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THE COMPETITIVENESS OF POLISH FURNITURE EXPORTS

This paper examines the competitiveness of Polish exports of furniture using data on value added in exports. Based on the OECD/Eurostat TEC and TiVA databases, we assess the propensity and intensity of exporting by different types of Polish furniture producers. Then we examine the domestic and foreign contributions to gross exports and analyse the participation of the Polish furniture industry in global value chains. Our analysis covers the years 2002-2011 and includes comparisons with other CEE countries (Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Lithuania, Latvia, Romania, Slovakia and Slovenia) and leading European exporters of furniture (Italy and Germany). The results indicate that the patterns of gross trade in furniture differ from value added trade patterns, and that Polish furniture exports are not as competitive in value added terms as in gross terms. Furthermore, the share of foreign value added in gross exports increases along with the proportion of those exports accounted for by exports of intermediate products. The data indicate that the countries' backward participation in GVCs increased in the years 2002-2011. This may generate both opportunities and risks, which are discussed in the paper.

Keywords: furniture manufacturing, export competitiveness, trade in value added, global value chains

Introduction

Furniture manufacturing is one of the most important industries in the Polish economy, and furniture accounts for a significant share of Polish exports. Nevertheless, many producers base their foreign expansion on supplying relatively cheap goods to large international partners, who sell them on under their own brands. There are also enterprises (usually SMEs) which rather than exporting directly, prefer to connect indirectly to global markets by supplying intermediates to other firms that do export. Looking closely at export data and decomposing it into value added categories, we may assess more adequately the

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direction and sources of competitive advantage, as well as define the country's place in global value chains, which determines potential gains from international trade.

International trade is becoming more and more complex and fragmented. This means that no analysis of export competitiveness can be made without taking into consideration a country's position and role in global value chains (GVCs)¹. A practical issue associated with trade within global value chains is the overestimation of trade. According to calculations by UNCTAD, as a result of multiple transfer of parts and components across borders, the value of world exports of goods and services in 2010 was overstated by more than one-third of their value added [UNCTAD 2013, p. 125]. This is because exports measured in gross terms, apart from the added value generated in the country, include foreign value added contained in imported intermediate goods. Domestic value added is also included in the exports of trading partners, if they process parts and components from the country into final goods which are further exported. A situation is also possible where the national value added "returns" in imported products [Mińska-Struzik 2016]. This complicates the picture and hampers the assessment of competitiveness based on gross data. Moreover, the use of standard trade indicators also results in overrating of the level of openness of many countries [Daudin et al. 2011] and may misguide policy aimed at strengthening productivity and competitiveness [Miroudot and Yamano 2013]. Therefore, in this article, we assess the competitiveness of Polish furniture exports by examining the origin of value added in exports and presenting synthetic measures of embeddedness in international production networks.

We define competitiveness as the ability to create well-being, and we acknowledge that there are two aspects of this phenomenon: outcome competitiveness and underlying factors and processes (drivers of competitiveness) [Aiginger 2006]. In our research we focus on general aspects of the outcome competitiveness of exports.

Research methodology

The aim of this research is to examine the competitiveness of Polish exports of furniture using data on value added in exports. Since the subject of the research is the furniture industry, industry-level data on exports are used (whereas usually product-level data are the basis for international trade analysis). Due to the high level of aggregation of data, use was made of ISIC v. 3 code D36-37 for gross

¹In this paper we do not distinguish between "global value chain" and "global production network", using these terms interchangeably, although they can have slightly different meanings [cf. Henderson et al. 2002].

and value added trade data and ISIC v. 4: C31 for data on trade by enterprises². Value added data are available only at industry level; due to the heterogeneity of products (not only in the case of furniture), a mesoeconomic analysis of value added would require very detailed and sensitive financial data from a representative sample of enterprises. However, despite the higher level of data aggregation, this perspective allows us to identify the country of origin of value added, which translates into the exploitation of benefits from trade and enables the formulation of generalisable conclusions. The analysis covers the period 2002-2011. Usually results are presented for the start and end year of that period (with some exceptions resulting from the availability of data).

Poland will be compared here with leading European furniture exporters (Germany and Italy) and with other CEE countries having similar economic characteristics and structure (Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Slovakia, Slovenia and Romania). Poland is the third largest exporter in the sector among the analysed countries (and among all European countries), after Germany and Italy (fig. 1). The Czech Republic's exports in 2011 were less than half of those of Poland. The remaining countries have only minor shares in European markets for furniture, other goods and recycling.

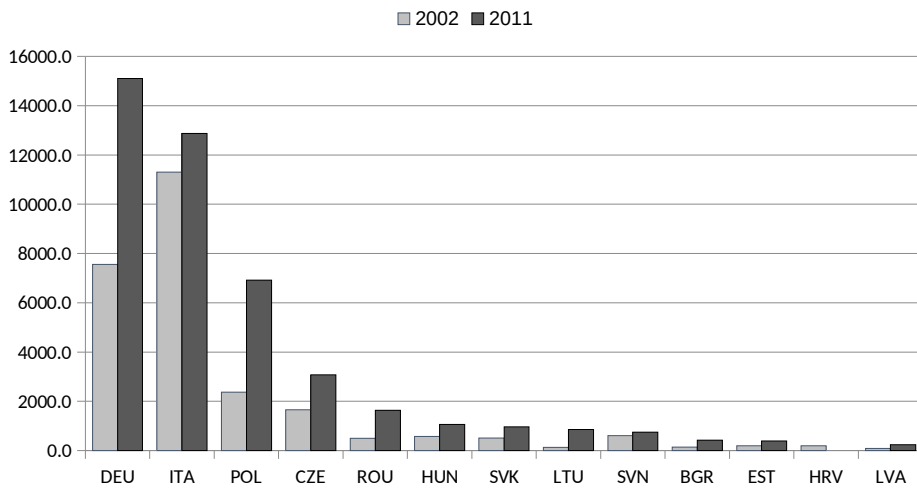


Fig. 1. Gross export values in 2002 and 2011 – Manufacturing of furniture, manufacturing n.e.c., recycling (ISIC v. 3: D36-37), US\$ million

Source: OECD, Trade in Value Added database [2017-09-01].

