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## **STRUCTURAL CHALLENGES FOR THE BULGARIAN ECONOMY DUE TO THE PRESENCE OF GLOBAL VALUE CHAINS**

Changes in the trade and economic relations of Bulgaria under the influence of Global Value Chains have been analysed. The changes in the value added trade of the national industries under the influence of the country's participation of a country in the integration processes were have been examined. The characteristic structural elements of the foreign trade flows have been identified and the impact of the international trade regulatory framework on the country's external economic environment has been assessed.

JEL: F14; F15

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The open nature of the Bulgarian economy and the its membership in the European Union (EU) determine considerably to the foreign economic orientation of the country to a great extent. Changes in the production nature of world trade flows are present a challenge for the national economy and determine the search for approaches towards the adaptation and development of the sectoral structure.

Globalization processes are including more and more production areas and thus lead to an increase in commodity flows between countries and companies. This affects the structure of trade, leading to the diversification of commodity flows through the exchange of goods with a partial degree of readiness and products for further processing. In a number of industries, the production of large companies is limited to the assembling of delivered parts. This is the result of the companies' efforts to reduce production costs as a way to increase their international competitiveness.

The classical forms of international trade – with the production taking place in one country for the produce to then be sold to another – currently account for about 30% of world trade. As a result of the changes in recent decades, 70% of international trade includes services, raw materials, parts and components (OECD, December 2018). This is the result of the functioning of the Global Value Chains (GVCs), which extend their production in different countries and direct both their investment flows and their production activities in areas with raw material provision and labour resources. The use of information and communication technologies makes it possible to increase the share of trade in production factors and to grow the competitiveness of companies. The 2008-2009 crisis broke halted the growth of trade and stimulated the enlargement expansion of the scope of the GVCs and their focus on the regional restructuring of the trade flows.

Dissemination The dissemination of production, which is the result of structural changes in a number of industries, is caused by technological development and

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enables the organization of the production process in different countries and companies. This is why a large part of international trade in practice is limited to trading in value, which is imported into the producer country and is complemented by the national value added. The GVCs created in this way change the national production structure and regional trade flows.

### **Models for the formation of Global Value Chains**

The development of industrial and commercial ties leads to the search for an adequate theoretical approach to the impact of the changes in the organization and the efficiency of the production process on modern international trade. From the point of view of the approaches of classical international trade theory in recent years, the impact of globalization on industrial interactions as a means to increase the efficiency of the functioning of the companies could be noted (IBRD, 2017, p. 16). This in turn creates the opportunity for product diversification of the production structure itself and the possibilities for its subsequent fragmentation.

On this basis, Richard Baldwin (2013) determines the historical chronology of the division of production and its linking to global chains. The development of the industry at the beginning of the last century is characterized by the concentration of production in large production units. The reduction in trade costs determines the first division of the production process and the development of information and communication technologies stimulates the second division of production in different countries.

The developed model of vertically integrated companies is the basis for finding ways to reduce production costs, thus becoming a prerequisite for the development of value chains. The proliferation of production in different countries is used by multinational companies as a means to influence the distribution of the value added in other regions. In such a way the coordination of different productions becomes a competitive advantage of firms, deciding the paradigm of whether to produce or to buy (IBRD, 2017, p. 28). Prerequisites for the expansion of the application of international business operations and finding alternative corporate solutions for the realization of international business are created (Vasileva, 2011). In the establishment of value chains, the final product can be created via subsequent addition (by increasing the supply of different components) as well as through subsequent substitution (by exporting activities such as assembling of products, distribution and after-service, depending on the market elasticity) (IBRD, 2017, p. 23).

The change in the amount of value added at the national level is conditioned both by the combination of factors of production and the product produced in the country, as well as by the foreign value added transferred to the gross national product. Given the different share of the sectors in the national economy, the value added affects the length of the production process and changes to some extent the structure of the trade flows. Thus, the GVCs diversify trade flows and make them an essential component of the national production structure.

There is also a pattern of inclusion in Global Value Chains – research shows that the US is involved with the use of a set of intermediate products, parts and

components, which is carried out with the export of foreign direct investments. China is joining the GVCs by exporting assembled final products, mainly by attracting foreign investments (IBRD, 2017, p. 60).

