Management and Entrepreneurship in Ukraine: Stages of Formation and Problems of Development. 2021. № 2 (6). P. 72 – 81.

44. International Trade: Lecture Notes for Students of the First (Bachelor's) Level of Specialization 073 "Management". Ihor Sikorsky Kyiv Polytechnic Institute; Compiled by: K. O. Kuznetsova, V. V. Chorny, O. S. Chenusha. Kyiv: Ihor Sikorsky Kyiv Polytechnic Institute, 2021.

45. Mytsenko I., Babets I. Strategic priorities for increasing the efficiency of Ukraine's foreign trade in the face of global challenges: monograph. Kropyvnytskyi: TsNTU, Polygraph-Service, 2023. – 350 p.

46. Nebaba N. O., Kolpina A. G. Peculiarities of liberalization of trade and economic cooperation between Ukraine and the countries of the Middle East. Economy and State. 2020. No. 4. P. 210–214.

47. Volumes of agricultural exports via the grain corridor. 2023. URL: <https://uga.ua/ru/statistika-zernovogo-koridora>.

48. Perepylytsia G., Potekhin V. Foreign Policy of Ukraine – 2014: Strategic Assessments, Priorities and Forecasts. Kyiv: Stylos, 2015.
49. Pismachenko L.M. State management of foreign trade activities in Ukraine: regulation and control: monograph. Donetsk. 2008. 366 p.
50. Plyuta V. Comparative multivariate analysis in economic research. Methods of taxonomy and factor analysis. M.: Statistics, 1980. 151 p.
51. Legal regulation of foreign economic activity: a textbook. Dnipro: University of Customs and Finance, 2021. 164 p.
52. Foreign Direct Investment (FDI) in Ukraine. Ministry of Finance of Ukraine. <https://index.minfin.com.ua/ua/economy/fdi/>.
53. Sayed S. M. Ankawi. Directions for the development of economic cooperation between Ukraine and the countries of the Middle East. Bulletin of the V. N. Karazin Kharkiv National University. Series: "International Relations. Economics. Regional Studies. Tourism." 2014. V. 1. Issue 3. № 4. P. 65-68.
54. Development strategy "Industry 4.0". URL: <https://mautic.appau.org.ua/asset/42:strategia-rozvitku-4-0-v3pdf>.
55. Structure of foreign trade in services by type in 2022. [https://www.ukrstat.gov.ua/operativ/operativ2023/zd/ztp\\_kv/arh\\_ztp\\_kv2022\\_u.html](https://www.ukrstat.gov.ua/operativ/operativ2023/zd/ztp_kv/arh_ztp_kv2022_u.html).
56. Tarasovskyi Y. Transport visa-free. Ukraine increased truck exports by almost a third during the term of the agreement. URL: <https://forbes.ua/news/transportniy-bezviz-ukraina-zbilshila-eksport-vantazhivkami-mayzhe-na-tretinu-za-chas-dii-ugodi-19122023-17984>.
57. Trends in foreign trade in goods of Ukraine in 2021. National Institute for Strategic Studies. 2022. URL: <https://niss.gov.ua/doslidzhennya/mizhnarodni-vidnosyny/tendentsiyi-zovnishnoyi-torhivli-tovaramy-ukrayiny-za>.
58. Tytarenko L. International Economic Policy of Ukraine: Current Challenges and Prospects. Global and National Economic Problems. 2018. Issue 22. P. 114 -118.
59. Commodity structure of Ukraine's foreign trade in 2012-2022. State Statistics Service of Ukraine. URL: [https://www.ukrstat.gov.ua/operativ/operativ2023/zd/tsztt/arh\\_tszt2023\\_u.html](https://www.ukrstat.gov.ua/operativ/operativ2023/zd/tsztt/arh_tszt2023_u.html).
60. Ukrainian exports may grow by 9% in 2024 – Ministry of Economy. <https://www.epravda.com.ua/news/2024/01/5/708431/>.

61. The government introduced quotas for the export of buckwheat until July 1, 2020. Government portal. URL: <https://www.kmu.gov.ua/news/uryad-vviv-kvotuvannya-na-eksport-grechki-do-1-lipnya-2020-roku>.
62. Fedorova N.E., Ogorodnyk R.P., Zyubanov G.V. Ukraine in the world services market: place and development prospects. Problems of a systems approach in economics. 2020. Issue 3 (77)-1. P. 26-34.
63. Fedorchuk O.S., Storozhuk O.V. Practice of using instruments to stimulate foreign direct investment by foreign countries. Mukachevo State University. 2017. URL: [http://www.economyandsociety.in.ua/journal/9\\_ukr/20.pdf](http://www.economyandsociety.in.ua/journal/9_ukr/20.pdf).
64. Filipenko A. Integration prospects of Ukraine: bigravitation model. Economy of Ukraine. 2005. № 6. P. 11-22.
65. Monthly volumes of the commodity structure of foreign trade in 2021-2022. [https://www.ukrstat.gov.ua/operativ/operativ2008/zd/str\\_eit/arh\\_s\\_eit\\_u.htm](https://www.ukrstat.gov.ua/operativ/operativ2008/zd/str_eit/arh_s_eit_u.htm).
66. Monthly volumes of the commodity structure of foreign trade in 2020. [https://www.ukrstat.gov.ua/operativ/operativ2008/zd/str\\_eit/arh\\_s\\_eit\\_u.htm](https://www.ukrstat.gov.ua/operativ/operativ2008/zd/str_eit/arh_s_eit_u.htm).
67. Yurchak O. Ukrainian Strategy of Industry 4.0 - 7 Development Directions. URL: <https://industry4-0-ukraine.com.ua/2019/01/02/ukrainska-strategiya-industrii-4-0-7-napriankiv-rozvytku>.
68. Adlung, R. GATS and Democratic Legitimacy. *Aussenwirtschaft*. 2004. Vol. 59(2). P. 127–149.
69. Agrawal, A., Gans, J., & Goldfarb, A. (Eds.). *The Economics of Artificial Intelligence*. University of Chicago Press, 2019.
70. Androniceanu, A., Georgescu, I., Tvaronavičiene, M., & Androniceanu, A. Canonical Correlation Analysis and a New Composite Index on Digitalization and Labor Force in the Context of the Industrial Revolution 4.0. *Sustainability*. 2020. Vol. 12(17). Article number: 6812
71. Androniceanu, A., Kinnunen, J., & Georgescu, I. E-Government clusters in the EU based on the Gaussian Mixture Models. *Administrative Management Public*. 2020. Vol. 35. P. 6-20.
72. Aregbeshola, R. A. Does import substitution industrialisation strategy hurt growth?: New evidence from Brazil and South Africa. *African and Asian Studies*. 2012. Vol. 11. P. 288–314.

