

Chief Assist. Prof. Elena Spasova, PhD*, Assoc. Prof. Eduard Marinov, PhD**

GLOBAL VALUE CHAINS AND THE CHANGING NATURE OF INTERNATIONAL SPECIALIZATION

Along with the dynamic transformations associated with the failure of multilateralism, changes in global demand patterns, the return to protectionism and the integration of emerging economies into global markets, global trade is undergoing dynamic changes related to the search for greater economic efficiency through the use of global value chains. These trends have an impact on both trade and production specialization, and the demand for different types of skills, thus enabling greater profits, but also posing new challenges for trade policy. The main trends in trade and specialization and the development of global value chains are traced, then the changing nature of international specialization and the relationship between trade policy, trade and specialization are analyzed. Lastly, an assessment of the future development of global trade and global value chains is presented and several scenarios for trade and specialization by 2060 are summarized.

Keywords: international trade; supply chains; trade policy; regionalization; forecasts

JEL: F10; F13; F60

There are certain changes and trends in the modern global system of international economic relations, due to both purely economic, as well as to many other factors – social, political, technological, security-related, etc. In some cases, these trends have mixed boundary effects, while in others they have a very serious economic impact.

The complex decision-making model, the differing interests of developing and developed countries, and the imbalances in the participation and distribution of benefits that arise from multilateral trade liberalization lead to a dead end in the WTO. A clear illustration of this is the Doha Round, which began in 2001 and still remains unfinished. The international trade framework is being put into question, and the uncertainty in trade relations is contributing to global economic uncertainty and stifling economic growth (Bobeva, 2020).

In addition, with the rapid growth of the importance of multinational corporations and global value chains, trade liberalization is becoming an increasingly contentious issue – society is increasingly questioning even large bilateral trade agreements such as TTIP and CETA.

Trade itself is also changing. The lack of progress in the WTO creates a more “defensive” attitude towards national industrial and commercial interests. Protectionist measures are significantly more than liberalizing ones, and since 2017 their number has grown significantly.

* New Bulgarian University, Department of Economics, el.spasova@gmail.com

** New Bulgarian University, Department of Economics, eddie.marinov@gmail.com

With the growth of global value chains, a number of countries add value to production in the chain before receiving goods for final consumption. In this way, many exported goods combine internal and external added value through imports of intermediate goods. In 2010, the share of external value added in the total exports reached 31% and has remained at approximately the same level ever since (Damen and Iglar, 2019). The rise of global supply chains over the last three decades has been associated with increased economic efficiency (Amiti and Konings, 2007; Constantinescu et al., 2019; World Bank, 2020), but also with more risks and vulnerability.

The place of developing countries in the world economy is also changing. More than half of global trade in goods now involves at least one developing country. Trade between emerging economies (South-South trade) is also growing – from 7% of world trade in 2000 to 19% in 2018. However, not all developing countries are at the same level. Between 1990 and 2018, Asia doubled its share of world trade from 15% to 35%, with more than half of Asian trade being within the continent (the “Asia factory” and the strengthening of intra-regional value chains). With the Agreement on the Establishment of the African Free Trade Area, Africa is also trying to create a serious incentive for intra-continental trade.

It is the group of emerging economies that are beginning to become non-negligible regional and even global market players that poses the greatest challenge to the global trading system. Once they get rid of their dependence on richer (especially Western) countries, they can challenge their economic dominance while still benefiting to some extent from their status as developing countries. From this point of view, the logical link between the failure of the WTO, the rise of emerging economies and the debate over whether the world trading system in its current form is fit for the future is much clearer.

These trends have an impact on both trade and the degree of fragmentation of production specialization, and the demand for different types of skills, thus enabling greater profits, but also posing new challenges to trade policy. As a result of changes in recent decades, 70% of international trade includes services, crude materials, parts and components. This is a result of the functioning of global value chains, which allocate production in different countries and direct both investment flows and production activities in regions endowed with raw materials and labor resources (Panushev, 2020).

The aim of the present study is to identify the main factors contributing to the change in the international specialization of production and trade in the world economy. To achieve this goal, the main trends in trade and specialization are first systematized, and then, the trends in global value chains in the last decade are analyzed. Furthermore, the study analyzes the changing nature of international specialization and the relationship between trade policy, trade and specialization. An attempt has been made to make a preliminary assessment of the future development of global trade and global value chains, and to summarize different scenarios for trade and specialization until 2060. In conclusion, some recommendations for Bulgaria have been drawn.

The article does not address the major changes that have occurred as a result of the pandemic crisis in 2020, as on the one hand there is still insufficient data to assess their impact on international economic relations, and on the other hand they cannot be assessed in terms of long-term structural changes in the world economy, because, as it stands, they are rather conjunctural in nature.

Trade and specialization

Trade can stimulate growth and increase overall wellbeing in several ways. Firstly, it causes an optimal distribution of production factors among companies and industries, which leads to higher efficiency and effectiveness. At the same time, by increasing competitive pressure, trade reduces inefficiency and stimulates innovation (Aghion and Howitt, 1998). Secondly, it contributes to the access to a larger international market and thus increases the potential for economies of scale and technological spillovers that support economic growth (Rivera-Batiz and Romer, 1991; Dalum et al., 1999). Thirdly, trade allows countries to specialize –in terms of both production and human capital, in goods and services for which the country has a comparative advantage, and this leads to faster increasing productivity through the effects of learning and scale (Krugman, 1980).

As it has already become clear, the benefits of trade are not evenly distributed – both between countries and within them. Trade encourages countries to specialize, and because different goods and activities involve different opportunities in terms of technology and knowledge, those countries that specialize in dynamic and innovative industries are better placed to achieve sustainable economic growth (Grossman and Helpman, 1991; Hausmann et al., 2007).