²This research used the lowest possible aggregation for both databases: TEC (data on exporting enterprises) – ISIC v.4 C31 (Manufacturing of furniture); TiVA (data on trade flows) – ISIC v.3 D36-37 (Manufacturing n.e.c., Recycling).

The data required for the analysis were extracted from the OECD Trade in Value Added (TiVA) database [OECD 2017] and the OECD/Eurostat Trade by Enterprises (TEC) database [OECD and Eurostat 2017]. The TiVA database offers a range of indicators based on complete decomposition of international trade flows at industry level, derived from international Input-Output tables constructed by the OECD. Although it enables investigation of value added flows between industries in different countries, this dataset also has many shortcomings. Firstly, any errors in the underlying I-O tables result in errors in the calculated implicit flows of value added. Secondly, it is not clear how exactly the imported value added is distributed among sectors in the economy [OECD and WTO 2012]. The TEC database connects export data with structural data on trading enterprises, which is useful for analysing the context of value added trade data. However, the analysis is also subject to serious limitations, as time series are often incomplete and some information is missing, mainly for reasons of confidentiality.

Taking into account where exactly the value is added to a product, gross trade value can be decomposed into foreign (FVA) and domestic value added (DVA). Further, DVA includes value added directly by the exporting sector, indirect value added by other sectors upstream in the value chain, and re-imported domestic value. Gross trade flows may also be decomposed into intermediate and final flows, depending on whether the traded products are used further as inputs to other production. Another general concept used to describe trade in global value chains is Importing-to-Export (I2E), which encompasses all imported intermediates which are subsequently embedded in a country's exports (independently of the origin of the value added embodied in the intermediates) [Baldwin and Lopez-Gonzalez 2015].

Table 1 provides an example illustrating the different implications of using gross and value added trade data. The trade balance in gross terms may be misleading, because it does not account for the domestic value added embodied in imports and the foreign value added being part of the country's exports. Although the total gross and value added balances with the rest of the world are equal, this is not true for bilateral or industry trade balances [Benedetto 2012]. A value added trade balance is the difference between the DVA embodied in final foreign demand (exported DVA that 'stays' overseas) and the FVA embodied in final domestic demand (imported FVA that 'stays' at home); this is a more accurate measure of a domestic industry's relative strength on international markets. Indeed, the data presented below indicate differences between the gross and value added trade balances. In most of the analysed countries (including Poland) the value added balance is worse than the gross balance, but there are a few exceptions. Germany stands out in particular – it has a huge deficit in gross terms, which is substantially lower in value added terms. This may indicate that the international position of the German furniture industry is much better than it would appear based on gross data.

Table 1. Imports, exports and trade balances (gross and value added) in 2011 – Manufacturing of furniture, manufacturing n.e.c., recycling (ISIC v. 3: D36-37), US\$ million

	DEU	ITA	POL	CZE	ROU	HUN
Gross exports	15 103.0	12 875.5	6 922.5	3 078.8	1 641.5	1 058.6
DVA in FFD*	8 393.4	5 352.6	2 344.5	1 164.8	1 212.9	473.1
Gross imports	27 785.9	10 767.7	6 356.1	5 228.7	713.8	3 291.9
FVA in FDD**	10 815.5	5 081.2	2 259.3	1 485.0	412.4	992.6
Gross trade balance	-12 682.9	2 107.8	566.4	-2 149.9	927.7	-2 233.3
Value Added trade balance	-2 422.1	271.4	85.2	-320.2	800.5	-519.5
	SVK	LTU	SVN	BGR	EST	LVA
Gross exports	970.3	854.7	754.5	427.8	387.1	237.6
DVA in FFD*	386.1	446.1	318.1	212.7	142.1	76.1
Gross imports	2 385.5	318.6	1 287.8	363.0	213.2	284.7
FVA in FDD**	708.2	146.0	398.7	168.2	88.8	130.9
Gross trade balance	-1 415.2	536.1	-533.3	64.8	173.9	-47.1
Value Added trade balance	-322.1	300.1	-80.6	44.5	53.3	-54.8

*DVA embodied in final foreign demand.

**FVA embodied in final domestic demand.

Source: OECD, Trade in Value Added database [2017-09-01].

In this paper, first the context of the analysis is explained, using data on gross trade and exporting enterprises. This provides some guidance for the interpretation of value added data and underlines some of the limitations of such research³. Then selected value added indicators are collected and presented, enabling temporal and spatial comparisons (where possible). Additional indicators are calculated, such as importing-to-export (I2E) and global value chain indexes. Koopman et al. [2010] define two synthetic measures which may also be useful in our analysis: GVC participation and GVC position. The first gives a picture of the importance of the GVC for a given industry i in a given country c . It is calculated as the sum of exported foreign value added as a share of gross exports (backward GVC participation, denoted here as BI) and domestic value added embodied in gross exports of third countries as a share of gross domestic exports (forward GVC participation, FI) (1).

$$\text{GVC_Participation}_{ic} = BI_{ic} + FI_{ic} \quad (1)$$

³It shows in particular that it is not only important to know where the value is created, but also where it is appropriated and where it contributes to the local economy. Knowledge of the size, ownership and industry of trading companies offers some clues in this matter.