73. Aregbeshola, R. A. Import substitution industrialization and economic growth - Evidence from the group of BRICS countries. *Future Business Journal*. 2017. Vol. 3. P. 138–158.
74. Arriola, C. Efficiency and risks in global value chains in the context of COVID-19. URL: [https://www.oecd-ilibrary.org/economics/efficiency-and-risks-in-global-value-chains-in-the-context-of-covid-19\\_3e4b7ecf-en](https://www.oecd-ilibrary.org/economics/efficiency-and-risks-in-global-value-chains-in-the-context-of-covid-19_3e4b7ecf-en).
75. Arriola, C., Guilloux-Nefussi, S., Koh, S.-H., Kowalski, P., Rusticelli, E., & van Tongeren, F. Efficiency and risks in global value chains in the context of COVID-19. OECD Economics Department Working Paper. 2020. No. 1637. OECD Publishing. 10.1787/3e4b7ecf-en.
76. Arriola, C., P. Kowalski and F. van Tongeren. The impact of COVID-19 on directions and structure of international trade. *OECD Trade Policy Papers*. 2021. No. 252. OECD Publishing, Paris, <https://dx.doi.org/10.1787/0b8eaafe-en>.
77. Attinasi M. G., Boeckelmann L., Hespert L., Linzenich J. and Meunier B. Global trade in the post-pandemic environment. URL: [https://www.ecb.europa.eu/press/economic-bulletin/focus/2024/html/ecb.ebbox202401\\_01~d1c3b1b0a5.en.html](https://www.ecb.europa.eu/press/economic-bulletin/focus/2024/html/ecb.ebbox202401_01~d1c3b1b0a5.en.html).
78. Bairoch P. and Kozul-Wright R. *Globalization Myths: Some Historical Reflections on Integration, Industrialization and Growth in the World Economy*. UNCTAD/OSG/DP/113. 1996.
79. *Balance of Payments Manual*. IMF, 2013. <https://www.imf.org/external/pubs/ft/bop/2007/bopman6.htm>.
80. Bauer, W., Wallner, G., & Voigt, K.-I. Industry 4.0: Managing the Digital Transformation. *International Journal of Innovation Management*. 2018. Vol. 22(08). 1850064.
81. Bauernhansl T., Krüger J., Reinhart G., Schuh G. *Wgp-Standpunkt Industrie 4.0*. Wissenschaftliche Gesellschaft für Produktionstechnik Wgp e. v., 2016. [https://www.ipa.fraunhofer.de/content/dam/ipa/de/documents/Presse/Presseinformationen/2016/Juni/WGP\\_Standpunkt\\_Industrie\\_40.pdf](https://www.ipa.fraunhofer.de/content/dam/ipa/de/documents/Presse/Presseinformationen/2016/Juni/WGP_Standpunkt_Industrie_40.pdf).
82. Bekkers, E., & Koopman, R. B. Simulating the trade effects of the COVID-19 pandemic: Scenario analysis based on quantitative trade modelling. *World Economy*. 2022. Vol. 45(2). P. 445-467.

83. Bilan, Y., Mishchuk, H., Roshchuk, I., & Joshi, O. Hiring and retaining skilled employees in SMEs: problems in human resource practices and links with organizational success. *Business: Theory and Practice*. 2020. Vol. 21(2). P. 695-707.
84. Bilateral Trade by Products: Ukraine to Egypt.  
<https://oec.world/en/profile/bilateral-country/ukr/partner/egy>.
85. Bilateral Trade by Products: Ukraine to Iraq.  
<https://oec.world/en/profile/bilateral-country/ukr/partner/ir>.
86. Bilateral Trade by Products: Ukraine to Jordan.  
<https://oec.world/en/profile/bilateral-country/ukr/partner/jor>.
87. Bilateral Trade by Products: Ukraine to Saudi Arabia.  
<https://oec.world/en/profile/bilateral-country/ukr/partner/sau>.
88. Bilateral Trade by Products: Ukraine to Turkey.  
<https://oec.world/en/profile/bilateral-country/ukr/partner/tur>.
89. Bilateral Trade by Products: Ukraine to United Arab Emirates.  
<https://oec.world/en/profile/bilateral-country/ukr/partner/are>.
90. Blanchet M. Industrie 4.0: Nouvelle donne industrielle, nouveau modèle économique. CAIRN. 2016. Vol. 82. P. 37-53.
91. Bode C., Hübner D., Wagner S.M. Managing financially distressed suppliers: An exploratory study. *Journal of Supply Chain Management*. 2014. Vol. 50 (4). P. 24-43.
92. Bonadio, B., Huo, Z., Levchenko, A. A., & Pandalai-Nayar, N. Global supply chains in the pandemic. NBER Working Paper. 2020. No. 27224. <https://www.nber.org/papers/w27224>.
93. Brenton P., Ferrantino M. J. and Maliszewska M. Reshaping Global Value Chains in Light of COVID-19: Implications for Trade and Poverty Reduction in Developing Countries. World Bank. Washington, 2022.
94. Bretthauer, G., Neumaier, P., & Thoben, K.-D. Industry 4.0 as a Driver for Servitization in Manufacturing Companies. *Procedia CIRP*. 2016. Vol. 47. P. 50-55.
95. Brown, G., & Whittle, R. Algorithms, Blockchain & Cryptocurrency: Implications for the Future of the Workplace. Emerland Publishing, 2020.
96. Brynjolfsson E., Mitchell T., and Rock D. What Can Machines Learn, and What Does It Mean for Occupations and the Economy? *AEA Papers and Proceedings*. 2018. Vol. 108. P. 43-47.