What products countries specialize in is determined by the available resources needed to produce different products and by the access to different technologies. Thus, in a given production technology, specialization is dictated by factor endowments (Heckscher-Ohlin, 1991). According to some estimates, a country with endowments (in the 75th percentile in the distribution of capital per worker compared to other countries) would export 12% more than all products compared to a country in the median part of the distribution of capital per worker. In addition, exports of capital-intensive products (e.g. chemicals and plastics) may be about 25% higher (Johansson and Olaberría, 2014).

Apart from factor endowment, trade and specialization can also be influenced by public policies and institutions by changing the incentives for the accumulation of production factors and technological innovation. Because industries are different in terms of their need for regulations and institutions that promote production, differences in the institutional environment between countries affect competitiveness through the impact they have on relative productivity (Chor, 2010; Nunn and Trefler, 2013). For example, well-functioning financial markets are relatively more important for investment services than for many other activities.

Growth in national industries can be supported by certain industrial or commercial policies by providing opportunities for economies of scale (e.g. tariffs). However, they could also create trade diversions by changing the relative prices, thus affecting

specialization and trade (Johansson and Olaberría, 2014). National policies and institutions create spillover effects for trading partners by changing the country's relative productivity for different goods (Helpman and Itskhoki, 2010), as well as through the effects of income and demand (Felbermayr et al., 2009). Last but not least, policy changes that affect relative productivity create spillover effects between countries in integrated global value chains, affecting the entire supply chain through production links (Koopman et al., 2010; OECD, 2012).

Changes in specialization globally also contribute to increasing inequality, redirecting demand from one factor of production to another, which in turn leads to changes in the relative wages between and within different categories of labor. In theory, public policies can reduce the wage gap between skilled and unskilled workers both within the national, as well as in the international economy. For example, policies that promote higher education for the general population can create an increasing wage gap if implemented in an environment characterized by a growing demand for highly skilled workers. At the same time, such policies can generate spillover effects to other countries, affecting the relative wages for skilled and unskilled workers and thus affecting trade flows between countries (Johansson and Olaberría, 2014).

Along with all of this, global value chains have grown at an unprecedented rate over the past few decades, turning the world into a global factory based on strong commitment and close specialization. These processes are directed towards achieving the goal of seeking efficiency and cost arbitrage and have been strongly influenced by both technological changes as a result of the Internet revolution and ICT capabilities, and some trends in the global policies for coordination and liberalization.

Development and role of global value chains in international trade and specialization

The fragmentation of production is the result of structural changes in a number of industries, which are caused by technological development, and allows for the distribution of the production process in different countries and companies. Therefore, a large part of international trade is in practice reduced to a trade in added value, imported into the manufacturing country and is supplemented by nationally added value. The global value chains established by this process change the national production structure and the nature of regional trade flows.

Global value chains (GVCs) are composed of the separate stages involved in the production of a final product or service, with each stage adding value to producing the final good and at least two stages taking place in different countries (Antras, 2020). A company participates in a GVC if at least one part of its production process falls under this definition. Although GVCs are often mainly described in commercial terms, they are largely a function of the production activities of multinational companies (MNCs) (UNCTAD, 2020). In fact, the basis for the development of GVCs is the activity of multinational companies. About 80% of world trade is related to the global supply chains of MNCs (UNCTAD, 2013). The degree of internationalization of production is not the same in different industries and the configuration of international production

systems varies considerably. The manufacturing industry sectors and high-tech production traditionally hold significant positions in GVCs.

International value chains can be described in three main dimensions: (1) the degree of fragmentation and the length of the value chains; (2) the geographical distribution of added value, and (3) the choice of method for managing the stages along the value chains. Several key configurations can be identified for the industries participating intensively in global commercial and investment flows.

The length of GVCs, their geographical distribution and the correlation between these two dimensions are essential elements in the analysis of GVCs (Kano et al., 2020). The level of fragmentation determines the extent to which a value chain allows vertical specialization, spatial separation of individual tasks in the production process, and the use of factor cost differentials in different locations. Productive processes allow for substantial benefits by specializing in specific tasks (economies of scale) or by concentrating on similar and complementary tasks (economies of scope), which lead to the formation of longer value chains.

The length of GVCs has an impact on the other major GVC dimension – the geographical distribution of added value. However, the two are not strictly related. Highly fragmented production processes, for example in the textile, electronic or automotive industries, which are considered to be typical GVC industries, often concentrate most of the added value in a few locations, with most of the labor-intensive tasks placed in relatively low-cost economies, and thus gaining relatively little value. The higher degree of geographical distribution of added value is often encountered in shorter value chains.

The length and geographical distribution of value chains are also a function of whether the production networks are global or regional in nature. UNCTAD's analysis of value added in trade shows that value chains are more frequently regionally rather than globally based. In the last couple of years, regional value chains further emerge and develop in East Asia and North America, contrary to the decline of regional chains in Europe (Miroudot and Nordström, 2019; Santos-Paulino et al., 2019).

However, the length and geographical distribution of GVCs cannot provide a rationale and explanation for the levels of internalization of value added by MNCs. They depend on the level of control they exercise over the separate segments of the value chain. The extents of management and coordination of GVCs range from low levels of control over external suppliers to full control through internalization. Between the two extremes of trade or foreign direct investment, intermediate levels of control over external suppliers in international production processes include contracts, licenses and franchising forms (Gereffi et al., 2005).