The accession of the countries of Central and Eastern Europe to the EU has led to their inclusion in the European Global Value Chains and the expansion of the trade in intermediate goods. The process leads to an increase in the trade in high-tech products for post-processing at different levels of export diversification. Such a high degree of interdependence is also observed in the exports of intermediate products from the manufacturing industry from Mexico to the US – nearly 70.4% in 2015 (IBRD, 2017, p. 62). Such a trend is also observed in the trade with Canada. As for the trade with the EU and the US, Asian countries follow China's pattern – reducing trade in intermediate goods and growing trade in final goods.

On this basis, it is necessary to estimate the changes in the national sectoral structure and to define the approaches of the foreign economic policy considering the participation in the GVCs. This approach makes it possible to compare the changes in the different sectors of the economy with the external economic impact from the point of view of exports and imports. Bulgaria's participation in the GVCs is presented in a study by the World Bank on the role of Global Values Chains in economic development. It is pointed out that the expansion of the presence of foreign firms increases the share of the national value added in exports and activates the foreign trade commodity exchange in terms of imports (Taglioni & Winkler, 2016, p. 40). A survey by N. Ivanova and E. Ivanov (2017) assesses the ratio of carried value and added value in key sectors of the Bulgarian economy in terms of their participation in the GVCs and their export opportunities.

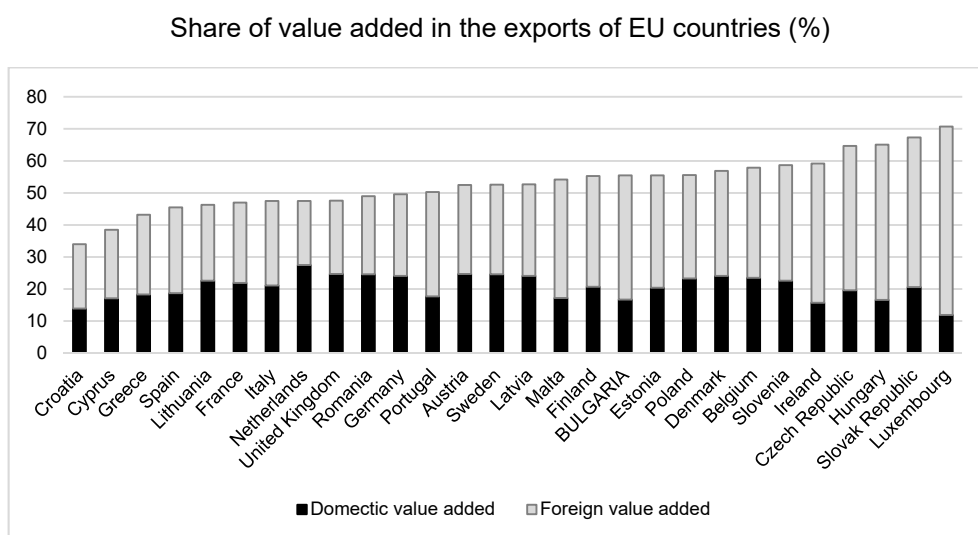
Trade with value added is related to changes in the investment process both by national business entities and through the presence of foreign direct investment. This is due to the fact that inclusion in the Global Value Chains follows the interaction between structural changes and investment flows.

The change in trade flows and their structure is the result of changes in the production model after 2012. The global financial crisis caused a shift in the established production links and the response of the GVCs is a shift towards other production centres. The analysis of such international trade and economic interactions uses both the national accounts data for the creation of the value added and the complementation of the imported added value for the purpose of exporting the product to its final destination. These assessments are complemented by the regional nature of such trade flows and they broaden the scope for defining them within national accounts. At the cross-border level, GVCs create economic systems for certain countries and regions. They are defined by the imports of intermediate products from which an export product is produced, in certain cases for further processing or assembling. Thus, international trade becomes part of the production process, although it is traditionally defined as export (or import, respectively).

The assessments of the value added in the export of the countries which are members of the World Trade Organization (WTO) (WTO, 2016) represent the

differences within the EU when it is divided into foreign and domestic value added (Figure 1).

Figure 1



Source: WTO (2016). Trade in Value Added and Global Value Chains, for the countries concerned.