97. Cacioppo J.T., Reis H.T., Zautra A.J. Social resilience: The value of social fitness with an application to the military American Psychologist. 2011. Vol. 66 (1). P. 43.
98. Capitalising on the benefits of the 4th industrial revolution. Brussels: European Commission Directorate-General for Research and Innovation, 2018. <https://op.europa.eu/en/publication-detail/-/publication/cf1793da-184c-11e8-ac73-01aa75ed71a1>.
99. Chen, X., & Li, Q. Social and environmental consequences of trade agreements in developing countries. *Journal of International Economics*. 2020. Vol. 48(2). P. 187-210.
100. Chen Z. Research on International Trade Theory and the Status Quo of World International Trade. *American Journal of Industrial and Business Management*. 2022. Vol. 12. P. 1079-1087. doi: 10.4236/ajibm.2022.126057.
101. Chips and Science Act from 9 August 2022, H.R.4346. URL: [www.congress.gov](http://www.congress.gov).
102. Chowdhury R., Luhar S., Khan N., Choudhury S.R., Matin I., Franco O.H. Long-term strategies to control COVID-19 in low and middle-income countries: An options overview of community-based, non-pharmacological interventions. *European Journal of Epidemiology*. 2020. Vol. 35 (8). P. 743-748.
103. Christopher M., Holweg M. "Supply Chain 2.0": Managing supply chains in the era of turbulence. *International Journal of Physical Distribution and Logistics Management*. 2011. Vol. 41 (1). p. 63-82.
104. Christopher M., Peck H. Building the resilient supply chain. *The International Journal of Logistics Management*. 2004. Vol. 15 (2). p. 1-14.
105. Chu, A. C., Leung, C. K., & Tang, E. Intellectual property rights, technical progress and the volatility of economic growth. *Journal of Macroeconomics*. 2012. Vol. 34(3). P. 749-756.
106. Ciuriak, D., Ptashkina, M. The digital transformation and the transformation of international trade. Geneva: International Centre for Trade and Sustainable Development, 2018.
107. Commercial Services Trade - Ukraine. World Trade Organization. URL: [https://www.wto.org/english/res\\_e/statis\\_e/gstdh\\_commercial\\_services\\_e.htm](https://www.wto.org/english/res_e/statis_e/gstdh_commercial_services_e.htm).
108. Copeland, B. R. Benefits and Costs of Trade and Investment Liberalization in Services: Implications from Trade Theory. URL:

[https://www.researchgate.net/publication/285786181\\_Benefits\\_and\\_costs\\_of\\_trade\\_and\\_investment\\_liberalization\\_in\\_services\\_Implications\\_from\\_trade\\_theory](https://www.researchgate.net/publication/285786181_Benefits_and_costs_of_trade_and_investment_liberalization_in_services_Implications_from_trade_theory).

109. Coronavirus puts up to 50 million Travel & Tourism jobs at risk. URL: <https://wtcc.org/Portals/0/Documents/Press%20Releases/Coronavirus%20puts%20up%20to%2050%20million%20Travel%20and%20Tourism%20jobs%20at%20risk%20says%20WTTC.pdf?ver=2020-10-26-143855-200>.

110. Country Commercial Guide. US International Trade Administration. <https://www.trade.gov/country-commercial-guides>.

111. Dachs B., Kinkel S., Jager A. Bringing it all back home? Backshoring of manufacturing activities and the adoption of Industry 4.0 technologies. *Journal of World Business*. 2019. Vol. 54(6). P. 101-117.

112. Deichmann U., Indermit G. The Economic Geography of Regional Integration. *Finance and Development*. 2008. Vol.45(4). p. 45-47.

113. Deloitte AG. Industry 4.0: Challenges and solutions for the digital transformation and use of exponential technologies. 2014. URL: <https://www2.deloitte.com/content/dam/Deloitte/ch/Documents/manufacturing/ch-en-manufacturing-industry-4-0-24102014.pdf>.

114. Díaz-Mora C., R. Gandoy, B. González-Díaz. Looking into Global Value Chains: Influence of Foreign Services on Export Performance. *Review of World Economics*. 2018. Vol. 154. pp. 785-814.

115. Dong, W., Fudurich, J., & Suchanek, L. The digital economy: Insight from a special survey with IT service exporters. Discussion paper Bank of Canada. №. 2016-2021.

116. Dudă-Dăianu D. C. The Impact of Globalization through International Trade, *Annals. Economic Science Series. International Conference, The Knowledge Society in the Space of United Europe*. May 29-30. 2009. Vol. XV/2009. pp. 211-215.

117. Duval, Y., & Mengjing, K. Digital trade facilitation: Paperless trade in regional trade agreements. ADBI Working paper 2017, no. 747.

118. E-commerce in China - statistics & facts. <https://www.statista.com/topics/1007/e-commerce-in-china/#topicOverview>.

119. Edwards S. Openness, Trade Liberalization, and Growth in Developing Countries. *Journal of Economic Literature*. 1993. Vol. 31(3). pp. 1358-1393.

120. Ekici Ş.Ö., Kabak Ö., Ülengin F. Linking to compete: Logistics and global competitiveness interaction. *Transport Policy*. 2016. Vol. 48. P. 117-128.
121. Engelke, P. and Weinstein, E. Global Strategy 2023: Winning the tech race with China, in: Atlantic Council Strategy Paper Series, 2023. URL: [www.atlanticcouncil.org](http://www.atlanticcouncil.org).
122. E-sales broken down by web sales and EDI-type sales, 2021 (% enterprises). Eurostat. [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=E-commerce\\_statistics](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=E-commerce_statistics).
123. EU trade in COVID-19 related products. Statistics Explained Eurostat. (2021, March). [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=EU\\_trade\\_in\\_COVID-19\\_related\\_products#Per\\_capita\\_trade\\_largest\\_in\\_Ireland.2C\\_Belgium.2C\\_the\\_Netherlands\\_and\\_Slovenia](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=EU_trade_in_COVID-19_related_products#Per_capita_trade_largest_in_Ireland.2C_Belgium.2C_the_Netherlands_and_Slovenia).
124. European Union (2021). Post COVID-19 value chains: Options for reshoring production back to Europe in a globalized economy. [https://www.europarl.europa.eu/thinktank/en/document/EXPO\\_STU\(2021\)653626](https://www.europarl.europa.eu/thinktank/en/document/EXPO_STU(2021)653626).
125. Europe's Digital Progress Report 2017, Brussels: European Commission. <https://digital-strategy.ec.europa.eu/en/library/europes-digital-progress-report-2017>.
126. EUTech4Ukraine: telecommunications actions to support refugees from Ukraine. URL: <https://digital-strategy.ec.europa.eu/en/library/eutech4ukraine-telecommunications-actions-support-refugees-ukraine>.
127. Evenett, S. and Fritz, J. The Scramble for Critical Raw Materials: Time to Take Stock? The 31st Global Trade Alert Report? 2023. URL: [www.globaltradealert.org](http://www.globaltradealert.org).
128. Evenett, S. J., Hoekman, B., Rocha, N., & Ruta, M. The Covid-19 vaccine production club: Will value chains temper nationalism? Policy Research Working Paper. 2021. No. 9565. World Bank. <https://openknowledge.worldbank.org/handle/10986/35244>.
129. Fawna H. The Impact of Industry 4.0 on the Economy. *International Journal of Science and Society*. 2023. Vol. 5(3). P. 125-133.
130. Ferracane, M. F. and van der Marel, E. Do Data Flows Restrictions Inhibit Trade in Services? Working Paper, Brussels: European Center for International Political Economy, 2018.