The first editions of the UNCTAD World Investment Report in the early 1990s describe the evolution of the global operations of MNCs from relatively simple cross-border structures only a few decades earlier, largely driven by demand for natural resources and international markets, to more complex international production networks exploiting labor costs and productivity differentials. This trend intensified in the 1990s and 2000s, thanks to technological advances allowing for the accurate

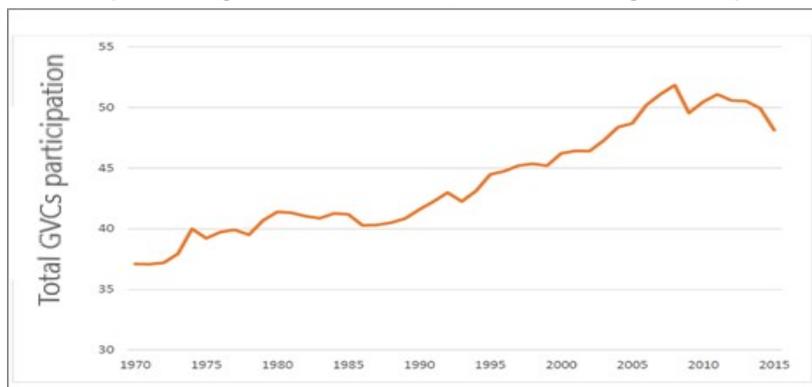
separation of production processes and better communication within complex cross-border supply chains. These technological changes are supported by trade and investment liberalization and the implementation of export-oriented industrial policy measures by developing countries.

Since 2000, UNCTAD has documented in its periodic reports a series of fundamental changes in international production. The FDI patterns change, as developing countries become not only increasingly important FDI recipients, but investors, as well. The structure of FDI is modified as the services sector attracts more foreign investments due to its internationalization and its increasing role in servicing distributed production activities. MNCs adopt a new approach for international expansion where mergers and acquisitions play a major role as corporate structures increase their complexity.

Since GVCs originated in the 80s, they have intensified commercial and transport flows, resulting in the extension and higher complexity of value chains. International business takes advantage of these processes by gaining access to the optimal factors of production from all around the world. The “golden” age of GVC participation contributes to corporate performance in terms of productivity, efficiency and economies of scale. It seems that this trend is reversed after 2009. International fragmentation of production has lost its momentum and GVCs seem to be stagnating in recent years (De Backer and Flaig, 2017). For decades, global goods and services exports have grown by more than twice the rate of the global GDP. In recent years, exports are slowing significantly in relation to economic growth. Recent studies on world trade deceleration prove that the decline in international production fragmentation is one of the factors for the weaker correlation between trade and GDP growth (IMF, 2016; OECD, 2016; Timmer et al., 2016). The mentioned slowdown is clearly demonstrated in Figure 1. It represents the total GVC participation measured as the share of global exports crossing at least two national borders in the total world exports.

Figure 1

Participation in global value chains, as a % of the global exports

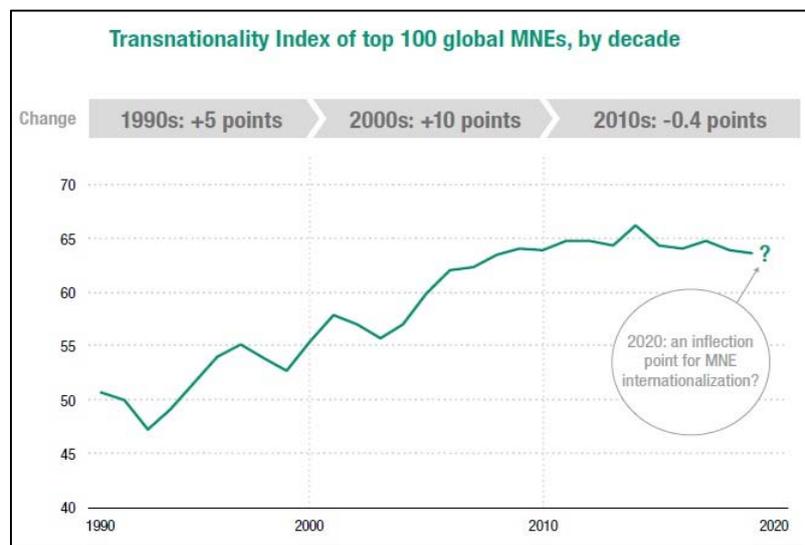


Source. World Development Report, 2020, p. 2.

This observation is supported by the data on the transnationality index of the 100 top MNCs (see Figure 2). The index is calculated by UNCTAD as the average of the shares of foreign assets, sales and employment to the total assets, sales and employment. Both indicators show a relatively steady decline over the last decade.

Figure 2

Transnationality index, top 100 MNCs



Source. UNCTAD, 2020, p. 128.

All these trends lead to the conclusion that even before the COVID-19 pandemic induced a crisis in international trade the business model of highly coordinated and efficient international supply chains was being put under pressure (Pisch, 2020). The ever-increasing political instability, together with some exogenous factors, such as technological changes, raise concerns about the structural sustainability and resilience of GVCs and could be identified as the root causes for their slowdown. These concerns have been confirmed in the wake of the global pandemic crisis.

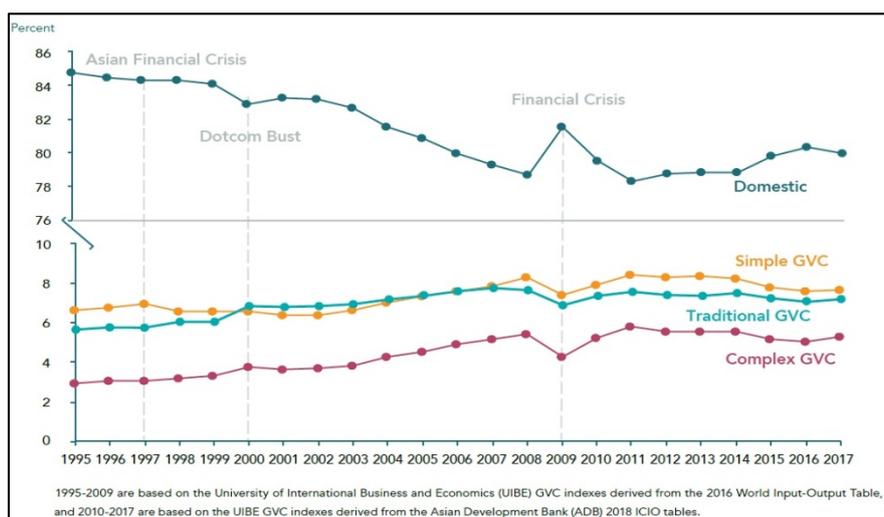
One of the first and indisputable signs for the emerging structural changes in the global economy after 2009 is the abrupt decline of FDI flows, followed by their persistent standstill. In 2010, the flow of international investment in tangible productive assets ceased its increase.