The data in Figure 1 shows that Bulgaria stands roughly at an average level compared to other EU Member States, however, it is among the countries with a high share – over 50%. In terms of domestic value added, it is among the countries with the lowest levels, preceded only by Luxembourg, Croatia, Ireland and Hungary. In the case of foreign value added, Bulgaria is among the countries with the highest level, preceded only by Ireland, the Czech Republic, Slovakia, Hungary and Luxembourg. For these countries, the commodity exchange is strongly linked to their involvement in global value chains.

Participation in GVCs is linked to changes in the production organization and employment structure. The fragmentation of production is related to specialization and, to a certain extent, to shifting employment in the sectors with external economic orientation.

Within the EU, the share of those employed in the production of finished products for the period 1995-2011 in Estonia, Belgium and the Netherlands has decreased, while in the other countries of Central and Eastern Europe it is increasing – only Ireland and Hungary surpass Bulgaria (OECD, 2016, p. 7). This range of countries has the largest relative share of workers who are (directly or indirectly) engaged in the production of export goods – in Bulgaria it is estimated at around 43%. As a structure, they are nationally specific – for Bulgaria the Primary sector

takes up 22%, Manufacturing takes up 29%, Transport and Telecommunications hold 9%, Distribution, Finance and other business services amount to 28%, and Other services take up 13%. The structure of employment in neighbouring countries as well as in Lithuania and Latvia is similar (OECD, 2016, p. 12). The regional trade of Bulgaria and other EU countries is mainly concentrated in Europe, which can be noted for most of the OECD countries as well.

After 2014, the growth in export-oriented production in Asia slowed down, which led to restructuring in the direction of organizing international operations and creating additional trading conditions for the functioning of the GVCs. On the one hand, this has prompted the introduction of tariff and customs relief for the commodity trade for further processing, as well as the extension of trade agreements on a regional basis. Thus, expanded import opportunities have become a factor in increasing firms' competitiveness, especially in terms of their participation in the GVCs (OECD, 2018). Additionally, trade with value added requires significant involvement of the service sector, and of business services that stimulate export opportunities for companies in particular (Ivanova & Ivanov, 2017, p. 28-31).

These changes are a prerequisite for a detailed analysis of the structure of value added at the national and the sectoral level in Bulgaria and the impact of foreign economic factors. The assessment of the participation in the GVCs is based on the data of the National Statistical Institute in the section "National Accounts" – "Production" account divided by economic sectors and by economic activity groupings at current prices. It corresponds to data taken from the Information System "Foreign Trade" – the export and import section of the Classification of Economic Activities.

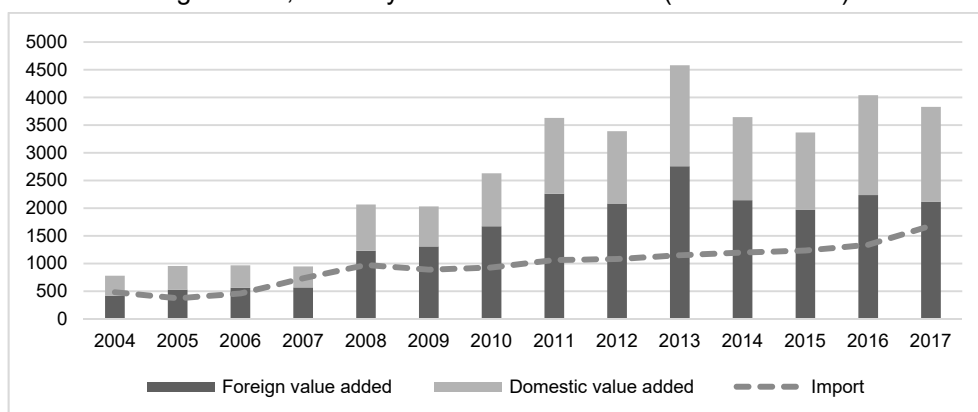
Value added in exports is determined by the share of gross value added of the economic sector concerned, and by the economic activity group in gross output for the relevant year. The import in the relevant product group is compared to the intermediate consumption in that classification. Only those sectors that report foreign economic activity are included in the analysed groups.