131. Finger, J. M. and P. Schuler. 2002. Implementation of WTO Commitments: The WTO Challenge. Chapter 48 in B. Hoekman, A. Mattoo, and P. English (eds.), *Development, Trade, and the WTO: A Handbook*. Washington, D.C.: World Bank.
132. Gai, Q., Zhu, X., Cheng, M. W. et al. Factor Market's Distortion, Markup and TFP. *Economic Research Journal*. 2015. No. 5. P. 61-75.
133. Garcia, L., & Torres, E. Institutional aspects of trade agreements and economic development in developing countries. *World Development*. 2019. Vol. 63(4). P. 98-115.
134. Geller C. Trade Policy and Economic Development: A Study of Trade Agreements' Effects on Developing Countries. *Journal of Modern Law and Policy*. 2023. Vol.3 (3). pp 64 – 76.
135. Georgieva K. Confronting Fragmentation Where It Matters Most: Trade, Debt, and Climate Action, in: *IMFBlog*. URL: [www.imf.org](http://www.imf.org).
136. Gereffi G. What does the COVID-19 pandemic teach us about global value chains? The case of medical supplies. *Journal of International Business Policy*. 2020. Vol. 3(3). P. 287–301.
137. Gërvalla M, Ternai K. The impact of industry 4.0 to the ERP approach. *SEFBIS Journal*. 2019. Vol. 13. P. 56-59.
138. Globalization: A Framework for IMF Involvement. 2002. 02/01. URL: <https://www.imf.org/external/np/exr/ib/2002/031502.htm>.
139. Global Competitiveness Report 2019. World Economic Forum. <https://www.weforum.org/publications/how-to-end-a-decade-of-lost-productivity-growth>.
140. Global Economic Prospects, January 2021. World Bank Publications. <https://openknowledge.worldbank.org/handle/10986/34738/>.
141. Global Risks Report 2023. <https://www.weforum.org/publications/global-risks-report-2023/in-full/1-global-risks-2023-today-s-crisis/>.
142. Global Value Chain Development Report 2021: Beyond Production. WTO. URL: [https://www.wto.org/english/res\\_e/booksp\\_e/00\\_gvc\\_dev\\_report\\_2021\\_e.pdf](https://www.wto.org/english/res_e/booksp_e/00_gvc_dev_report_2021_e.pdf).
143. Gravili, G., Benvenuto, M., Avram, A., & Viola, C. The influence of the Digital Divide on Big Data generation within supply chain management. *The International Journal of Logistics Management*. 2018. Vol. 29(2). P. 592-628.
144. Grochal-Brejidak, M., & Szymura-Tyc, M. The Internationalisation Process of an E-Commerce Entrepreneurial Firm: The Inward-Outward Internationalisation and the

Development of Knowledge. *Entrepreneurial Business and Economics Review*. 2018. Vol. 6(4). P. 103-123.

145. Gruszczynski, L. The COVID-19 pandemic and international trade: Temporary turbulence or paradigm shift? [Special issue]. *European Journal of Risk Regulation*. 2020. Vol. 11(2). P. 337–342.

146. Gujrati R. The role of International Trade in the Global Economy & Its Effects On Economic Growth. *International Journal of Innovative Science, Engineering & Technology*. 2015. Vol. 2 Issue 7. P. 453-462.

147. Haddara M, Elragal A. The readiness of ERP systems for the factory of the future. *Procedia computer science*. 2015. Vol. 64. P. 721-728.

148. Hayakawa, K., & Mukunoki, H. The impact of COVID-19 on international trade: Evidence from the first shock. *Journal of the Japanese and International Economies*. 2021. Vol. 60. 101135.

149. He, D. X., Miao, W. l., Yan, J. J. et al. Analysis on the Global Systemic Financial Risks Cross-Market Contagion Effect. *Economic Research Journal*, 2021. No. 8. P. 4-21.

150. Hoekman, B. and B. Shepherd. Services Productivity, Trade Policy and Manufacturing Exports. *World Economy*. 2017. Vol. 40(3). pp. 499-516.

151. Hollweg C. Global value chains and employment in developing economies. Chapter 3. pp 63-81 in *Global value chain development report 2019. Technological innovation, supply chain trade, and workers in a globalised world*. OECD, World Trade Organisation, Geneva, 2019.

152. Hong Y. X. From Comparative Advantage to Competitive Advantage: On the Defects of the Theory of Comparative Advantage in International Trade. *Economic Research Journal*. 1997. No. 6. P. 20-26.

153. Horváth D, Roland Z.S. Driving forces and barriers of Industry 4.0: Do multinational and small and medium-sized companies have equal opportunities? *Technological Forecasting and Social Change*. 2019. Vol. 146. P. 119-132.

154. Hurochkina, V., Nahaieva, O., Rymar, O., Chorny, O., Makhanets, L., & Shyshpanova, N. Foreign state economic policy in the context of economic security. *Journal of Management Information and Decision Sciences*. 2021. Vol. 24(3). P. 1-14.