According to the World Bank and the World Trade Organization (World Bank; WTO, 2019), the activities implemented as part of GVCs reduce their share in the world GDP in the 2011-2016 period, whilst the share of entirely domestic production increases. The nominal growth rate of all production activities falls sharply in 2012-

2016, accompanied by a strong decrease in the intersectoral activities of sharing production in the GVCs. The downward movement is mostly pronounced in the activities of complex GVCs, followed by simple GVCs, traditional international trade and internal production. The average annual changes in the 2012-2016 period for these four types of production organization are, respectively: (-1.65%), (-1.00%), (-0.28%) and 1.49%. Consequently, the limited GDP growth registered in 2012-2016 is entirely due to purely domestic production; international trade has minimal contribution during this period of recovery. A decade after the global financial crisis, the participation levels in the GVCs have not been restored: the average world rate of participation (relative to the GDP) is 0.1289 in 2017, while it was 0.1343 in 2007. Figure 3 gives a graphic representation of the described shifts.

Figure 3

Trends in productive activities as a share of the global GDP (by type, for 1995-2017)



Source. World Bank; WTO, 2019, p. 12.

Based on the report of the World Bank and the WTO, it is estimated that the participation rate in GVCs increases by 4.3% annually during the period of expansion before the crisis (2000-2008). This rate drops down by 14.9% during the crisis of 2009, but it restores its previous values in 2010-2011. Nevertheless, the average global rate of GVC participation falls by 1.6% annually after the sharp slowdown in global trade following 2012, mainly due to middle-income countries. Specifically, the GVC participation rate of low-to-middle-income economies and middle-income countries in 2017 is still approximately 2.6% and 3.7% lower, respectively, than their participation rate in 2007 (see Table 1).

Table 1

GVC participation indexes, as share of the GDP

<i>Forward participation index, countries by income groups</i>									
Income level	GVC participation			Simple GVCs			Complex GVCs		
	2000	2007	2017	2000	2007	2017	2000	2007	2017
High income economies	9.5	11.8	12.4	5.6	6.8	7.1	3.8	5.0	5.3
High-to-middle income	11.4	14.1	10.5	7.2	8.4	6.4	4.2	5.6	4.2
Low-to-middle income	10.8	12.4	9.1	6.9	7.6	5.7	3.9	4.8	3.4
<i>Backwards participation index, countries by income groups</i>									
Income level	GVC participation			Simple GVCs			Complex GVCs		
	2000	2007	2017	2000	2007	2017	2000	2007	2017
High income economies	9.3	11.7	11.8	5.8	6.8	6.5	3.5	4.9	5.3
High-to-middle income	12.5	14.1	10.5	7.3	7.7	6.3	5.2	6.4	4.2
Low-to-middle income	11.7	14.2	11.8	7.9	9.3	7.6	3.8	4.8	4.2

Source. UIBE GVC Indicators Database.

Despite the described changes, the loss of momentum in international production does not necessarily reduce the international interdependence between countries, as the use of intermediate commodities, specifically from China, continues to increase (Baldwin and Freeman, 2020). The spatial concentration of some essential produces increases the systemic risks in international production – as it was observed during the COVID-19 induced crisis.

During the 2000-2017 period, the share of intra-regional GVC activities in Asia outweighs the North American one (World Bank; WTO, 2019). Furthermore, contrary to the Asian trends, the share of intra-regional GVC activities in North America and Europe relatively declined, while their participation in inter-regional production sharing activities are increasing. This is true specifically for their sharing activities with Asia, reflecting the increased dependence on China. Europe registers a larger decline in complex GVC activities compared to simple GVC activities. Intra-regional participation in complex GVC has decreased by 6.7% in the last decade – from 47.6% to 40.9%. Similarly, the intra-regional complex production sharing activities have decreased by more than 8%, from 41.1% to 33.0% (based on data from the WTO). The share of inter-regional production sharing activities between Europe and Asia, and the rest of the world increases.

Based on this data, it can be concluded that Asian economies are increasingly turning to each other and building intra-regional production linkages, while the developed economies of Europe and America are increasing their inter-regional connections with Asia. Asia's importance grows both on the global stage and as a stand-alone region. A closer look at Factory Asia reveals the increasingly essential role of China as a supply and demand center in traditional trade and simple GVCs. China is placed at the end of many Asian supply chains as it imports complex components from Japan, South Korea and Taiwan and it assembles them as final products. Two thirds

of the total imports of ICT intermediate products from other Asian economies, Europe and North America are used as inputs in Chinese exports.

The presented data clearly shows that the GVC expansion is uneven. On the one hand, there are regions in the world (such as Europe and East Asia) which are deeply involved in GVCs, while other regions are characterized by much less GVC participation (Latin America and Africa). On the other hand, the sectoral composition of GVCs is quite diverse. Some countries are mainly specialized in agricultural or natural inputs; others participate largely in the manufacturing segments of the GVCs. Developed countries take part in high-tech (or advanced) high-quality productive processes.

The analysis of the periodic UNCTAD reports shows that the same factors that drove the earlier boom in the internationalization of production (*a wave of liberalization policies and export-oriented growth policies; decreasing trade costs; and technological advances allowing for the fragmentation of production processes and the coordination of complex supply chains*), are now reversing their impact with protectionist policy measures; gradually decreasing FDI returns; and increasing technology-enabled asset lightness. The boom in international production up to 2010 is due to the liberalization agenda of major economies, the facilitating political environment and favorable technological development. Changes in the impact of the same three factors result in the stagnation of international production after 2010 (see Table 2).

