GLOBALIZATION AT THE CROSSROADS: CONTEMPORARY RISKS OF INCLUSION IN GLOBAL VALUE CHAINS

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ABSTRACT
The second decade of the 21st century has posed numerous existential challenges to the world economy and the globalization process itself. International economic relations, that is international trade, international production and foreign investment, already disrupted by recurring financial crises, experienced the greatest disruption in post-war history during the Covid-19 pandemic. Globally networked production, as the most important determinant of modern globalization, is the focus of this research. This article analyses disturbances in the functioning of global value chains (GVC), caused by the current challenges of the pandemic crisis. The current declining trends in EU value chains are analysed, and their effects on the economy of Serbia are explored. This interdependence was determined by correlation between the Serbia's GDP and the share of foreign value added (FVA) in EU exports. The assumption is that disturbances in GVCs are not only the result of financial crises and pandemic challenges, but in same time, they are the main means of transmitting the crisis to the countries involved. Through value chains, the various types of external shocks have affected even the countries where production has not been interrupted due to the internal impediments. This paper investigates the main mechanisms of the impact of the pandemic crisis on the disturbances of the global production network such as: disruption in international transport due to pandemic closure, disruption of demand, mainly in the direction of its rapid reduction, growing trade restrictions and protectionism. The results showed a remarkably high degree of dependence of the Serbian economy from changes in EU GVCs. The paper points out to the importance of increasing independence in the production of basic goods, as a way to overcome a number of existing and potential causes of disturbances within European GVCs.
Keywords: Covid-19 pandemic, Global value chains, Globalisation, international trade, international production

1. INTRODUCTION

Global production chains (GVCs) are groups of internationally dispersed linked production units. Globally networked production is the most important determinant of modern globalization, and global production networks form the core of the modern world economy (Kotlica, Stanojević, 2017). The inclusion of the Serbia`s economy in these production networks, at the beginning of transition process, was necessary and potentially positive for its development. On the other hand, economies which opened up quickly usually became too dependent on foreign trade, especially imports, as well as on foreign capital. The FDIs of large multinational companies in Serbia mainly provided benefits only for investors (Stanojevic, Kotlica, 2015; Kotlica, Stanojevic, 2018). There were almost no greenfield investments, which would enable the launch of a new production process, or raising technology level in current production. As the largest volume of FDI came from EU countries, the Serbian economy, as well as other Western Balkan economies, became dependent on the production within EU production chains.

Integration into global value chains in modern times is necessary and inevitable. However, heavy dependence on external factors usually carries great risks. Withdrawal of foreign investors from many countries - a link in the chain, and grouping of production in a smaller number of countries, began after the Global Financial Crisis (GVC). Since then, value chains have lost in importance, despite its importance for ensuring Europe's strategic autonomy and the EU's industrial future. In just ten years, the share of value chains in European exports has fallen from 52% to 41%. Europe's competitive advantage at the global level is declining sharply. An additional reduction or even the cessation of activity in European GVCs has occurred in 2020 due to the lockdowns caused by the Covid-19 pandemic. Through value chains, the epidemic has affected even the countries where production has not been interrupted, even those whose production is not directly dependent on vulnerable economies (Stanojević, Kotlica, 2021). The focus of this research is the consequences of these changes on the Serbian economy, as one of small, too open economies, highly incorporated into the EU production chains. The assumption is that the halt of the production in EU companies had strong effects on the supply-chain exports of the Balkan countries. The basic hypothesis of this research is that the current disruptions in the supply chains of the EU have a very strong negative effect on the economy of Serbia, even when they do not directly involve Serbian companies. This assumption is based on the following indicators. This is, first of all, the unfavourable position of the Serbia's economy within the European GVCs. Whether upstream or downstream, Serbian and other Western Balkan's producers generally do not have comparative advantages strong enough to hold an important position within any international production process. In other words, they are easily interchangeable. Another problem is the high share of foreign capital in the Serbian economy. It occurs due to the fact that the most important export companies are in foreign ownership, which is why every problem in their business directly endangers the domestic economy, while the government is left without the possibility of intervention. The next indicator is the almost-rule that major changes in the international trading system always have stronger negative consequences for smaller, more open and less developed economies than for large ones, with a greater degree of independence. Disruptions in European production chains bring the more severe negative effects for the countries of the Western Balkans than for EU countries themselves. In addition to being small and very open, Serbia is not members of the EU, and suffer from additional consequences of restrictive EU trade measures. The research question is to what extent the current disturbances in EU value chains affect the economy of Serbia. To prove the hypothesis and answer the research question, a simple linear regression used, because we are interested in the effects of only one phenomenon - disturbances in the EU GVCs. The dependent variable is GDP of Serbia, while the independent variable is the share of foreign value added (FVA) in EU exports, as a measure of involvement in global value chains. The aim of the research is to determine the correlation between Serbia's economy and changes in the EU production chains.