155. IISS, 2023. Asia-Pacific Regional Security Assessment, Key developments and trends, Strained US–China Relations and the Growing Threat to Taiwan. International Institute for Strategic Studies. URL: [www.iiss.org](http://www.iiss.org).
156. IMD World Competitiveness 2021. <https://www.imd.org/centers/wcc/world-competitiveness-center/rankings/world-competitiveness-ranking>.
157. Inflation Reduction Act from 16 August 2022, H.R.5376. URL: [www.congress.gov](http://www.congress.gov).
158. IMF (2021) Policy responses to Covid-19. URL: <https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19#top>.
159. IMF, 2023. World Economic Outlook: Navigating Global Divergences. October 2023. <https://www.imf.org/en/Publications/WEO/Issues/2023/10/10/world-economic-outlook-october-2023>.
160. Industry 4.0: Impacts on Trade, Labor and Productivity <https://www.prodensa.com/industry-4-0-impacts-on-trade-labor-and-productivity>.
161. Information Economy Report 2017: Digitalization, Trade and Development. Geneva: UNCTAD, 2017. [https://unctad.org/system/files/official-document/ier2017\\_en.pdf](https://unctad.org/system/files/official-document/ier2017_en.pdf).
162. International trade in services – 2022.; International trade in services – 2021. UNCTAD/STAT/INF/2022/2. URL: [https://unctad.org/system/files/official-document/statinf2022d2\\_en.pdf](https://unctad.org/system/files/official-document/statinf2022d2_en.pdf).
163. International trade in services – 2020. UNCTAD/STAT/INF/2021/5. URL: [https://unctad.org/system/files/official-document/gdsdsimisc2021d5\\_en.pdf](https://unctad.org/system/files/official-document/gdsdsimisc2021d5_en.pdf).
164. Initial Estimates Show Digital Economy Accounted for 6.5 percent of GDP in 2016. Washington, D.C.: US Bureau of Economic Analysis, 2018.
165. International trade, internet governance and the shaping of the digital economy. United Nations Economic and Social Commission for Asia and the Pacific. 2017. <https://repository.unescap.org/handle/20.500.12870/1322>.
166. Jürgens, U., Meissner, D., & Rüßmann, M. Industry 4.0 as an Enabler of Circular Economy: A Comprehensive Review. *Procedia CIRP*. 2017. Vol. 61. P. 15-20.
167. Kano, L., & Hoon Oh, C. Global value chains in the post-COVID world: Governance for reliability. *Journal of Management Studies*. 2020. Vol. 57(8). P. 1773–1777.

168. Kasim T, Haracic M, Haracic M. The improvement of business efficiency through business process management, economic review. *Journal of Economics and Business*. 2018. Vol.16(1). P. 31-43.
169. Kersan-Škabić, I. The COVID-19 pandemic and the internationalization of production: A review of the literature. *Development Policy Review*. 2022. Vol. 40. e12560. 10.1111. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8239906>.
170. Key Statistics and Trends in International Trade 2019. [https://unctad.org/system/files/official-document/ditctab2019d7\\_en.pdf](https://unctad.org/system/files/official-document/ditctab2019d7_en.pdf).
171. Khan A. The Emergence of the Fourth Industrial Revolution and its Impact on International Trade. *Journal of Social Sciences and Humanities*. 2024. Vol.11(1). e2024007.
172. Kiliçaslan, Y., and I. Temurov. Import substitution, productivity and competitiveness: Evidence from Turkish and Korea manufacturing industry. *Optimum Journal of Economics and Management Sciences*. 2016. Vol. 3. P. 67–83.
173. Ko M. L., Plasmans J., and Song-ken H. A Consistent Measure of Aggregate Import Substitution: Research Paper. Antwerp: University of Antwerp, 2014.
174. Kohler D., and Weisz J. D. Industrie 4.0, une révolution industrielle et sociétale. *Futuribles*. 2018. Vol. 424. P. 47-68.
175. Kurth M., Kozłowski W., Ganin A., Mersky A., Leung B., Dykes J., Linkov I. Lack of resilience in transportation networks: Economic implications. *Transportation Research. Part D: Transport and Environment*. 2020. Vol. 86. 102419.
176. Li W. J., & Zheng M. N. Where to Go: Trade Protectionism or Open Competition? Evidence from Micro-Enterprise Innovation. *Journal of Finance and Economics*. 2018. Vol. 44. P. 20-31.
177. Liu, Y. F. Wave Phenomenon and the Reconstruction of Macroeconomic Theories for Developing Countries. *Economic Research Journal*. 2007. No. 1. P. 126-131.
178. Lu, H. (2021). RCEP in the Regionalization of International Trade. *International Business Daily*, 2021-11-18.
179. Lu, D. D., & Du, D. B. Some Thoughts on the Strengthening of Geopolitical and Geoeconomics Studies. *Acta Geographica Sinica*. 2013. Vol. 68. P. 723-727.
180. Lu, Y., Xu, L. D., & Li, S. Internet of Things (IoT)-Enabled Industrial Automation Systems. *IEEE Transactions on Industrial Informatics*. 2017. Vol. 10(2). P. 1437-1447.