Table 2

Key factors for the development of GVCs

1990-2010 Factors for expanding GVCs	2010-2019 Factors for contracting GVCs
Liberalization and export-oriented growth policies	Return of protectionism and political instability
Factor costs differentials and decreasing transport costs	Freeze in FDI
Technological changes facilitating GVCs	Digital technologies facilitating production with small pre-investment in assets

Source. UNCTAD, 2020, p. 126.

The contemporary challenges for the international production system related to the new industrial revolution, the growing economic nationalism and the ever-increasing pressure for sustainability, raise the issue of whether the observed decline in GVC participation since 2008 will continue in the decades to come and how this would affect the world economy.

The changing nature of international specialization

During the first decade of the new millennium, trade in final goods and services has been growing steadily at a rate about 2 times higher than the rate of growth of the global GDP (according to the World Bank). During the period 2001-2008, the share of world trade in the global GDP increased from 49.8% in 2001 to 60.7% in 2008. As already mentioned, this trend runs parallel to the growth of trade within global value chains and the intensified expansion of trade in intermediate crude materials, which

reflects the increased internationalization of production. Purchases of intermediate crude materials from foreign countries are increasing in the supply chains of many industries, thus reducing the domestic value added in exports. Imports of intermediate goods account for more than 50% of trade in goods and about 70% of trade in services (Miroudot et al., 2009), and in many countries the growing share of intermediate imports from abroad ends with the production of final consumer goods for export. As a result, the contribution of domestic production factors to exports in most countries is declining, especially in smaller (and more open) economies compared to larger or resource-rich ones.

Although the period following the global crisis of 2008 has not been characterized by such a dynamic increase in world trade, foreign trade flows have stuck to relatively stable levels of around 59% of the global GDP, close to the pre-crisis levels. This reflects a rapid recovery in trade, although there is no growth compared to the period 2000-2008. The last decade has been a period of consolidation of the accumulated changes in the nature of international production and trade, as reflected in the nature and intensity of global value chains, trade in final goods and services and international specialization.

The differences in the value added of exports in different countries reflect the differences in the sectoral composition of trade between them. In general, the trend is for value creation to be higher in services than in production, which reflects the lower presence of foreign intermediate raw materials in services compared to actual production. By default, the degree of international fragmentation of production is higher than in services. In fact, the value chain (measured by the number of production stages), especially the foreign part of such a supply chain, is longer in industries such as communications and electronics, motor vehicles, metallurgy and textiles than in wholesale and retail, and other business services (Johansson and Olaberría, 2014).

As a result of the growing importance of global value chains, the production process is beginning to be perceived in a new way – in terms of specialization in tasks and business functions, rather than in specific products (Grossman and Rossi-Hansberg, 2006; 2008; Baldwin and Robert-Nicoud, 2010). Two countries may specialize in the same industry but do so at different stages of the production chain (e.g. upstream or downstream) or in different functions. Thus, a country's ability to create added value from trade depends not only on the structure of trade, but increasingly also on its comparative advantages in performing certain tasks within the supply chain, which are associated with high added value. A number of studies show that most of the value is created in activities related to “going up” (innovation, R&D, design, etc.) and “going down” (marketing, branding, logistics, etc.), while the pure stages of production and installation usually add little value (OECD, 2012). To some extent, the shift to the reallocation of tasks based on geographical location has been facilitated by the development of information and communication technologies (Lanz et al., 2011), and the effect of this phenomenon is further enhanced by increasing investment in certain types of knowledge-based capital.

The fragmentation of production in recent decades can affect the demand for different types of skills in different countries, reflecting both the relocation of business activities and the trade in tasks. In an integrated global supply chain, firms move part of the production process to countries where the availability and cost of production factors are most favorable to these specific activities. Countries carry out activities within a specific supply chain where local value added is intense due to the relative factor abundance or the ability to work in them, and this has implications for the distribution of demand for different skills between countries.

One possible explanation for the declining demand for lower-skilled labor in advanced economies is the integration of less developed countries in the world economy, which have a relatively large number of low-skilled workers, and the concomitant export of production from richer countries to lower income countries (Feenstra and Hanson, 1996). However, these trading models cannot explain the overall increase in demand for higher skilled labor (and wage gaps) in both advanced and developing economies (Van Reenen, 2011; Kierzenkowski and Koske, 2012). This phenomenon often results from the introduction of new technologies or changes in production technology that favor skilled workers by increasing their relative productivity and therefore the relative demand for them (Katz and Murphy, 1992; Autor et al., 1998; Greenwood, 1999; Acemoglu and Autor, 2011). Skill-dependent technological change and trade are interlinked – trade can bring about such technological change, which in turn can create opportunities for trade. This makes it difficult to fully separate their effects on the demand for skills (Autor et al., 2003; Acemoglu, 2003). Finally, changing consumer preferences and consumption patterns can shift demand for different types of goods and affect the demand for skills in different countries (Los et al., 2014).

Policies and institutions also affect trade and specialization. The main arguments for the attempts to intervene in specialization through policy support in specific sectors are the presence of externalities, the economies of scale or the market failures that hinder the efficient allocation of resources (Harrison and Rodriguez-Clare, 2009). Any policy involving “choosing winners” is difficult to implement. Given this difficulty, industrial policies often lead to pollution, concentrate on inefficient activities and encourage the demand for rents. However, there are also a number of policies identified in the literature as important drivers of bilateral trade, including selective trade and industrial policies (e.g. in the field of tariffs), financial development and product and labor market regulation (Nunn and Trefler, 2013; Hausman et al., 2007; Nicoletti et al., 2003).