In the analysis of the sectors of the economy, where participation in the GVCs is observed, "Agriculture, Forestry and Fishing" (A), "Mining and Quarrying" (B) and "Manufacturing" (C) and services are considered, – activities in the foreign economic sector ("Wholesale and retail trade; repair of motors" (G); "Information and Communication" (J); "Professional, Scientific and Technical Activities"(M); "Arts, Entertainment and Recreation" (R)) are included. The selected sectors can be compared to the data presented in the Global Value Chain Report (IBRD, 2017).

For the "Agriculture, Forestry and Fishing" group (A), the data show a significant increase in external trade after the accession to the EU (see Figure 2). It is conditioned both by the growth of domestic value added and the opportunities to realize the benefits of increased imports. The decline in recent years is the result of joining the retail chains and exhausting the effects of joining the Single Market. The restructuring is associated to a small extent with the crisis in 2009 and, to a greater extent, with the changes in the behaviour of Global Value Chains in 2011. For this reason, the export presence of this type of product was restored after 2015.

Figure 2

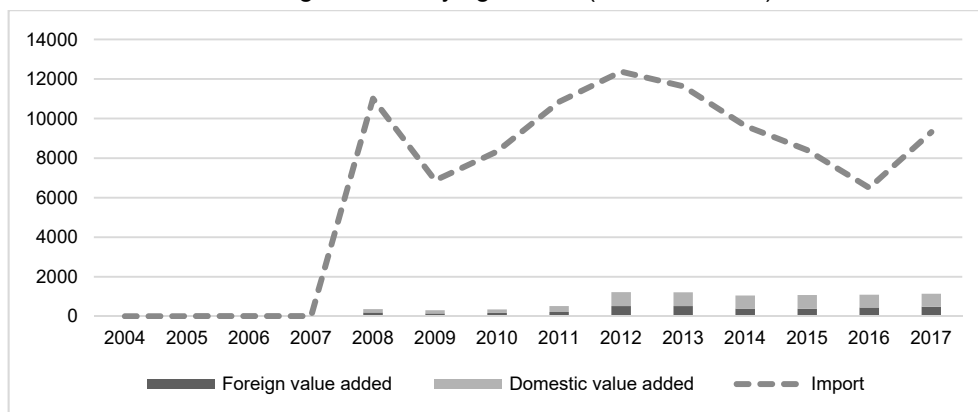
Foreign and domestic value added in exports and imports in the “Agriculture, Forestry and Fisheries” sector (in million BGN)



Source: Statistical Yearbook of Bulgaria for the respective years. Information System “Foreign Trade”.

Figure 3

Foreign and Domestic value added in exports and imports in the “Mining and Quarrying” sector (in million BGN)



Source: Statistical Yearbook of Bulgaria for the respective years. Information System “Foreign Trade”.

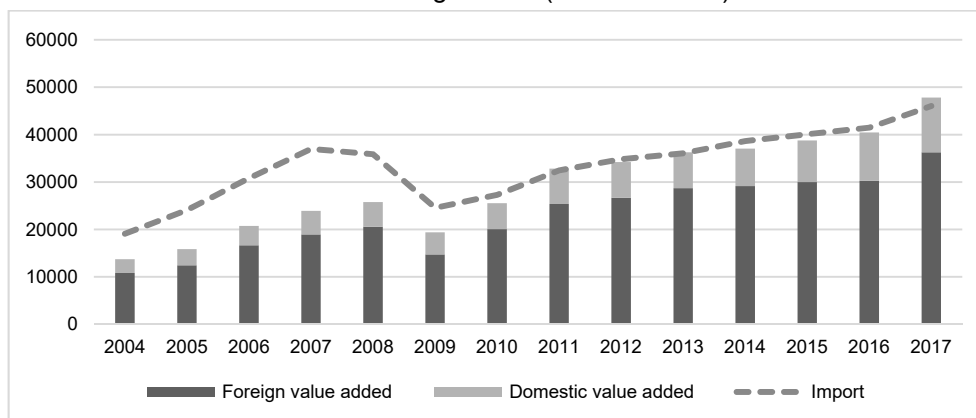
In the “Mining and Quarrying” sector (B), significant problems related to the substantial increase in exports (Figure 3) have emerged over the period under review, especially after 2011, accompanied by an increase in imports. These changes are also characteristic of other countries where the GVCs focus on and show Bulgaria’s active participation in them. In practice, the foreign trade activity in the sector is

accounted for after the accession of Bulgaria to the EU, and so is its active presence in the GVCs after 2011. The expanded intermediate consumption is a factor in the significant exchange of resources in the sector, which is recovering after 2016, and the high share of value added in exports.