181. Lula, P., Oczkowska, R., Wiśniewska, S., & Wójcik, K. An attempt to estimate the competency gap in the IT sector. *International Entrepreneurship Review*. 2019. Vol. 5(3). P. 95-112.
182. Manteu C. *Economic Effects of Globalisation: Lessons from Trade Models*. Economic Bulletin. Banco de Portugal. 2008.
183. Markusen, J. R. Trade in Producers Services and in Other Specialized Intermediate Inputs. *American Economic Review*. 1989. Vol. 79. P. 85–95.
184. Mattoo A., Stern R. M., and Zanini G. (Ed.). *A Handbook of International Trade in Services*.  
<https://documents1.worldbank.org/curated/en/568351467995816402/pdf/105324-PUB-Box394886B-PUBLIC-978-0-1992-3522-3.pdf>.
185. Measuring trade in services. A training module produced by WTO / OMC.  
[https://www.wto.org/english/res\\_e/statis\\_e/services\\_training\\_module\\_e.pdf](https://www.wto.org/english/res_e/statis_e/services_training_module_e.pdf).
186. Melnyk S.A., Closs D.J., Griffis S.E., Zobel C.W., Macdonald J.R. Understanding supply chain resilience. *Supply Chain Management Review*. 2014. Vol.18 (1). p. 34-41.
187. Mena C., Karatzas A., Hansen C. International trade resilience and the Covid-19 pandemic. *Journal of Business Research*. 2022. Vol. 138. P. 77-91.
188. Merchandise exports by product group – annual (Million US dollar).  
<https://stats.wto.org>.
189. Miao, Y. L., Hao, Y., & Yang, Y. Y. Foreign Exchange Reserves, Global Liquidity and Exchange Rate Determination. *Economic Research Journal*. 2021. No. 8. P. 39-55.
190. Miroudot, S., J. Sauvage, and B. Shepherd. Measuring the Cost of International Trade in Services. *World Trade Review*. 2013. Vol. 12(4). pp. 719-735.
191. Mohammadreza Aghareparast & Ahmad Zeinali. The Role of Foreign Policy and International Relations in Economic Development Based on the Philosophy of Liberalism. *Journal of Social Science Studies*, Macrothink Institute. 2017. Vol. 4(1). P. 1-9.  
<https://ideas.repec.org/a/mth/jsss88/v4y2017i1p1-9.html>.
192. Mohiuddin M., Md. S. Al Azad, S. Ahmed, S. Ed-Dafali and M. N. Hasan Reza. Evolution of Industry 4.0 and Its Implications for International Business.  
<https://www.intechopen.com/chapters/80058>.

193. Moldovan I., Yang S. C. S., and L. F. Zanna. Optimal Fiscal Spending and Reserve Accumulation Policies Under Volatile Aid. IMF Working Paper. 2019. Vol. 19/126. International Monetary Fund, Washington, DC.

194. Mołdowan A. Zagraniczna polityka gospodarcza UE w obliczu nowych wyzwań: modele, cele i interesy. Przegląd Europejski. 2019. № 2.  
<https://cejsh.icm.edu.pl/cejsh/element/bwmeta1.element.ceon.element-5feac6e7-d3d0-3e99-be64-0ac0cebb447d/c/pdf-01.3001.0013.5820.pdf>.

195. Nayyar, G. and Davies, E. Services-led Growth: Better Prospects after the Pandemic. Falling Long-term Growth Prospects: Trends, Expectations, and Policies. Washington: World Bank, 2023.

196. Nayyar, G., Hallward-Driemeier, M. and Davies E. At Your Service? The Promise of Services-led Development. Washington: World Bank, 2021.  
<https://www.worldbank.org/en/topic/competitiveness/publication/promise-of-services-led-development>.

197. Nordås, H. and D. Rouzet. The Impact of Services Trade Restrictiveness on Trade Flows. World Economy. 2016. Vol. 40(6). pp. 1155-1183.

198. Notteboom T., & Pallis, T. 2020. IAPH-WPSP Port economic impact barometer half year report: A survey-based analysis of the impact of COVID-19 on world ports in the period April to September 2020.  
 URL: <https://biblio.ugent.be/publication/8675723/file/8675725>.

199. OECD, 2017. The future of global value chains. Science, Technology and Innovation Policy Papers. 2017. No 41. Paris: 2017.

200. OECD, 2020. Shocks, risks and global value chains: Insights from the OECD METRO model. (Jun 29, 2020). <https://www.oecd.org/trade/documents/shocks-risks-gvc-insights-oecd-metro-model.pdf>.

201. OECD, 2021. Using trade to fight COVID-19: Manufacturing and distributing vaccines. OECD Policy Responses to Coronavirus. 2021.  
<https://www.oecd.org/coronavirus/policy-responses/using-trade-to-fight-covid-19-manufacturing-and-distributing-vaccines-dc0d37fc>.

202. OECD, 2022. The COVID-19 crisis in Ukraine. URL:  
<https://www.oecd.org/eurasia/competitiveness-programme/eastern-partners/COVID-19-CRISIS-IN-UKRAINE.pdf>.

203. OECD, 2022. International trade during the COVID-19 pandemic: Big shifts and uncertainty. <https://www.oecd.org/coronavirus/policy-responses/international-trade-during-the-covid-19-pandemic-big-shifts-and-uncertainty-d1131663>.

204. Overview – World Economic Situation and Prospects 2024. URL: <https://www.un.org/sustainabledevelopment/blog/2024/01/overview-world-economic-situation-and-prospects-2024>.

205. Papachashvili N. Industry 4.0 and its Impact on the International Trade. IV International Scientific and Practical Conference “Strategic Imperatives of Modern Management” (SIMM-2018). Kiev, Ukraine. 2018. pp. 444-453. <http://ir.kneu.edu.ua/bitstream/2010/24244/1/444-453.pdf>.

206. Pappas N. COVID19: Holiday intentions during a pandemic. *Tourism Management*. 2021. Vol. 84. p. 104287.

207. Pappas N., Glyptou K. Accommodation decision-making during the COVID-19 pandemic: Complexity insights from Greece. *International Journal of Hospitality Management*. 2021. Vol. 93. p. 102767.

208. Parker, G. G., Van Alstyne, M. W., & Choudary, S. P. Platform Ecosystems: How Developers Invert the Firm. *MIS Quarterly*. 2019. Vol. 43(1). P. 321-332.

209. Patel, R., & Singh, M. Export-led growth and trade agreements in developing countries: Case studies from Southeast Asia. *Journal of Development Economics*. 2018. Vol. 52(3). P. 371-388.

210. Pauwelyn J. Export restrictions in times of pandemic: Options and limits under international trade agreements. *Journal of World Trade* 2020. Vol. 54(5). P. 727–747.

211. Peterson J., Barras R. Measuring International Competitiveness in Services. *The Service Industries Journal*. 1987. Vol. 7 (2). P. 131-142.

212. Pologeorgis N. How Globalization Affects Developed Countries. <http://www.investopedia.com/articles/economics/10/globalization-developed-countries.asp>.

213. Porter, M. E., & Heppelmann, J. E. A Manager's Guide to Augmented Reality. *Harvard Business Review*. 2017. Vol. 95(1). P. 46-54.

214. Press release by the European Commission from 1 February 2023. The Green Deal Industrial Plan: putting Europe's net-zero industry in the lead. URL: [www.commission.europa.eu](http://www.commission.europa.eu).