Among the most commonly cited grounds for the imposition of tariffs (also used in the still raging trade war between the United States and China) are that they can support the growth of local production, allowing for economies of scale, which promotes efficiency; that they can prevent below cost dumping of foreign goods; and that in some countries, especially in developing ones, they are an important source of government revenue. However, tariffs usually have an adverse effect on trade and general welfare, as they disrupt production and raise consumer prices. Other taxes may be more effective as a source of revenue. For example, because tariffs

impact both production and consumption decisions, they create greater inefficiencies than consumption taxes (Emran and Stiglitz, 2005). Tariffs can also affect trade patterns and industrial structure by raising the price of intermediate crude materials. Besides imposing costs on businesses, tariffs on such goods may restrict access to more types and higher quality ones and thus further reduce competitiveness in international markets (Grossman and Helpman, 1991; Amiti and Konings, 2007).

Tariffs on intermediate crude materials can have an adverse effect on the structure of both production and trade (Johansson et al., 2014). According to OECD estimates, if tariffs on electronics (a sector that relies heavily on imported crude materials from the same industry) are to be reduced to the average level in a country where such tariffs are high (e.g. Brazil), electronics exports could increase by 26% (Johansson and Olaberría, 2014). In addition, this type of tariffs not only affects exports in the same industry, but also has a significant negative effect on the exports of downstream industries. For example, if a country with high textile tariffs (e.g. South Africa) reduces them to an average level, exports of clothing from that country where the input materials are used to produce more than 40% of the textile products will increase by more than 30% (Johansson and Olaberría, 2014).

The adverse effects of import tariffs on trade increase over time. This probably reflects the growing importance of global value chains, as the fragmentation of production increases their impact and generates spillover effects that go beyond the impact of tariffs on trade with direct trading partners (Koopman et al., 2010; OECD, 2012). In the integrated value chains, the imposition of tariffs on a foreign product at a given stage affects the whole chain through back-and-forth links.

The capacity of countries to reap the full benefits of trade integration by adapting their industrial structure depends on their ability to redistribute resources between sectors and firms. Several studies have found that well-functioning financial, labor and product markets improve the ability to continuously reallocate resources in order to use them efficiently (Levine, 1997; Andrews and Cingano, 2012; Barone and Cingano, 2011; Arnold et al., 2008), and that this has positive implications on growth.

Scenarios for the future of global value chains

According to UNCTAD (2020) estimates, the international production system is currently in a state of “perfect storm”. The decade leading up to 2030 could be defined as a period of probable transformation. Three possible trajectories of international production reconfiguration could be outlined for the period. All of them point to a withdrawal in the internationalization of production to a certain degree. Two of the trajectories (re-shoring and regionalization) include weaker GVCs. The third alternative scenario of diversification may result in the growth of value chains, but their nature might be more concentrated in terms of geographical distribution of added value (larger concentration and proximity of separate production nodes).

The most drastic scenario for transformation is the one envisioning re-shoring to countries of origin. This would contract GVCs considerably. Automation and robotization

advances would play a key role in this scenario. They would make the process of production more efficient and cheaper even in high-income economies. This would mainly affect the high-tech sectors that are intensively involved in GVCs.

Although this strategy involves withdrawing investment and production processes out of developing countries and moving them back to developed economies, Antràs (2020) recognizes that productivity gains generated by automation in developed economies can increase demand for intermediate inputs, many of which are supplied from less developed countries. In addition, these technological innovations would have a significant effect only in the long run. Firstly, the establishment of fully robotic production usually takes years. Secondly, it should be kept in mind that a possible reorientation of companies towards national or regional production would mean assuming significant sunk costs from investments already made in emerging economies. This may slow down the effect new technologies would have on the restructuring of GVCs. This scenario might contribute to rethinking corporate strategies when launching new production activities and their localization. However, it might not affect existing links and production systems.

The diversification scenario will provide a solution for the riskiness entailed in excessively long GVCs and in the concentration of too many key production stages predominantly in one partner. Following this trajectory, companies would have to give up certain economies of scale by including more locations and suppliers into the value chain. A key role will be played by digitalization technologies. This scenario may be realistic mainly for the services sector and the industries actively involved in GVCs.

The GVC regionalization scenario might be described as the most conservative one, but also the most realistic. It may be said that there are already signs that it has started, at least, partially. Factory Asia and Factory America show a clear tendency for value chain regionalization, while Europe is lagging behind the trend. Value chain regionalization might be the result of either a withdrawal from GVCs or an upswing in international specialization on a regional scale. Going from a global to a regional production system results in the geographical proximity of value chains. Digitalization plays a major role in facilitating coordination within the regional value chains. The reproduction of entire chains of production in a single region implies a significant increase of complexity with the need for vertical and horizontal coordination of international production (UNCTAD, 2020). The intensiveness of regional economic cooperation and industrial policy measures will determine the speed of building regional value chains.

The common feature of all three scenarios lies in the fact that each one of them places low-income economies in an unstable and unsustainable position. International production (mainly, fragmentalization) has been their growth driver for decades and many of the poorest countries count on attracting foreign direct investments and participating in GVCs due to the fragmentalization of the value chains. This would mean that the implementation of the above scenarios, even to a varying degree and in different combinations, might increase global inequality.

The OECD study on the future of GVCs (OECD, 2017) attempts to model a combined scenario involving new global manufacturers, growing demand in developing countries, larger labor costs and production automation and digitalization. The results show that the negative impact of the factors is greater than their positive effect, leading to a dramatic restructuring of GVCs. The OECD estimates that the international distribution of intermediate production will decrease by 1% by 2030, while product exports will decrease by 0.9%. The manufacturing industry is the most affected due to the great importance of GVCs in the industry.

The negative trends in GVCs will also negatively affect international trade as it is expected that the global trade/GDP ratio will fall by 4.1% in 2030. The expected changes will be slightly larger for developing countries; however, the OECD economies will also be affected by the contraction in the GVCs. The model predicts that the North-North trade will gain importance relative to the South-South trade. The length of intra-regional value chains will increase, contrary to the slight decrease of the length of the inter-regional value chains.