The most important part of the GVCs is the “Manufacturing” sector (C), which also provides the bulk of the country’s exports. The essential characteristic of its exports is the significant part of the foreign value added (Figure 4), which determines its high dependence on imports. The sector’s development is most affected by the global financial crisis, but it quickly restores its export positions. This is also supported by the corresponding increase in the imports in the sector, which exceeds the intermediate consumption up until Bulgaria’s accession to the EU and this is evidenced by the increase in the foreign value added of the exports. At the same time, the growth in domestic value added is much smaller due to weak changes in the production base. It is also indicative that by the time of the accession to the Single Market, the imports have exceeded the intermediate consumption due to their consumer orientation, and after the accession, with the increasing participation in the GVCs, the sustainability of this use ensures the foreign value added. The robustness of the production links is a prerequisite for the successful participation of the various branches of the sector in the GVCs and the over-exports after 2017.

Figure 4

Foreign and domestic value added in exports and imports in the “Manufacturing” sector (in million BGN)



Source: Statistical Yearbook of Bulgaria for the respective years. Information System “Foreign Trade”.

In the other two groups of the “Industry” sector<sup>1</sup> with external economic activity, a number of activities are summarized – “Electricity, gas, steam and air conditioning

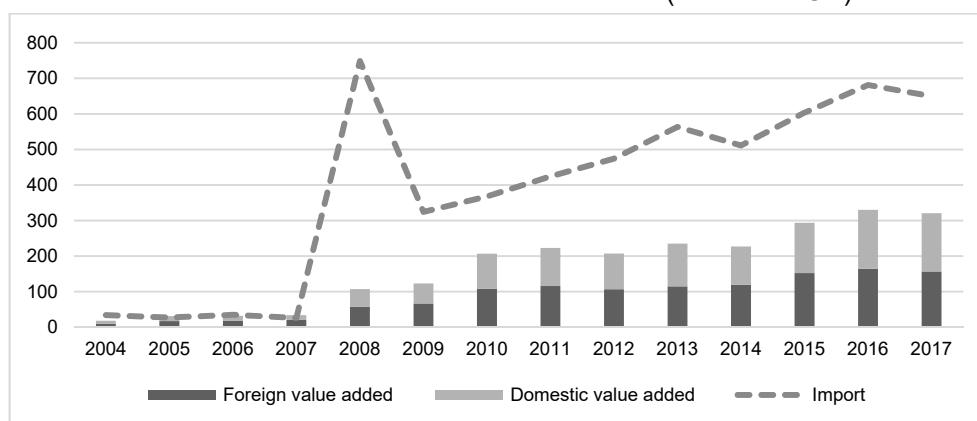
<sup>1</sup> The national accounts in the general “Industry” sector also include the construction industry, but it does not account for any external economic activity and is therefore not subject to sectoral analysis.

supply” (D) and “Water supply, sewerage, waste management and remediation activities” (E). In the first sector, there is an unsustainable increase in the export value added transferred due to the import of energy resources and their activity covers a significant volume of domestic consumption. For the second group, the value added is approximately the amount transferred, which mainly concerns the treatment of different types of waste. Since the 2009 crisis, imports have grown and are close to the levels of domestic consumption, and they are linked to specific treatments for imported products.

The service sector plays an important role in the involvement of industries in the Global Value Chains as they support co-operation with external partners. The sector is characterized by a significant increase in value added exports following the country’s accession to the EU (Figure 5) and the impact of the crisis in 2009, which was followed by a rapid recovery. Given the significant share of services with administrative and other in-house activities, the domestic consumption in the sector is also high, but imports have been declining after 2007, which is compensated by the development of a number of high-tech industries in the country.

Figure 5

Foreign and domestic value added in exports and imports in the group of services with external economic orientation (in million BGN)



Source: Statistical Yearbook of Bulgaria for the respective years. Information System “Foreign Trade”.