215. Press release by the Prime Minister of Canada from 21 April 2023, Volkswagen's new electric vehicle battery plant will create thousands of new jobs. URL: [www.pm.gc.ca](http://www.pm.gc.ca).
216. Press release by the European Commission from 20 June 2023, An EU approach to enhance economic security. URL: [www.commission.europa.eu](http://www.commission.europa.eu).
217. Promoting Investment in the Digital Economy. Investment Policy Monitor, special issue, Geneva: UNCTAD, 2017.
218. Ramirez R. and Crisologo A. and Vigonte F. and Abante M. V. International Trade: the Whys and Its Impact to Global Economy (January 28, 2023). URL: <https://ssrn.com/abstract=4340167>.
219. Ratten, V. Coronavirus (Covid-19) and the entrepreneurship education community. Journal of Enterpris-ing Communities: People and Places in the Global Economy. <https://doi.org/10.1108/JEC-06-2020-0121>.
220. Report Foreign Economic Policy 2023. <https://www.news.admin.ch/news/message/attachments/85680.pdf>.
221. Report on G20 Trade Measures: Mid-October 2018 to Mid-May 2019. June. Geneva: World Trade Organization, 2019.
222. Revealed Comparative Advantage. <https://unctadstat.unctad.org/EN/RcaRadar.html>.
223. Rickards P. The International Trade in Services. <https://www.rba.gov.au/publications/bulletin/2019/mar/pdf/the-international-trade-in-services.pdf>.
224. Rodrigue J.-P., Comtois C. and Slack B. The Geography of Transport Systems. Routledge, 2006.
225. Rodrigue J.-P., Notteboom T. and Shaw J. The SAGE Handbook of Transport Studies. SAGE Publications. London, 2013.
226. Rodriguez, J., & Martinez, E. Regional versus Bilateral Trade Agreements: A Comparative Analysis of Economic Development Effects in Developing Countries. Journal of International Trade. 2017. Vol. 39(4). P. 512-529.
227. Rojko A. Industry 4.0 Concept: Background and Overview. International Journal of Interactive Mobile Technologies. 2017. Vol. 11(5). pp. 77–90.
228. Ruch F. U. Policy Challenges for Emerging and Developing Economies: Lessons from the Past Decade. Policy Research Working Paper 9180. March, 2020. World Bank Group.

<https://documents.worldbank.org/curated/en/249291584025972023/pdf/Policy-Challenges-for-Emerging-and-Developing-Economies-Lessons-from-the-Past-Decade.pdf>

229. Rymarczyk, J. Technologies, Opportunities and Challenges of the Industrial Revolution 4.0: Theoretical Considerations. *Entrepreneurial Business and Economics Review*. 2020. Vol. 8(1). P. 185-198.

230. Rymarczyk, J. The impact of industrial revolution 4.0 on international trade. *Entrepreneurial Business and Economics Review*. 2021. Vol. 9(1). P. 105-117.

231. Shangquan, Gao, 2000. "Economic Globalization: Trends, Risks and Risk Prevention", *Economic & Social Affairs*, CDP Background Paper No. 1, ST/ESA/2000/CDP/1, United Nations.

232. Shih W.C. Global supply chains in a post-pandemic world *Harvard Business Review*. 2020. Vol. 98 (5). P. 82-89.

233. Smith, A., & Johnson, B. Trade Agreements and Economic Development: Empirical Evidence from Developing Countries. *World Development*. 2017. Vol. 45. P. 256-271.

234. Soubbotina T. P. *Beyond Economic Growth an Introduction to Sustainable Development*, The World Bank, Washington, D.C., 2000.

235. Strange, R., & Zucchella, A. Industry 4.0: global value chains and international business. *Multinational Business Review*. 2017. Vol. 25(3). P. 174-184.

236. Strajk polskich przewoźników na granicy z Ukrainą.  
<https://www.3cargo.com/strajk-polskich-przewoznikow-na-granicy-z-ukraina>.

237. Tan, S. W. Digital Trade Europe and Central Asia. ADB Working paper. 2017. no. 751.

238. Tim Y, Pan SL, Bahri S, Fauzi A. Digitally enabled affordances for community-driven environmental movement in rural Malaysia. *Information Systems Journal*. 2018. Vol. 28 (1). P. 48-75.

239. Tjahjono B., Esplugues C., Ares E., and Pelaez G. What does industry 4.0 mean to supply chain? *Procedia Manufacturing*. 2017. Vol. 13. P. 1175-1182.

240. Trade in services for development: Fostering sustainable growth and economic diversification. World Bank Group; World Trade Organization.  
[https://www.wto.org/english/res\\_e/publications\\_e/trade\\_in\\_serv\\_devpt\\_e.htm](https://www.wto.org/english/res_e/publications_e/trade_in_serv_devpt_e.htm).

241. The rise of services in the global economy <https://www.oecd-ilibrary.org/sites/9789264275232-4-en/index.html?itemId=/content/component/9789264275232-4-en>.

242. The Ukraine Rapid Damage and Needs Assessment – August 2022. <https://documents1.worldbank.org/curated/en/099445209072239810/pdf/P17884304837910630b9c6040ac12428d5c.pdf>.

243. Udo, B., Alexander, K., & Vivekananda, M. Globalization, Inequality and Economic Policy. *Economics and Business Review*. 2019. Vol. 5. P. 3-11.

244. UNCTAD, 2023. World Investment Report 2023. Investing in sustainable energy for all. URL: [www.unctad.org](http://www.unctad.org)

245. UNCTAD, 2020. Impact of the COVID-19 pandemic on global FDI and GVCs: Updated analysis. *Global Investment Trend Monitor*. 2020. No. 35. [https://unctad.org/system/files/official-document/diaiciainf2020d3\\_en.pdf](https://unctad.org/system/files/official-document/diaiciainf2020d3_en.pdf).

246. UNCTAD, 2022. The Impact of the COVID-19 Pandemic on Trade and Development: Lessons Learned. [https://unctad.org/system/files/official-document/osg2022d1\\_en.pdf](https://unctad.org/system/files/official-document/osg2022d1_en.pdf).