The second measure indicates whether industry i in country c is more upstream or downstream with respect to the global value chain; that is, whether it has a propensity to produce primary inputs (regardless of whether these are raw materials or high-tech components) or to buy inputs to produce/assemble final goods. The GVC position index is calculated as follows (2):

$$\text{GVC_Position}_{ic} = \ln(1 + BI_{ic}) - \ln(1 + FI_{ic}) \quad (2)$$

Results and discussion

As is shown by export data by product (e.g. CN 08, code 94), the leading exporters of furniture in Europe are respectively Germany, Italy and Poland. From an industry point of view, however, Italy is the leader, followed by Germany and Poland (fig. 2).

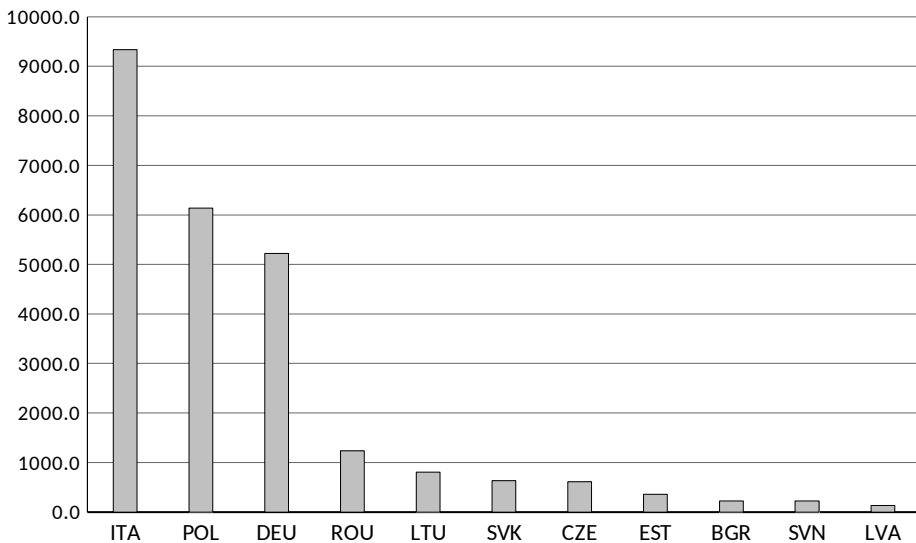


Fig. 2. Gross export values in 2011 – Manufacturing of furniture (ISIC v. 4: C31), US\$ million

Source: OECD, Trade by Enterprisesdatabase [2017-09-01].

This difference may be explained above all by the fact that enterprises trading internationally in furniture come not only from the ‘manufacturing of furniture’ sector, but also from other sectors, mainly ‘trade’⁴. The breakdown of trade in furniture and other transportable goods according to the exporting

⁴Examples of other types of enterprise which may trade in furniture include manufacturers of concrete, stone and ceramic furniture (classified under a different ISIC v.4 code) and automotive industry suppliers (e.g. vehicle seats are included in ‘furniture’ but their production is not classified as ‘manufacturing of furniture’).

industry is presented in figure 3. The aggregate code CPC 38 (which is the most detailed level of data in the OECD TEC database) makes it impossible to draw definite conclusions, because ‘other transportable goods’ (such as jewellery, musical instruments, toys, etc.) are also included. Nevertheless, assuming that the main good traded by the furniture manufacturing sector is furniture, it is clear that in Poland a great number of manufacturers export their products directly, whereas in Germany the role of other sectors, including trade, in furniture exports is much more significant.

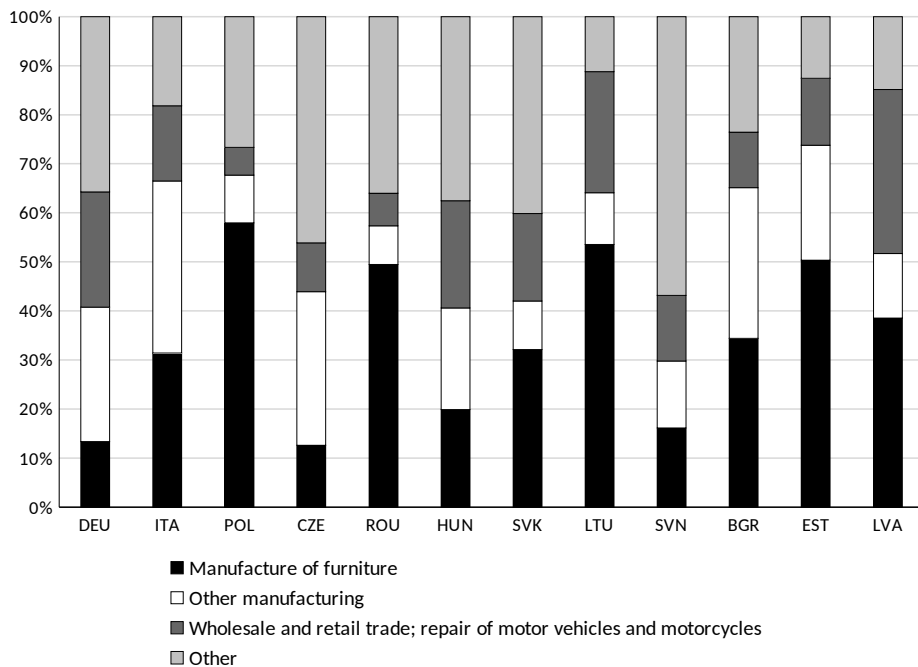


Fig. 3. Share of specific industries (ISIC v. 4) in total exports of furniture and other transportable goods n.e.c. (CPC 38) in 2011

Source: OECD, Trade by Enterprises database [2017-09-11].

Comparing the number of trading enterprises (fig. 4) with the value of exports (fig. 5) by size class, it may be noted that despite the dominance of small and medium enterprises (SMEs), the greatest value is exported by firms with 250 and more employees. This is particularly visible in the case of Poland, where large companies representing about 5% of the total number of enterprises account for 80% of the value of furniture exports. At the other extreme are Italy and Estonia, where not only are there more SMEs compared with large firms, but they also account for about 70% of total furniture exports.