In examining the external economic aspects of the service sector, only four groups of activities have been identified that have a particular external economic focus, however limited it may be. The group includes: “Wholesale and retail trade; Repair of motors” (D); “Information and Communication” (J); “Professional, Scientific and Technical Activities” (M); “Arts, Entertainment and Recreation” (R), and it does not account for the “Other Activities” group.

In general, this group is characterized by an increase in foreign economic activity after the accession to the EU with a significant share of value added (see



Figure 5). In recent years, we can note an increase in domestic consumption and the corresponding high value added of the imports.

In the individual subgroups, we should note that for the groups “Wholesale and retail trade; Repair of motors” (G) and “Information and Communication” (J), foreign trade activity has been reported since 2008. In the groups “Professional, Scientific and Technical Activities” (M) and “Arts, Entertainment and Recreation” (R), foreign trade activity has been reported in 2006 and 2007, after which it is at a rather low level.

The presented assessments of the development of the sectors and branches in the Bulgarian economy based on the data from the national statistics give grounds to assume that one of the significant factors for the inclusion of the Bulgarian business entities in the GVCs is the accession of the country to the EU in 2007, and not the pre-accession period, as has been accepted in the mentioned survey (Ivanova & Ivanov, 2017, p. 34). Furthermore, the data show a high adaptability of the participants in the chains to the 2016 decline and subsequent recovery in the most tied sectors.

### **Bulgaria’s participation in European Global Value Chains**

The change in the geographical structure of trade and the conclusion of regional agreements creates favourable opportunities for developed economies and they play a leading role in their initiation and development. Participation in the regional agreements of the developing economies leads to a marginalization of their sectoral structure and reduces the benefits of the liberalization of international trade. This is so because the effects of the participation of developed economies in the regional integration agreements described in classical and new regional integration theory make them an active part in mutual trade. In developing countries, the motivation for regional integration is conditioned by the support for economic development, the structure of the national economy, the production characteristics and the trade policy (Marinov, 2015, p. 71).

One of the major issues in assessing the impact of the GVCs is the structure of trade flows, which is determined by the participation of the different companies in a given sector in terms of their access to factors of production and external economic relations. This is so also due to the different geographical orientations of the trade flows of individual economic entities. The significant regional segmentation is dubbed by Richard Baldwin as “the Asia Factory, the Europe Factory and the North America Factory” (IBRD, 2017, p. 15), which is associated with the dominant role of Germany, China and the United States respectively. These countries focus significant flows of goods and intermediate goods and bind economically neighbouring countries.

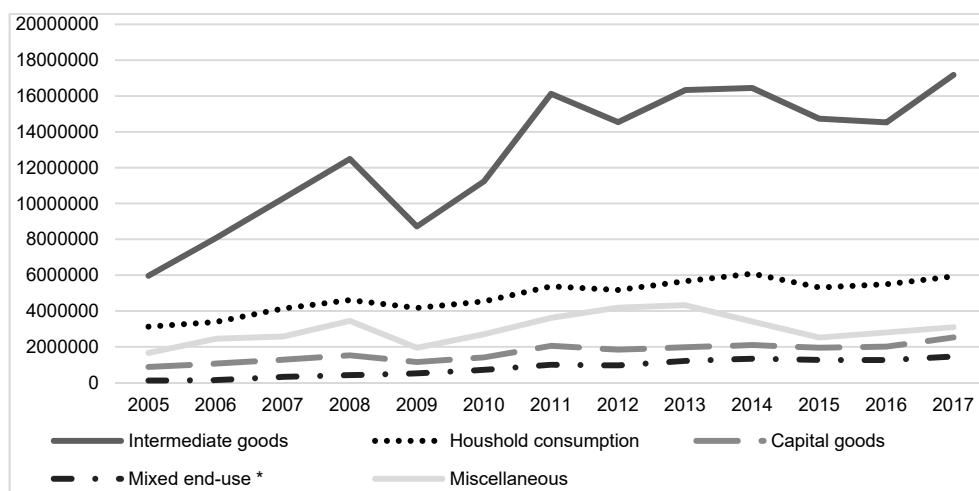
An important factor for the regional direction of trade flows is the accession of Bulgaria to the EU, which leads to the inclusion of Bulgarian companies in the European Global Value Chains. After ten years of membership, the concentration of exports on the Single Market has increased in four countries – Germany, Italy, Greece and Romania, with France showing a significant presence as well. The import is concentrated from Germany, Italy and Romania, as well as from Central