2. LITERATURE REVIEW

The analyses of global supply chains and global production networks are relatively few, given the role and power of global corporations in the world economy. The lack of research in this area is even more unusual given the estimate that one third of international trade takes place between global corporations and another third within their global supply chains. The relocation of production abroad was first described as an example of globalized production by the famous Japanese strategic economist Kenichi Ohmae (1996, 1999), although at that time none of the current terms were still used: production chains, value chains, supply chains, etc. The important theoretical framework and advantages of GVCs were given by Gereffi (2018). The authors Cattaneo, O., Gereffi, G. and Staritz, C. (eds.) (2010) analysed the state of GVCs after the Global Financial Crisis (GFC), but generally didn`t recognize its fragility and future inability

to recover. An interesting approach has Maswood (2018) who identified the whole process of globalization with globally networked production. In that sense, he marks the period from the end of the 20th century as the beginning of modern globalization. UNIDO reports (2016; 2018) stressed the usefulness of the value chain approach for understanding development and especially industrial development, its sustainability and inclusiveness. GVC participation is positively correlated with the domestic sector's value-added growth for both developed and developing economies (UNIDO, 2018, p. 27). Kummritz (2016) finds that 1 per cent increase in GVC participation causes a rise in domestic value added within the range from 0.1% to 0.6% and in labour productivity of 0.3%. Kummritz et al (2016) argue that expanding and strengthening a country's GVC participation may lead to higher output, productivity, value added, and jobs through a variety of channels. The research of Kordalska and Olczyk (2019) is significant for this research, due to analysis of the role of the hub of Germany in the trade of the selected CEE countries. That research stressed the deep integration of CEE into 'Factory Germany', but most important it revealed Germany`s role in redirection of CEE export to non-European destinations. As many authors have observed in recent times (Baldwin and Lopez-Gonzalez, 2015; Meng, 2019; Kordalska and Olczyk, 2019), GVCs are not configured as a linear sequence of production stages such as chains but as complex networks, with some countries having the role of hubs. Changes, i.e. weaknesses in the peripheral points of this network, do not have far-reaching consequences, because their place in the chain can be taken by another manufacturer. However, when the processes of international production lose their importance in the hubs in which they meet, where a lot of trade routes within GVCs are intertwined, this is reflected in the weakening of all participants in the entire network. The weakening of international interconnectivity and shortening of GVCs is a completely new phenomenon so there is very little literature on these processes. Only two studies that record GVCs disorders can be highlighted. One is the estimates of Solleder and Velasquez (2020) which suggest that EU imports of manufacturing inputs will drop significantly after 2020. The other is the empirical research of Backer and Flag within the OECD (2017) which shows that the world economy is facing a number of structural shifts that may dramatically change the outlook of GVCs in the coming years. So, the goal of this study is to fill the existing gap in the literature by analysing how the declining share of GVCs in the European Union affects the Serbian economies.