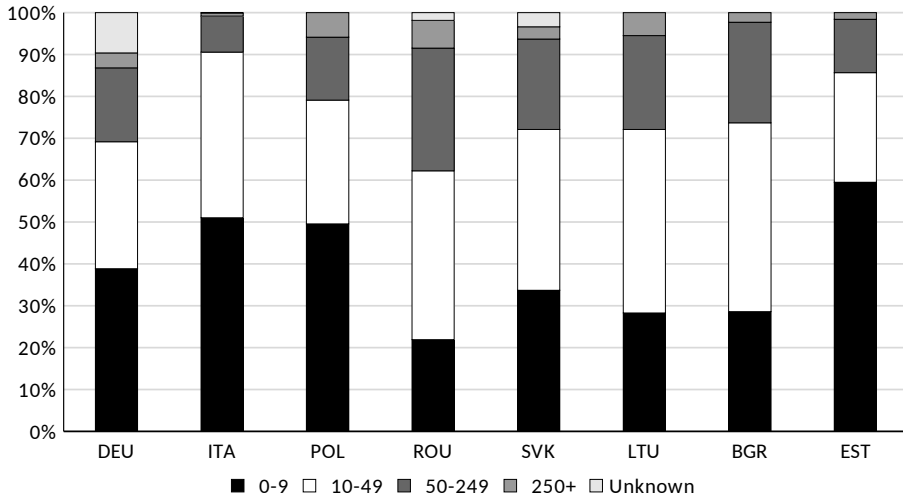


Fig. 4. Share in number of trading enterprises by size class in 2011 – Manufacturing of furniture (ISIC v. 4: C31)

Note: data for the “Unknown” category not available for Poland and Lithuania.

Source: OECD, Trade by Enterprises database [2017-09-11].

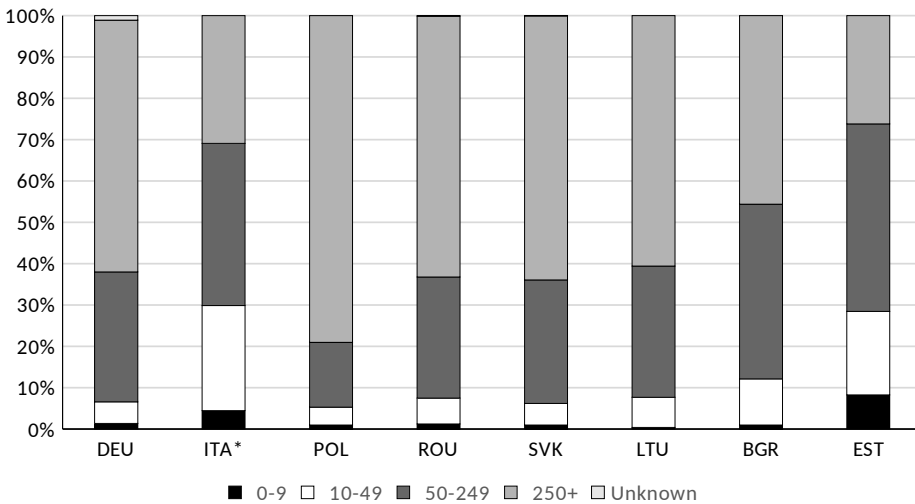


Fig. 5. Share in export values by size class in 2011 – Manufacturing of furniture (ISIC v. 4: C31)

Note: data for the “Unknown” category not available for Poland and Lithuania.

* For Italy the category “250+” includes “Unknown” (it represents the maximum share of large enterprises in the value of exports).

Source: OECD, Trade by Enterprises database [2017-09-11].

Some other vital differences between Poland and Italy concern the ownership of exporting companies. In Poland, as in other post-communist countries such as Hungary, Lithuania and Romania, the contribution of foreign enterprises to the value of exports is clearly dominant (fig. 6). In Italy, foreign investors do not have a significant share in furniture exports, while domestically controlled enterprises with their own affiliates abroad control almost 40% of the export value.

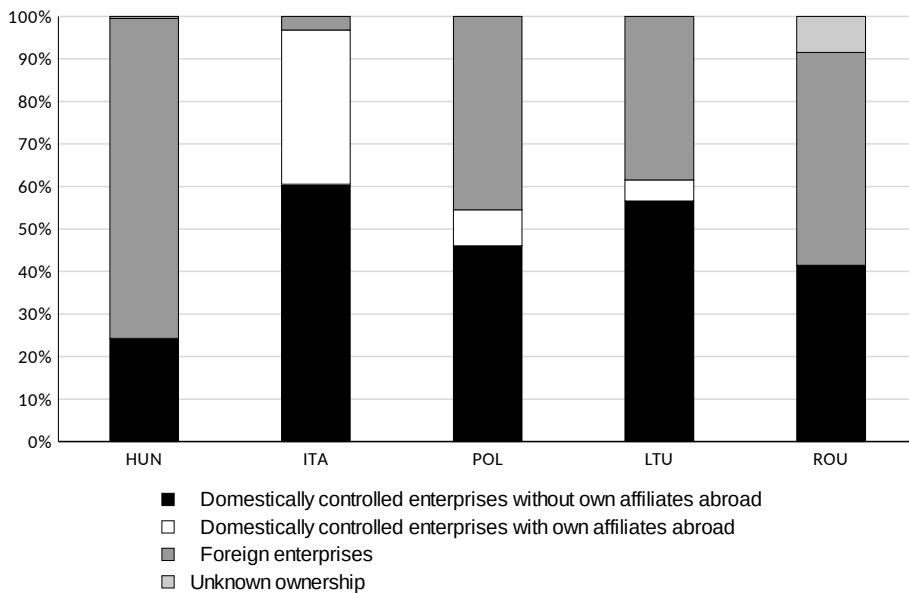


Fig. 6. Share in export values by type of ownership in 2011 – Manufacturing of furniture (ISIC v. 4: C31)

Note: data for the “Unknown” category not available for Poland and Lithuania.