Europe – Poland, Hungary, the Czech Republic and Austria. In total, the export concentration has reached 16 countries and the import concentration has reached 15. This could be related to the small size of the Bulgarian economy, but it could also be due to the integration in the large economies and the participation in the big European Global Value Chains. The positive effects of the restructuring enable the active presence of developed European economies in certain sectors. At the same time, the external efficiency of the Bulgarian economy is developing in relation to neighbouring countries and major trading partners outside the EU.

The assessment of the impact of the GVCs on the industry structure can be made in terms of the product composition of the trade flows. The country's exports (Figure 6) show an increase in the share of intermediate goods, which have the greatest sensitivity to the international environment and cover more than 50% of the export structure. The other groups of goods have a growing presence in Bulgarian exports, which is a result of the country's participation in the EU's Single Market. The declining share of other commodities results from the low competitiveness of the domestic producers of final products on the Single Market. To a certain extent, the export of goods with mixed end-use, the majority of which are packed medicines, has a compensatory effect.

Figure 6

Export structure of Bulgaria by type of final consumption  
(in thousand USD)



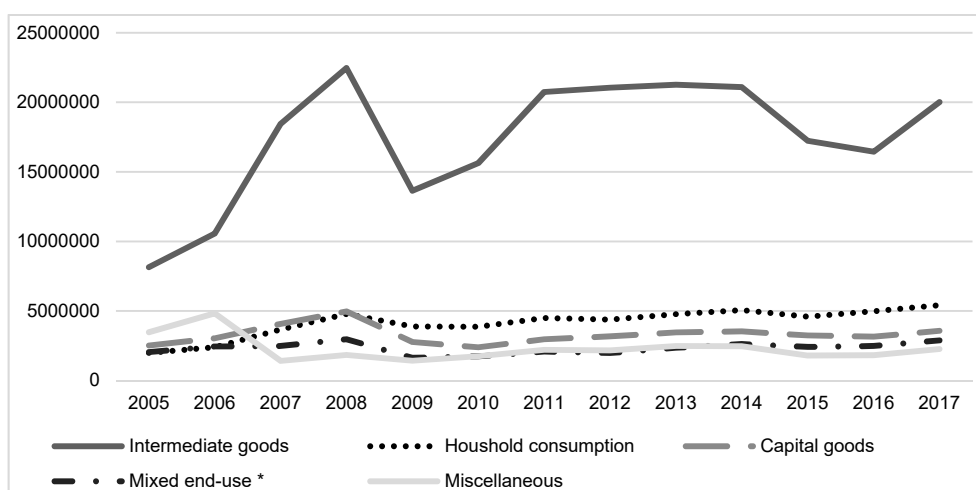
\* Includes personal computers, passenger cars, personal phones, precious goods and packed medicines.

Source: OECD.stat Export. Dataset: Bilateral Trade in Goods by Industry and End-use (BTDIXE), ISIC Rev.4

The import structure illustrates the significant engagement of the national economy with the GVCs. This is evidenced by the predominant nature of intermediate goods, which are export-related and account for around 60% of imports. Of the other groups, the group of household consumption goods, which predominantly come from European producers, could be mentioned, while the goods for mixed end-use are dominated by cars and packaged medicines. The apparent sharp increase in the intermediate goods and the reduction of miscellaneous goods is related to the country's accession to the EU and represents the impact of the Single Market on the national production structure.

Figure 7

Import structure of Bulgaria by type of final consumption structure  
(in thousand USD)



\* Includes personal computers, passenger cars, personal phones, precious goods, packed medicines.

Source: OECD.stat Export. Dataset: Bilateral Trade in Goods by Industry and End-use (BTDixE), ISIC Rev.4

The presented trends confirm the high commitment of the Bulgarian industries to the European GVCs, especially in the trade with intermediate goods. The group of intermediate goods mitigates the negative externalities and makes the trade flows sustainable. In general, the deterioration of the commodity structure of foreign trade is related to the growth in the commodity exchange of primary sector products at the expense of the processed products (Marinov, 2018). This increases the regional engagement of the Bulgarian economy and determines the need to direct the country's foreign economic orientation to dynamic markets in regions outside the continent.