3. DISRUPTION OF GLOBAL VALUE CHAINS AND ITS CAUSES

One of the key aspects of modern globalization is the international segmentation of production processes. The goal and driver of international production segmentation was to achieve the most cost-effective structure for each stage of the production process. This is the core activity of modern multi-national companies (MNC). Almost all exporting companies, with or without the participation of foreign capital, are parts of global value chains (GVC). In its broadest form, globalized production is seen as a global production network, grouping of interconnected but geographically dispersed production units. Global production networks have become a dominant feature of the modern world economy. One third of total international trade takes place between global corporations and another third within their GVC, meaning that most global exchanges take place within global manufacturing networks. The main indicator of economic integration in international production is foreign value added (FVA). This is the value of imported semi-finished products that is ready for further processing and export. So, it is a part of trade, but a part that implies much wider changes in the world economy than the decline of trade. From 1995 to 2009, the rise of share of FVA in exports of EU grew much faster than the world average, from 34% to 53% of EU exports (figure 1).
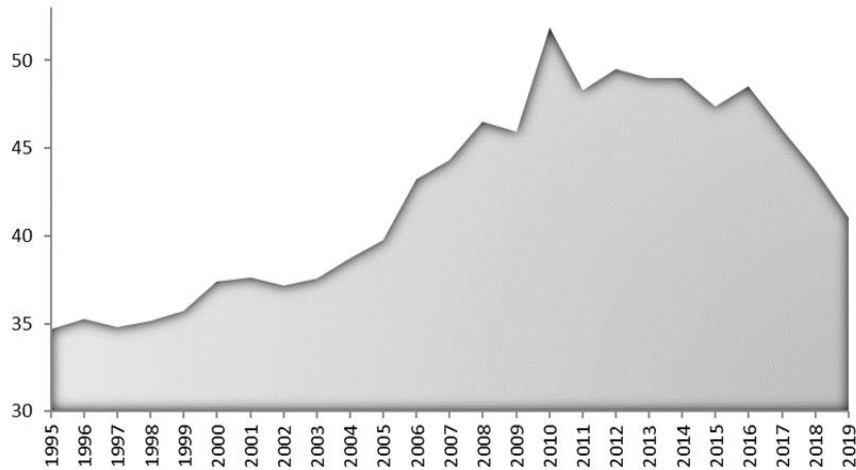
Figure 1: Share of foreign value added in EU export
(Source: Author according UNCTAD (2020) Eora Database)

Globally, the share of FVA in exports fell from 31% to 27% (2019, p. 2) in the decade after the GFC. Data for the EU, however, point to a much sharper decline, from 53% to 40% of EU exports (figure 1). The host countries of the largest multinational companies, the US and the UK, are also facing a steady decline in FVA, as does Germany, whose international production mainly takes place in the European Union's neighbourhood. In the years after the GFC, FVA share in export of the most developed EU countries, that is the largest investor in the region (UK, Germany and France), are reduced by an average of about 5% (figure 2).
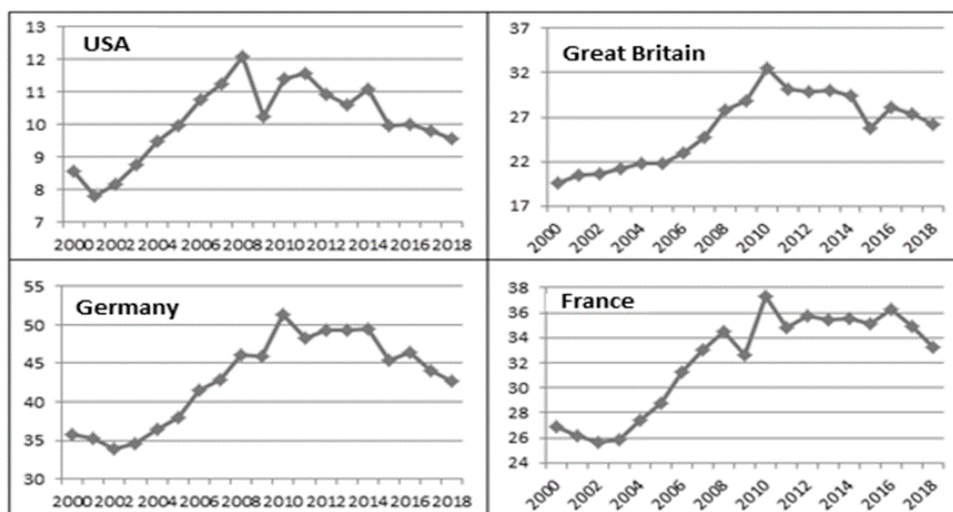

Figure 2: Integration of major investor countries in global product chains, reflected by the FVA share in exports (%).
(Source: Stanojević, 2020, p. 352)

There are several causes of the shortening of value chains. One is growing protectionism. The weakening of economic activity during the GFC initiated a number of restrictive trade measures of developed and developing economies. For example, 71 measures imposed on corn exports from Serbia are a part of the general package of EU import duties from 2017. None of these restrictive measures are directed against Serbia, but are used only as a way to protect domestic economy in a large economic system. All products covered by protectionist measures are part of international production, i.e., parts of long European production chains.