As the processes of re-shoring, diversification, and regionalization of GVCs unfold, three criteria will be added when projecting the future design of international production: (1) more sustainable and resilient supply chains, (2) which are less vulnerable to crises and less contagious both in physical terms (pandemic) and in economic terms (economic and financial contagion); and (3) lower propensity to spatial concentration of industrial capacity, increasing the strategic reliability of value chains. It is expected that this transformation will affect less developed and developing countries to a larger extent, because they would face the need to search for a new growth model that would integrate them into the global economy. Nevertheless, the decrease in GVC complexity and length does not necessarily mean a drop in international trade. The expected changes in global value chains are an integral part of the general trends affecting the future of international specialization and global trade.

Scenarios for trade and specialization until 2060¹

Over the next 40 years, the world GDP is expected to grow at an average rate of about 3% annually, but to also decline in many countries. By 2030, global growth will be supported by the growing participation of China and India in high, albeit declining, growth. After 2030, rapid development in Africa is expected to accelerate global growth. The trend in OECD countries is for the GDP growth to be around 2% per year by 2060. Emerging economies will continue to outpace the

¹ The study in this section is based on a prognostic model developed for the OECD in Johansson and Olaberria, 2014, and summarizes their results. The data used are from World Development Indicators. Available at <https://databank.worldbank.org/source/world-development-indicators>, last accessed on 14.12.2020.

developed countries in this indicator, however, in the near future, the gap will narrow as incomes in developing countries reach these in OECD. As a result, over the next 40 years there will be changes in the share of individual countries and/or regions in the world GDP. Faster growth rates in developing countries suggest that by 2060, the combined GDP of non-OECD economies will account for about 60% of the world GDP, rising up from about 40% in 2012.

Trade growth (total exports of goods and services) is expected to continue to outpace GDP growth over the next 40 years, with world trade increasing by about 3.5% per year (compared with 6.9% in the period 1990-2007). Data on trade growth over the last decade (2011-2019) confirm this forecast: world trade is growing by an average of 3.6% per year, while the global GDP is growing by an average of 2.82%. Trade-to-GDP elasticities are projected to be weaker than in the period before the global financial crisis. The lower resilience partly reflects the fact that in the future, countries contributing to global growth will rely less on export-oriented growth than in recent years. This partly implies that the intensity of fragmentation of global value chains will slow down, as there are physical constraints on the possibilities for the fragmentation of production and the various tasks (Fontagné and Fouré, 2013), and the effect of the technological, economic and political processes, considered under the scenarios for the future of value chains will develop in the direction of some contraction or regionalization of GVCs.

Regarding the geographical distribution in trade models, there will also be major transformations caused by the uneven development of incomes around the world, as well as by the changes in the composition of consumption and in relative productivity. China and India are projected to gain a market share in world trade in the coming decades, although, after 2030 the rapid rate at which China's trade share will increase will decrease due to a slowdown in GDP growth. Similarly, Africa, Indonesia and other Asian economies are expected to increase their trade shares significantly, especially after 2030, registering rapid growth, which in turn would lead to economic growth coupled with low production costs. This growth in the trade shares of emerging economies will be mainly at the expense of weaker trade results in the Euro area – it is assumed that by 2060 its share in exports will decline to approximately 12%. At the same time, due to the relatively more favorable growth forecasts compared to the Euro area, the decline in the share of some OECD economies (e.g. the United States and Canada) is expected to be milder.

The changing geographical distribution of trade is also reflected in changes in the relative importance of different groups of trading partners. About half of the total bilateral trade now takes place within the OECD, but bilateral trade between its members is projected to halve by 2060. On the other hand, trade between economies outside the OECD will more than double, reaching approximately one third of the world trade. During the forecast period, trade between Asian countries will increase from about 6% to 16% (the strengthening of interregional production ties will also play a role). At the same time, the OECD will increasingly import products from countries

outside the organization (participation in extra-regional value chains), while the share of the latter in the world imports will remain more or less unchanged. Ultimately, the geographic center of trade is projected to shift from developed to emerging economies over the next 40 years.

The relative importance of different countries and regions in specific markets will also change significantly in the coming decades. This is mainly due to differences in growth, changes in relative productivity and production costs, as well as a shift from consumption in emerging economies towards services. In particular, China, India, other Asian economies and Africa are expected to become dominant players in manufacturing, while most OECD countries will lose ground. For example, Japan, South Korea and the United States will lose their comparative advantage in the field of electronics over China and other Asian countries, which by 2060 are likely to account for 70% of the world exports in this sector.

The share of emerging economies (e.g. China, India and African countries) in the world market will increase significantly even in terms of the trade in services. The reason is that these countries will focus on more innovative activities, because, combined with the larger size of their economies, they will also become richer. The shares in the trade in services of China and India will increase mainly at the expense of the Eurozone, the United States, Japan and the United Kingdom. One explanation for this is that some service sectors are usually characterized by low levels of productivity. Therefore, access to cheap labor is relatively important for these sectors, and although labor costs are rising in developing economies, they are still lower than in most developed economies.

Despite the reduction of tariff and non-tariff trade barriers in recent decades, especially on industrial products, there are still significant barriers globally. Regulatory barriers to trade in services, agricultural subsidies and transaction costs for certain goods remain high. Removing trade barriers can lead to GDP and welfare growth, but at the same time it may have side effects on income distribution. It is possible that income inequality will increase within countries, even if the average income gap between countries decreases.

Trade liberalization can take place globally or regionally. As noted, multilateral negotiations between a large number of countries are inherently difficult, while regional trade agreements between a limited group of relatively similar countries allow for the negotiation of rules and commitments that go beyond the scope of what can be done in a wider forum. However, regional integration can cause trade discrimination and loss of wealth in some countries. To the extent that it generates a diversion of production from efficient producers not participating in the agreement to ones that are inefficient but included in it, it may lead to a loss of efficiency. In some cases, regional integration also promotes regionalism, which potentially hinders trade liberalization at the global level.

The combined impact of all these factors, in different direction, with different intensity and with direct effect on individual industries, leads to a gradual change in the structure and logic of global business.