Source: OECD, Trade by Enterprises database [2017-09-11].

Domestic value added accounted for 63.5% of Polish furniture exports in 2011; this was 10 percentage points lower than a decade earlier (fig. 7). This was the largest change among the analysed countries, although the figure decreased in all of them except Slovakia and Estonia (where there was a rise in the share of domestic VA in exports) and the Czech Republic (where it remained at the same level, although the value of exports doubled).

Domestic value added may be further decomposed into direct, indirect and re-imported value added. Direct value is added by the industry which further exports given goods or services, while indirect value comes from other domestic industries upstream in the value chain that deliver intermediate inputs for producing the goods or services. Lastly, re-imported value added is the value

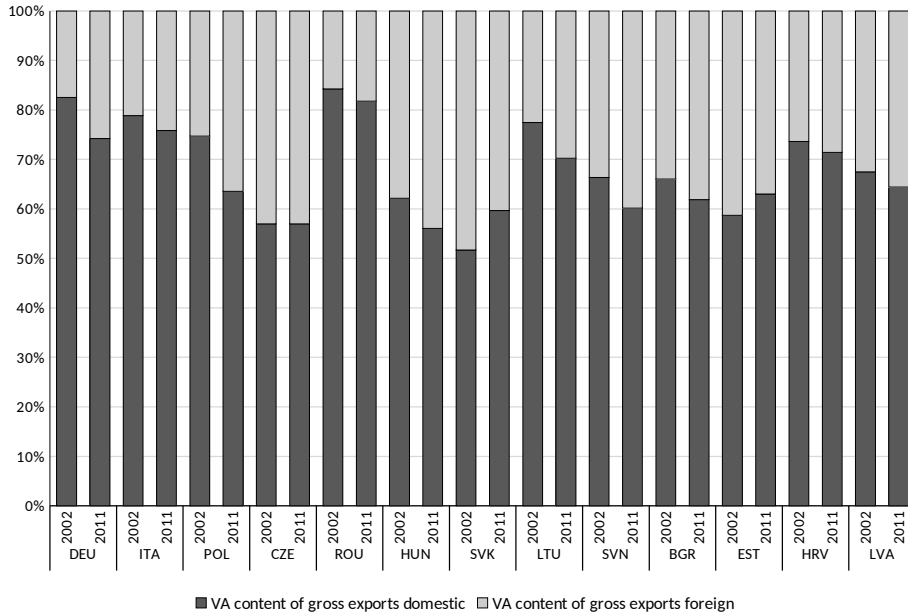


Fig. 7. Share of domestic and foreign value added content of gross exports in 2002 and 2011 – Manufacturing of furniture, manufacturing n.e.c., recycling (ISIC v. 3: D36-37)

Source: OECD, Trade in Value Added database [2017-09-01].

embedded in intermediate inputs which were previously exported, transformed by foreign enterprises and then re-imported as input for domestic manufacturing. Re-imported value added usually plays a minor role in exports, and that is the case in Poland as well as in the other analysed countries, its share being slightly greater in Germany (fig. 8). A greater share of reimported DVA is a sign of greater openness to trade and stronger involvement in complex GVCs, especially as the leading company controlling the flow of components through the chain. Therefore it may also point to the high competitiveness of domestic companies in international markets. In Poland the majority of domestic value added in exports of furniture comes from other industries, while the direct value added was just over 40% in 2011. Among the other countries, only Italy has such a low share of direct domestic value added, while on the other end of the scale are Romania and Hungary, which also significantly increased both their domestic value added and gross exports of furniture in the analysed period. Such a large rise in direct DVA may point to changes in market structure, especially vertical integration of furniture exporters, which leads to lower reliance on domestic intermediate inputs.

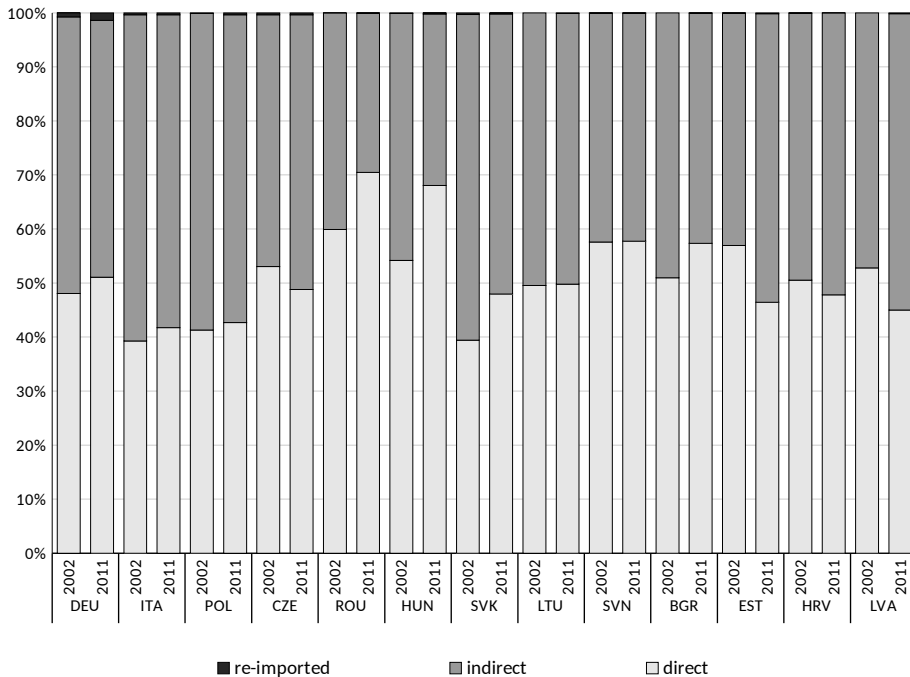


Fig. 8. Breakdown of domestic value added content of exports – Manufacturing of furniture, manufacturing n.e.c., recycling (ISIC v. 3: D36-37)

Source: OECD, Trade in Value Added database [2017-09-01].