Another reason is a retreating of MNCs due to instability of global market after GFC, and due to uncertainty in return on investment. During and after the Covid-19 pandemic, trade protectionism escalated. Despite a number of formal restrictions provided by the WTO and especially the EU, all countries have provided massive subsidies to large companies, airlines, banks, etc., to save them from bankruptcy, during 2020. On 27 April 2020, the European Commission issued Regulation No. 2020/573, imposing an import duty on maize, sorghum and rye. The duty rate was set at EUR 5.27 per ton. Less than a month later, an additional radical increase followed. On 5 May 2020, the European Commission issued Regulation No. 2020/615, imposing an import duty on maize, sorghum and rye. The import duty was increased from EUR 5.27 to EUR 10.40 per ton. Lockdowns caused by the pandemic further contributed to the disruption of value chains and accelerated the process of their shortening. GVCs are impacted directly through supply chain linkages, when companies in any country stop producing. In addition, the Covid-19 also affected value chains by causing disruption in international transport. Even when production itself was not compromised, the inability to supply export partners in many cases led to production interruptions. The Covid-19 pandemic had the strongest and most lasting effect on GVCs by reducing demand. As the OECD (2020) report points out, lower demand for final products in a given country reduces demand for inputs produced in other countries. This phenomenon can affect multiple locations at once. Demand has decreased for all manufacturing GVCs except for those for medical supplies. Breaking up value chains in some sectors resulted in pressure to re-nationalize production in the belief that this would provide greater security of supply. Uncertainty on the future trade and investment as a consequence of COVID-19 is also a risk currently assessed by firms and that will impact the organization of their value chains (OECD, 2020, p. 5). Through value chains, the epidemic has also affected countries where production has not been interrupted and whose production is not directly dependent on vulnerable economies. Producers at the beginning of the production chain (raw materials and services) are prevented from exporting goods due to demand disruptions in the next downstream market. Manufacturers of parts, components and semifinished goods reduce their output due to the suspension or reduction of imports of the downstream market of finished goods. Therefore, they also reduce inputs from abroad. From a Serbian perspective, the EU is the largest importer of manufacturing inputs. The factory shutdown in the EU had strong effects on the supply-chain exports of Serbia. The direction of change in the EU refers not only to the disruption of existing GVCs but also to the announced direction of future ones. Namely, the current and future demand on which production chains could be based was defined by the European Commission in 2018, and none of them go in favour of the Serbia or any Balkan economies. The identified six key strategic value chains are: Clean and autonomous vehicles, Hydrogen technologies and systems, Smart health, Industrial Internet of Things, Low-CO2 emission and Cybersecurity (Strategic Forum, 2019).

4. MEASURING DEPENDENCY OF SERBIAN ECONOMY OF EU VALUE CHAINS

The flows within Global value chains cannot be measured by usual statistic data of international trade. Namely, for more complex final products, it is not uncommon for a product to cross several borders or the same border several times at different stages of production. Trade statistics, at each transit, record the entire value of the product (Kotlica, Stanojević, 2018), so that the foreign trade data have thus become over-dimensioned. Instead of data of foreign trade, in international statistics foreign value added (FVA) is used as the indicator of economic integration in GVCs. FVA is the value of an imported semi-finished product that is ready for further processing and export. In this analysis, we have used UNCTAD data as it relates to the most recent period. The current trends in GVC will be analysed at the EU level, and then their effects on the Serbian economy will be explored.

The dependence on GVCs trends in the European Union is determined by applying linear regression on GDP of Serbia. Simple linear regression has a general form:

$$Yi = \alpha + \beta nXn + ei \qquad\qquad (1)$$

The analysis is based on Ordinary Least Squares (OLS) commonly used for the estimations of the parameters of linear equations. The parameters of the equations were defined by minimizing the residual sum of squares. The relation between EU value chains and Serbian economy has the following forms:

$$GDPst = \alpha + FVA_{EUt} + ei \qquad\qquad (2)$$

where Yst is the GDP of Serbia in millions of current US\$ in year t. The source of data for the GDP is the World Bank indicator database. FVA_{EUt} is a share of FVA in export of EU in year t, according to UNCTAD data, EU denotes data for European Union indicators, s denotes data for Serbia.