### **The impact of international trade regulation**

In the last century, there has been a rise in multilateral regional trade agreements which has deepened the integration processes in certain regions and has become a precondition for synergies between integration organizations. The functioning of regional trade agreements in Africa, Latin America and Asia have effectively supported the multilateral nature of international trade. Thus, trade liberalization was associated with the change in a number of industrial product tariffs as a means to support the industrialization of developing countries (Baldwin & Nakatomi, 2015, p. 8). Regional trade agreements have in fact changed the central role of the WTO and have developed a new environment for multilateral trade.

Regional agreements on a bilateral and multilateral basis practically overcome trade constraints and lead to a widening access to national resources and markets for the GVCs. In practice, the GVCs supports the creation of regional trade agreements, which stimulates the liberalization of international trade and makes it dependent on the strategy of multinational corporations.

The classical understanding of international trade is based on the principles of competitive advantage and specialization, where rational production resources are used. Individual countries are pursuing policies to improve international competitiveness by attracting foreign investment and technological innovation. This is why international trade regulation within the WTO was achieved by liberalizing the market and improving its rules within bilateral trade and economic relations (Baldwin & Nakatomi, 2015, p. 8). They were complemented by the application of the “most favoured nation” principle as a means to stimulate trade.

The functioning of the current regulation within the WTO is influenced by both the changes in the production-economic structure of international relations and the new multilateral interactions within the large regional trading blocs. Thus, the now functioning global regulatory framework of trade appears to be inadequate when it comes to changes in trade flows that include investment, know-how, qualifications and other factors of production (Baldwin & Nakatomi, 2015, p. 9). Such trade flows are conditioned by the increasing internationalization of production and the construction of the international production structures, defined as GVCs. They increase the mutual benefit for participants and bind developed countries to developing countries with bilateral investment agreements and regional trade facilitation. Mega regional agreements also liberalize trade in production factors and change the geographical direction of trade flows.

In recent years, international trade has seen a widening of protectionist measures not only on imports of final products but also on intermediate goods – mainly parts and components. This is particularly typical of China’s imports and leads to changes in the positions of the GVCs that are already triggering international trade and investment agreements. This changes the positions of individual countries in relation to their international commitments and thus they conclude a series of agreements that stimulate the import of capital equipment and intermediate goods at the expense of imports of final products. The application of tariffs, in keeping with

the “most-favoured-nation” rule, stimulates the trade in intermediate and capital goods as tariff levels are significantly higher in emerging markets than in developed countries (Chad, 2018).

In practice, trade restrictions take on the form of temporary trade barriers that are increasingly being applied to the import of intermediate goods, especially from China. The change in the pattern of commodity flows in international trade shows that intermediate goods and end-use products predominate in the developed economies, while the intermediate and capital goods predominate on the emerging markets, which is a consequence of the change in the pattern of Chinese exports (Chad, 2018). For this reason, the GVCs guide the import of a range of products for further processing from other countries and regions and develop intra-regional trade, especially in established trading blocs and when concluding new trade agreements with leading economic partners.

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The deepening of Bulgaria’s participation in European GVCs defines to a great extent the changes in the national branch structure and the nature of the foreign economic activity of the economy. The most important result is the significant exchange of raw materials and intermediate goods. Most of the participation in the GVCs is defined by the manufacturing industry, whose growing presence is indicative in the external economic exchange. Services with external economic activity do not have a significant share in foreign trade, despite the positive trends after the country joined the Single Market. In practice, the accession of Bulgarian business entities to the European Global Value Chains limits the opportunities for firms to enter new and dynamic regional markets. Therefore, the orientation of a significant part of Bulgaria’s trade flows to the neighbouring countries will have a positive impact on the improvement of the structure and competitiveness of the national sectors that find an alternative in these countries. Thus, the inclusion of Bulgaria in international productive economic structures is a prerequisite for building regional production systems as part of the GVCs. This determines the need to develop a purposeful external economic strategy that combines the attraction of foreign investment with the expansion of its presence in other regions and countries.

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