The growing importance of foreign value added in exports, as well as the increasing contribution of intermediate products to export value, means greater involvement in global value chains, which is manifested in international fragmentation of production processes. In almost all analysed countries, intermediates accounted for almost half of exports in 2011 (more than half in the case of Lithuania and Estonia). The value added in intermediate and final products generally follows similar patterns as total value added, and an increase in the importance of foreign content could be observed in the period 2002-2011 especially for the FVA content of exports of intermediates (fig. 9). The share of foreign value added in final products in gross exports varied between countries; it increased in Germany, Poland and Bulgaria. In turn, domestic value added in final products accounted for a smaller share of exports in 2011 in all of the countries, even in the Czech Republic, Slovakia and Estonia, where generally the importance of domestic content in exports showed an increase. Its fall was also much greater than the rise in FVA in intermediates. Interestingly, the domestic content of intermediate products increased in all countries; this also indicates a change in the orientation of producers, which are starting to specialise in activities other than final assembly. The largest difference between the shares of final and intermediate products in exports was recorded in

Hungary, and this, coupled with the relative rise in direct domestic value added as a proportion of exports, may indicate that that country is becoming primarily a supplier of specialised components.

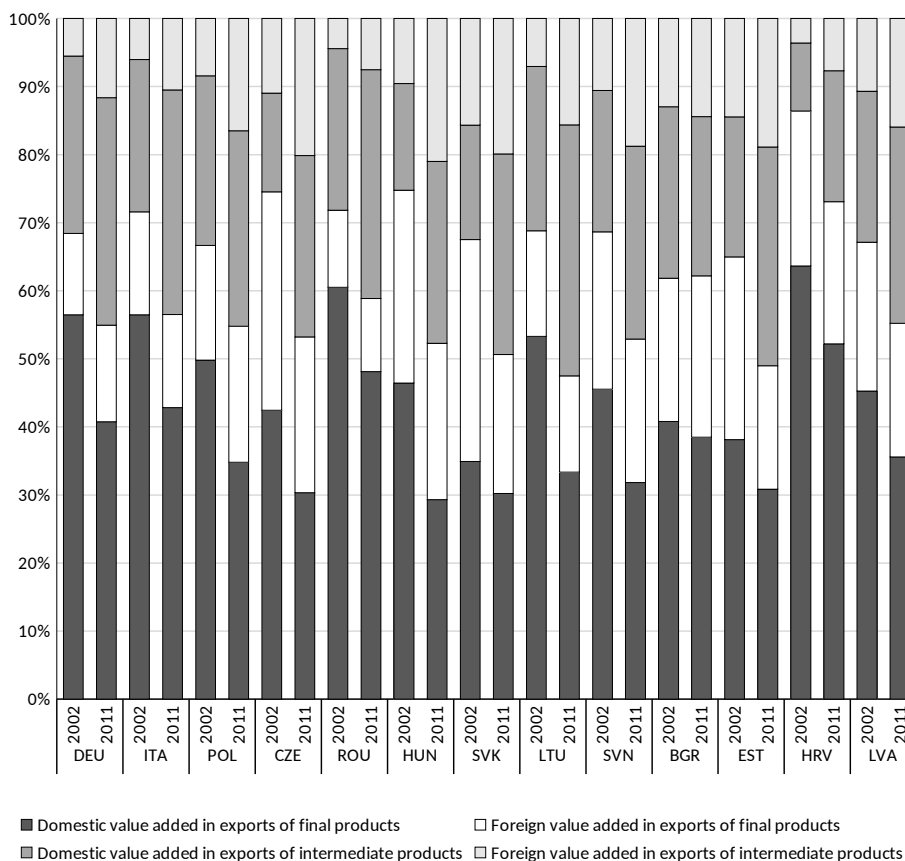


Fig. 9. Breakdown of VA in exports of intermediate and final products – Manufacturing of furniture, manufacturing n.e.c., recycling (ISIC v. 3: D36-37); share of gross exports

Source: OECD, Trade in Value Added database [2017-09-01].

Looking at importing-to-export data, it may be observed that, with the exception of Estonia, dependence on international production networks in the selected countries rose significantly in the years 2002-2011 (fig. 10). I2E, despite being a good starting point, is a more general concept than the share of foreign value added in gross exports, as it is based on the gross value of intermediates, which may include some domestic value added previously exported to foreign markets.