Summary of the conclusions and recommendations for Bulgaria

Given the dynamic and structural changes on a global scale in recent decades, the following general conclusions can be drawn with regard to international trade and specialization:

- The expansion of global value chains leads to a completely new understanding of what the production process is in terms of specialization in tasks and certain business functions, rather than specific products and services.
- A country's ability to create added value from its participation in international trade would depend on building/sustaining competitive advantages in tasks or stages within the supply chains which add higher value. This would mean focusing on activities before and after the production process, as the production by itself adds little value to the final product.
- Changing consumer preferences and consumption patterns (personalization and greater proximity to the end user) can shift the demand for different types of goods and affect the demand for skills and the specialization of some countries.
- Policies and institutions have a significant impact on the external trade positions of countries, but traditional protectionist policy, based on tariff and non-tariff barriers, would likely have a negative impact on the highly fragmented international trade, which is currently being dominated by the movement of intermediate goods and inputs.
- In the future, the now emerging economies, which are likely to become future regional and even global leaders, will rely less on export-oriented growth, thus reducing the trade-to-GDP elasticity.
- Over the next 40 years, the geographic trade center will shift from the developed to the developing economies. This process will contribute to stronger GDP growth and will intensify regional trade links between them. The dependence of emerging economies on the developed world will relatively decrease.

These conclusions about current and future trends in global trade and product specialization are further confirmed by the reported and expected processes in global value chains' structure and design:

- The relentless pursuit of efficiency in production, which stimulated the extensive expansion of global value chains in the 1990s and 2000s, is now an exhausted strategy for corporate growth. Since 2009, international production fragmentation has been losing momentum and GVCs appear to have stalled in recent years.
- The first and one of the most definitive signals that the international economy has been experiencing structural changes since 2009 is the sharp decline, followed by a steady stagnation of FDI. In 2010, the flow of cross-border investment in physical productive assets stopped its growth. There has been some transformation in the role of East Asia from a FDI recipient to an investor and exporter of manufacturing activities to other countries.

- In the last few years, the regional nature of value chains has intensified in East Asia and North America, although it has been declining in Europe (the same applies for the OECD countries, where over 70% of the members are European economies).

- The scenarios for the future development of GVCs include processes of reshoring, regionalization and diversification, which will manifest themselves to varying degrees both in terms of overall structural changes and in relation to different regions. These scenarios and their actual manifestation depend on several factors: (1) the effect of technological innovations such as robotics, digitalization and 3D printing on the nature of production activities and the services sector; (2) the extent to which multinational companies will move away from complex dispersed value chains to reduce risk; and (3) the rise of formal and informal regional cooperation, specifically in the developing world.

The contraction in domestic and external demand and the slow economic recovery following the global crisis of 2007-2008 present an impetus for researchers to try to find new sources of economic growth. The uneven effect of the crisis causes a significant slowdown in the most developed countries, especially those in the EU, while the less developed ones can progress and reveal significant market potential. In the search for accelerators of economic growth, expanding markets and focusing on new opportunities can be a powerful factor in overcoming the slow recovery.

Dramatic changes in the contemporary global system of international economic relations require taking strategic decisions and precautionary measures in order to ensure comparative advantages and the competitiveness of the national economy.

Bulgaria's national interests in the EU overlap to a larger extent with the mid-term Community interests at the international stage. Europe is losing its competitiveness in global markets and is lagging behind the aforementioned trends of regional adaptation to the new global realities. There is a lack of a common vision of the EU's place in world markets and value chains. There is also no clear strategy on the positions of each Member State and the structural characteristics of the Union. The predominant approach involves delegating responsibilities to national governments (through national authorities and specific measures on the national level) to develop individual measures not conflicting with European law. However, national governments are not free to take vertical measures for boosting competitiveness, which in turn leads to ineffective, palliative actions. On the other hand, the national approach is not effective enough because it lacks complementarity and a coherent common external approach. This strategy turns Member States into direct competitors at a time when the EU must act as a single player in the world markets in order to compete with major competitors such as the US, China, Japan and South Asia.

Given that intra-EU trade is the predominant export for most of the new Member States, including Bulgaria, one question regarding the intra-EU trade gains huge significance: Is it acceptable for more competitive economies to ensure economic growth through trade, mainly with less competitive Member States, given that there is no corrective mechanism for the structural divergence between them? Given the

existence of a multi-speed Europe, with Bulgaria being in the group of the laggards, the implementation of common, joint measures would be inapplicable and rather harmful to the economies of the lagging Member States. The differentiated approach, however, does not mean delegating all responsibility to national authorities. The EU level decision-making might be too large-scale, while the national level is too small-scale. A regional focus on policies to ensure better foreign trade positions would ensure tailored, effective measures for national and regional specialization and development.

The deepening of foreign trade relations and their expansion could be both a key factor for opening different perspectives before the Bulgarian economy, and a catalyst for its development. In this regard, Bulgaria must look for ways to sell its competitive products in the most promising markets.

As a small and open economy and a member of a highly developed integrated community, Bulgaria does not have too many opportunities for large-scale production, and thus, for achieving economies of scale in potentially competitive products. The external marginalization of the Bulgarian economy would include focusing on trade only within the EU market, producing goods and services positioned low in the global value chains that benefit large producers in developed Member States. This outcome could be avoided with carefully tailored and selected measures. The complex nature of modern forms of international specialization requires a systematic approach for the assessment of the degree of specialization by sectors. This requires a thorough estimate of the changes in the national industrial output, while the participation in GVCs should be targeted by specifically designed foreign economic policy measures. Thus, by applying the right analytical tools, it would be possible to identify a few competitive high value-added national productions, whose domestic added value is greater than their external value added, and which can be traded both inside and outside of the EU.

The implementation of this strategy requires a permanent, consistent, and active state policy – both domestic (strengthening these industries) and external (promoting products to potential foreign markets). Furthermore, Bulgarian public administration and business must participate actively and effectively in the development of EU trade policy in order to defend Bulgarian national interest.

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