247. UNCTAD, 2021. Review of Maritime Transport 2021 (United Nations publication. Sales No. E.21. II.D.21. <https://www.un-ilibrary.org/content/books/9789210000970>.

248. UNCTAD, 2020. Trade and development report 2020. From global pandemic to prosperity for all: Avoiding another lost decade. [https://unctad.org/system/files/official-document/tdr2020\\_en.pdf](https://unctad.org/system/files/official-document/tdr2020_en.pdf).

249. UNCTAD, 2020. World investment report 2020. <https://unctad.org/webflyer/world-investment-report-2020>.

250. Van der Marel, E. and S. Miroudot. The Economics and Political Economy of Going Beyond the GATS. *Review of International Organizations*. 2014. Vol. 9(2). pp. 205–239.

251. Verbeke, A. Will the COVID-19 pandemic really change the governance of global value chains? *British Journal of Management*. 2020. Vol. 31(3). P. 444–446.

252. Verico K. How to measure bilateral economic relations? Case of Indonesia – Australia. *LPEM Working Paper*. 2020. Vol. 04 (056). P. 1-11.

253. Verma S., Gustafsson A. Investigating the emerging COVID-19 research trends in the field of business and management: A bibliometric analysis approach. *Journal of Business Research*. 2020. Vol. 118. P. 253-261.
254. Vidya, C. T., & Prabheesh, K. P. Implications of COVID-19 Pandemic on the Global Trade Networks. *Emerging Markets Finance and Trade*. 2020. Vol. 56(10). P. 2408–2421.
255. Wang, D. X., Li, L. L., & Ran, G. H. Financial Capital Formation and Economic Growth. *Economic Research Journal*. 2009. No. 9. P. 39-51.
256. Wang, X. S., Shi, B. Z., Xie, S. X. How Do Trade Barriers Affect Dual Margins of China Export Growth. *Economic Research Journal*. 2014. No. 11. P. 58-71.
257. Wang, L. Y., Yuan, Z. Q., & Ji, Y. Trade Openness and Fiscal Policy Volatility. *Economic Research Journal*. 2021. No. 2. P. 89-102.
258. Weber, J., & Gneuss, M. Digital Geschäftsmodellinnovationen: Controlling in der digitalen Transformation, Internationaler Controller Verein. <https://www.icv-controlling.com>.
259. Wekinga J, Stöcker M. Leveraging industry 4.0 – A business model pattern framework. *International Journal of Production Economics*. 2020. №225. 107588.
260. Wight, A. Expert warns cold chain infrastructure overhaul needed for Covid-19 vaccine rollout. *Forbes*. 2020. URL: <https://www.forbes.com/sites/andrewwight/2020/11/15/health-expert-from-zimbabwe-warns-of-covid-19-vaccine-cold-chain-challenges/?sh=57061c682055>.
261. World Development Report 2016. Digital Dividends. World Bank. Washington DC. 2016.
262. World Economic Forum, 2019. Outbreak Readiness and Business Impact Protecting Lives and Livelihoods across the Global Economy. (January, 2019). P. 1–22. <https://www.weforum.org/whitepapers/outbreak-readiness-and-business-impact-protecting-lives-and-livelihoods-across-the-global-economy>.
263. World Economic Forum, 2018. The Future of Jobs Report 2018. URL: <https://www.weforum.org/publications/the-future-of-jobs-report-2018>.
264. World Trade Organization. COVID-19: Measures affecting trade in goods. (2021, July 2). [https://www.wto.org/english/tratop\\_e/covid19\\_e/trade\\_related\\_goods\\_measure\\_e.htm](https://www.wto.org/english/tratop_e/covid19_e/trade_related_goods_measure_e.htm).

265. World Trade Report 2023: Re-globalization for a secure, inclusive and sustainable future. URL: [https://www.wto.org/english/res\\_e/publications\\_e/wtr23\\_e.htm](https://www.wto.org/english/res_e/publications_e/wtr23_e.htm).
266. World Trade Report 2019. The future of services trade. URL: [https://www.wto.org/english/res\\_e/booksp\\_e/00\\_wtr19\\_e.pdf](https://www.wto.org/english/res_e/booksp_e/00_wtr19_e.pdf).
267. World Trade Report 2018. The future of world trade: how digital technologies are transforming global commerce. Geneva: World Trade Organization, 2018. [https://www.wto.org/english/res\\_e/publications\\_e/world\\_trade\\_report18\\_e.pdf](https://www.wto.org/english/res_e/publications_e/world_trade_report18_e.pdf).
268. World Trade Report 2008: Trade in a Globalizing World. URL: [https://www.wto.org/english/res\\_e/booksp\\_e/anrep\\_e/world\\_trade\\_report08\\_e.pdf](https://www.wto.org/english/res_e/booksp_e/anrep_e/world_trade_report08_e.pdf).
269. World Trade Statistical Review 2023. [https://www.wto.org/english/res\\_e/publications\\_e/wtsr\\_2023\\_e.htm](https://www.wto.org/english/res_e/publications_e/wtsr_2023_e.htm).
270. World Trade Statistical Review 2018. World Trade Organization. [https://www.wto.org/english/res\\_e/statis\\_e/wts2018\\_e/wts2018\\_e.pdf](https://www.wto.org/english/res_e/statis_e/wts2018_e/wts2018_e.pdf).
271. Yang, W. L., Shi, W. T., & Du, D. B. The Spatial Model and Spatial Mechanism of the Global Geo-Economic Co-Operation: An Empirical Research Based on the Scale of Commodity Trade. *Scientia Geographica Sinica*. 2021. № 41. P. 1875-1883.
272. Yu, Z., Zhou, B. H., Xie, X. B. et al. Participation in the Reconstruction of the GVCs and Sino-U.S. Trade Frictions. *China Industrial Economics*. 2018. No. 7. P. 24-42.
273. Zhang, B. S. WTO's Anti-Discrimination Reform Model and EU's Trade Policy towards China. *International Trade*. 2007. No. 8. P. 56-59.
274. Zheng, Y. Liberalization or Protection: How Do States Respond to the Global Financial Crisis? *World Economics and Politics*. 2018. No. 12. P. 135-160.
275. Żukowska K. Technologies 4.0 and their impact on the international trade. *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*. 2019. Vol. 63(4). P. 52-66.





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Monograph

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