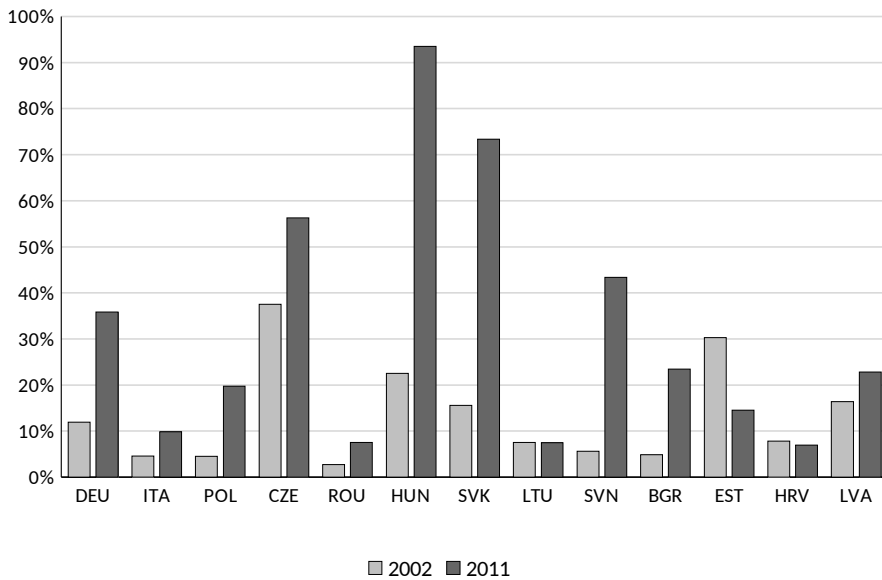


Fig. 10. Importing-to-export as share of gross exports – Manufacturing of furniture, manufacturing n.e.c., recycling (ISIC v. 3: D36-37)

Source: based on OECD, Trade in Value Added database [2017-09-01].

In Poland, similarly to almost all CEE countries, overall engagement in GVCs in the furniture industry declined in the period 2002-2011, in contrast to Germany and Italy, where it increased slightly (figs. 11 and 12). Moreover, the domestic industry became more dependent on imported inputs to produce exported goods (the backward participation index increased), but it supplied less value to third countries' exports. Looking at changes in GVC position over the decade (fig. 13) it may be noted that all of the countries moved downstream in the value chain, and Poland provides an example of the largest change in production orientation, transforming from a primary inputs manufacturer to a final goods exporter, with strong links to foreign suppliers.

The Czech Republic and Hungary provide examples of other patterns of evolution in global value chains. In the case of the former the overall contributions of foreign and domestic value added to exports did not change, but more detailed data show that the market structure shifted significantly: the role of domestic suppliers slightly increased, exports of intermediates rose sharply, and at the same time FI and GVC position declined. This means that intermediates exported by the Czech Republic were primarily used as components for goods consumed by the importing country, which may indicate that the importer is relatively large and/or that the intermediates exported are not primary materials but relatively downstream products. It also suggests that the industry is increasingly disaggregated vertically. In Romania, in turn, the high share of DVA in exports, especially direct DVA, indicates that its furniture

industry is more integrated. A rise in intermediates exports, containing mainly DVA and a very high level of FI, suggests that the country's exports are based on relatively low-value-added components. It seems therefore that Romania, together with Latvia, specialises in supplying upstream components for GVCs.

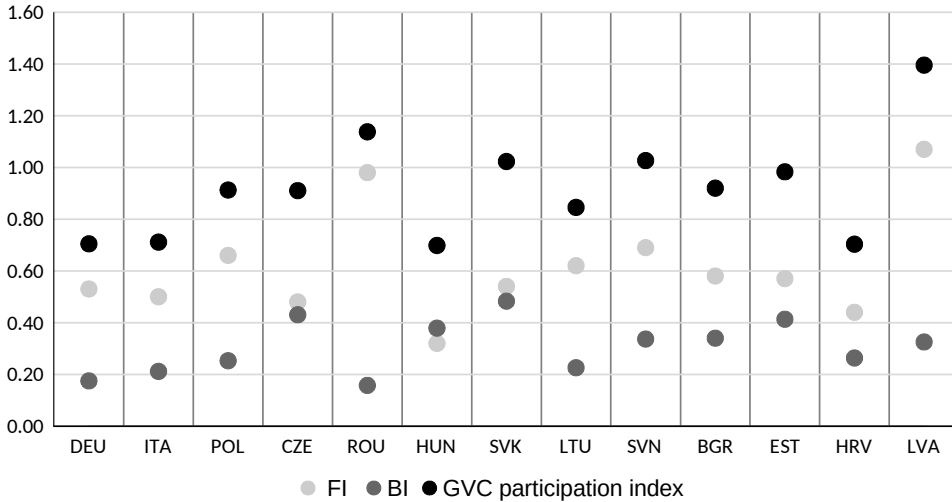


Fig. 11. GVC participation index, 2002

Source: based on OECD, Trade in Value Added database [2017-09-01].

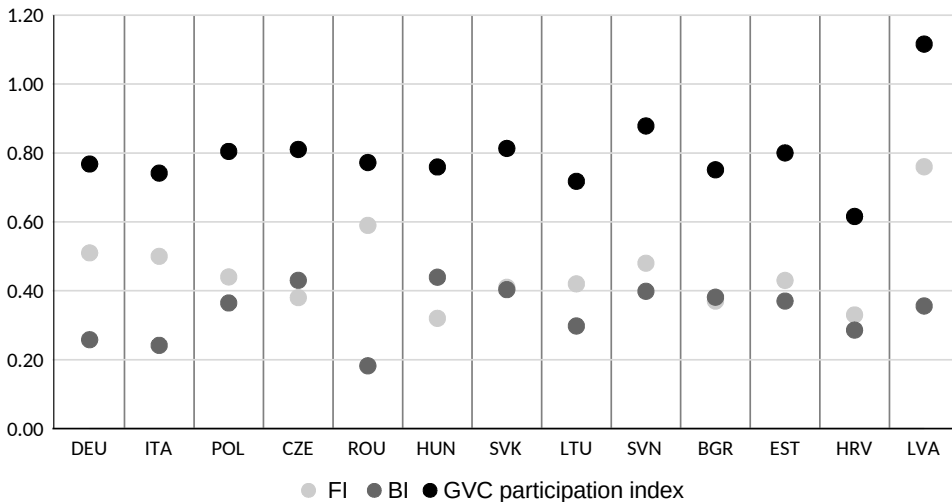


Fig. 12. GVC participation index, 2011

Source: based on OECD, Trade in Value Added database [2017-09-01].