Foreign value added is most often analysed as a share of a country's exports. However, the focus of this research is not the openness of EU economies, but the future of the Serbian economy, which are highly dependent on European GVCs. Therefore, the share of FVA in their exports is not crucial, but the value of goods that EU countries import under GVCs. The data on FVA statistics is obtained from the UNCTAD (2020). Serbian producers have different positions (upstream and downstream) and different degrees of participation in European GVC, depending on the manufacturing sector. Therefore, we consider the most appropriate method is analysing the relationship of the total FVA in the EU to Serbia`s key economic parameter, in this case to GDP. In order to obtain aggregate values, we collected the FVA of EU members, taking into account the years of their membership. In the assessment, yearly data in time series for period 1995-2019 will be used. The t-test is test of hypothesis which follows a Student's t-distribution under the null hypothesis. The t test explains how significant the differences between groups are, that is, if those differences (measured in means) could have happened by chance. This part of the research aims only to illustrate the effects of the disruption of EU value chains on the Serbian economy and not to estimate Serbian GDP in the coming period. Government has at their disposal a variety of economic policy measures in crisis situations, which can significantly reduce these negative effects. The results obtained can be considered statistically reliable and valid by all criteria. What the model shows with high certainty is that the Serbian economy is under extremely strong influence of the ramifications of European value chains. This is indicated by a high determination coefficient of 67% (R^2 in table 1).

Parameter	Least Squares Estimate	T Statistic	ANOVA	
Intercept	-54890.1* (12932.1)	-4.25	*F-Ratio*	47.46
Slope	2088.9* (303,2)	6.89	P value of ANOVA	0.00
Correlation Coefficient	0.82	Standard Error	8369.1	
R-squared	0.67	Mean absolute error	5747.5	

Table 1: Results for Serbia
*Notes * represent significance at 1, respectively. Standard Error is given in parentheses.*

The correlation coefficient equals 0.82 indicating a strong relationship between the EU FVA and Serbian GDP. The results show that the reduction of FVA in exports of EU countries by only 1% contributes to the reduction of GDP of Serbia by $820,000 US. Changes that may be more permanent ensue from the fact that some supply routes will not be renewed. Manufacturers, due to a long delay in supply, find other partners or, if possible, find internal resources to complete the production process. These major changes in the long run are not necessarily negative. The problems are current external shocks and periods of adaptation to new conditions.

5. CONCLUSIONS AND RECOMMENDATION
The post-COVID global economy will become less integrated as a result of trade barriers, reshoring of supply chains, and reduced labour migration and foreign direct investment. Through value chains, the epidemic has affected even countries where production has not been interrupted and whose production is not directly dependent on vulnerable economies. As the Serbia is intensely involved in the GVCs of the EU, disruptions in European production chains have strong effects for its economy. One of the main reasons is general fragility of small and very open economies on external shocks. The second one is that, as a non-member of the EU, Serbia suffers additional consequences of restrictive EU trade measures. This empirical research has shown a very high correlation between the reduction of FVA within the EU and the decline in GDP of Serbia. However, this paper is not an announcement of the catastrophic decline of Serbian economy, but an attempt to point out that the direction of change in European value chains has a negative impact on the production of the analysed countries. Future scientific research or, even better, analysis by the competent ministries and development bodies should identify production chains in which production is continuously lagging behind due to supply shortages. Thus, the decline in exports of certain products may be, and most often is a consequence of the general decline in demand for some goods. This situation is not the subject of this research, and in general, the governments of any country can do little about it. This topic refers to supply problems in situations when European companies reduce the volume of work, close, merge with other related companies (mergers), which reduces the number of suppliers, etc. In these situations, which are becoming more common, the recommendation is to intensify regional cooperation within production chains. International business cooperation could take many forms depending on the industry. In cases where separate production does not meet the needs of large markets, joint deliveries can be organized (provided that the characteristics of the product are uniform in advance). In other cases, the specialization of the Serbia within a particular production chain would have significant effects. This would enable higher productivity, efficiency and competitiveness in external markets. These, as well as all other potential state interventions, should go in the direction of regionalization, in order to overcome the basic weaknesses of the Serbian economy, which mainly stem from small production opportunities. The joint appearance of the economies of the Western Balkans on the European market would give these small economies a better chance. This is in line with new initiative of *Open Balkan*. Strengthening regional operations, even without the EU as a participant in the production chain, shortening supply chains and staying closer to the consumer is one of possible strategies.

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