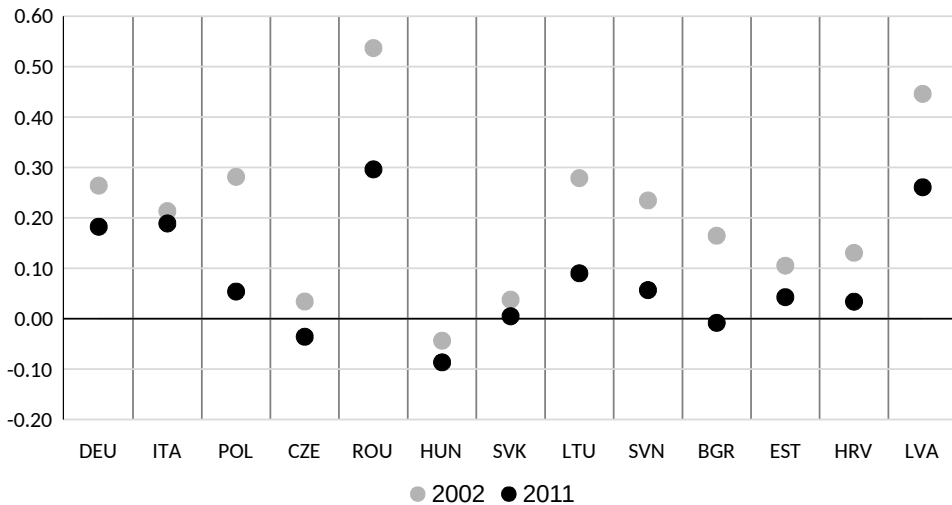


Fig. 13. GVC position index, 2002 and 2011

Source: based on OECD, Trade in Value Added database [2017-09-01].

In times of increasing fragmentation of production it is no longer gross export value that matters, but the level of domestic value added embodied in foreign sales, because this is a better proxy of international industry competitiveness than the conventional trade balance. Countries strive to specialise in high-value-added activities, which leads to a supply of meaningful jobs for domestic workers and prolonged economic growth. Increasing foreign content in trade is not a cause for concern on its own (although greater trade openness also brings certain risks). Detailed analysis of value added streams may provide some clues concerning an industry's value added production and appropriation, its structure and its place in GVCs, these being indications of its competitive position in global markets. For example, comparing Poland with leading European countries in furniture trading, it may be noticed that they all display relatively similar value added characteristics, but generally the domestic value added content of Polish exports is lower. Furthermore, the analysis reveals some other aspects of competitive performance: in the case of Germany especially a greater openness to trade is revealed, with for instance a non-trivial share of reimported DVA in exports. In the case of Italy, on the other hand, data on the ownership and size of exporting companies point to greater possibilities of appropriating created value.

When analysing value added trade data, one must be aware of their limitations (such as the high level of aggregation, time range and incompleteness). Even though significant work has been done on the construction of value added trade statistics in recent years, it is still at an early stage, requiring numerous revisions, additions and extensions.

The construction of international Input-Output tables involves a trade-off between precision and balance, and requires additional assumptions regarding divergent data. Moreover, any errors occurring in national I-O tables result in errors in all value added flows [Baldwin and Lopez-Gonzalez 2015]. Value added trade data at sectoral level should also be interpreted with caution, as it is not known exactly how imported inputs are distributed among sector users within each country [Koopman et al. 2014]. It is therefore suggested that conclusions be drawn from the order (rankings) of countries rather than from “raw” data. Some observed changes in the structure of value added flows may also be attributed to relative changes in the process, and this increases the uncertainty of the conclusions.

Additional measures such as I2E are based on the assumption that the technologies used for manufacturing products for the domestic market are the same as in the case of export goods [Baldwin and Lopez-Gonzalez 2015]. This is not entirely accurate in the case of the furniture industry, where for example domestic demand in Poland is less sophisticated than in the Western European countries to which a large proportion of Polish exports is directed. Furthermore, the value chain indicators analysed in this article allow only a preliminary assessment of the industry’s position in GVCs. More detailed analysis should go beyond trade data and investigate, for instance, the GVC governance mode [Gereffi et al. 2005] in the case of the furniture industry.

Conclusions

The application of gross data and analysis of flows of traded products, without taking into account how much of their value was created in the exporting country, may lead to erroneous conclusions. The progressive fragmentation of production calls for a departure from analysis at the product level, and the adoption instead of analysis of individual functions (tasks) in the value chain performed by given manufacturers. This is the perspective adopted in the present research, and it has enabled us to examine the competitive advantage of the furniture industry in Poland.

Production in the furniture industry is not as internationally fragmented as in the case of electronic equipment, for instance, but global value chains are present. Despite the decline in overall GVC participation among the analysed countries, their dependence on foreign inputs (backward participation) significantly increased over the years 2002-2011. The foreign value added used in the manufacture of exported products has gained importance especially in Poland, which moved significantly downstream in the value chain. The relatively large decline in the domestic value added content of exports can be viewed negatively, as it eventually affects the ability to create well-being in the domestic economy. Banning or taxing imports is not the way, however, as the competitiveness of exported products on foreign markets is determined largely

by the quality of inputs, and restrictions on sourcing may lead to the use of less competitive domestic substitutes. The emphasis should rather be placed on boosting the creation of domestic value added, to avoid a concentration on assembling high-quality foreign inputs and remain in the lowest part of the “smiling curve” [Shin et al. 2012]. This could be accomplished by investing more in R&D activities – in the case of the furniture industry, particularly design – and/or in marketing and sales activities, including the creation of strong brands and access to distribution channels. Because the furniture industry is characterised by a bottom-up approach to innovation, the best results are achieved when design and manufacturing are kept together – in contrast to the electronics industry, for instance, where they can easily be separated [Buciuni et al. 2013; Taglioni and Winkler 2016].

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