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Competitiveness of Polish service exports in the EU: A focus on specialisation in the years 2010-2022

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ABSTRACT

Objective: The objective of the article is to assess the competitiveness of Polish service exports to the EU by EBOPS categories and its changes in 2010-2022 and to compare the structure of Poland's competitive advantages in the exchange of services with the main EU trade partners (Germany, France, and the Netherlands).

Research Design & Methods: Research methods include a critical analysis of the subject literature and a ratio analysis of export competitiveness using the RSCA and TBI indices. On their basis, we developed a matrix to allow for a synthetic assessment of the competitiveness of Polish services exports and the mapping of service branches in the markets of selected EU member states. The analysis also considered a third indicator, *i.e.,* the export share index.

Findings: The most competitive branches of Polish service exports include mainly traditional branches (*i.e.,* goods-related and manufacturing services, transport, travel and construction services) as well as telecommunications and IT services and personal, cultural, and recreational services. During the period under study, the composition of competitive advantages of Polish exports of services to the EU did not change significantly. The only branches of Polish service exports whose competitive advantages increased in the period under study were transport, construction, telecommunications, computer, information, and personal, cultural, and recreational services. Based on traditional service industries, the pattern of competitive advantages in Polish service exports was characterised by relatively little differentiation across the main EU export markets. In exporting traditional branches of services, the greatest advantage occurs in the German market and in exporting other service industries in the Dutch market.

Implications & Recommendations: The obtained research results can be a starting point for verifying the industry structure and partly also the geographical structure of Polish service exports to the EU. On their basis, it is possible to indicate the categories of services with the best prospects for the development of exports to the EU market and the surveyed member states.

Contribution & Value Added: Relatively few studies of Polish service exports concerned their competitiveness in the EU market, most of them analysed the total value of exports. Furthermore, among studies assessing competitiveness in the EU market, researchers' attention generally focused on specific service categories and the EU market was treated as a homogeneous whole. Therefore, the issue of diversification of the competitive position of Polish service exports on the markets of individual EU member states was not taken into account. This article is an attempt to fill this research gap.

Article type:	research article
Keywords:	Trade in services; export competitiveness; Poland; intra-EU trade; competitive advantage; trade specialisation
JEL codes:	F14, F15

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INTRODUCTION

One of the development trends in world trade is the systematic increase in the importance of trade in services as a form of international economic cooperation. Since 2000, the value of global exports of

services based on balance of payments statistics has tripled, and in 2022, it represented 22.2% of global exports of goods and services (UNCTAD, 2024). Numerous studies (Baldwin *et al.*, 2024; Khachaturian & Oliver, 2023; Mann & Cheung, 2019; Rueda-Cantuche *et al*., 2016; Wettstein *et al.*, 2019) conducted in recent years emphasise that this value is in fact much larger because balance of payments statistics do not take into account the third mode of service supply identified in the General Agreement on Trade in Services (GATS) – the commercial presence model, which is responsible for more than half of the global services exchange turnover. According to Eurostat (2024), in 2020, 54% of EU 27 services exports were accounted for by the commercial presence model, and in some countries (Finland, France, Germany), this share exceeded 70%. Moreover, research on the processes of servitisation of industrial production, trade-in value-added and global value chains proves that services move across borders also as a result of the flows of goods in which they are embodied or embedded (Antimiani & Cernat, 2018; Blázquez *et al*., 2023; Cadestin & Miroudot, 2020; Cernat & Kutlina-Dimitrova, 2014). This observation is reflected in the concept of mode five of service supply, the value of which in some countries reaches nearly 40% of the value of their gross merchandise exports (Bombińska, 2021).

Services also play an increasingly important role in Poland's foreign trade. In the light of the balance of payments statistics, between 2010 and 2022, their exports increased fourfold, and their share in the total value of exports of goods and services increased in this period from 17.9% to 21% (UNCTAD, 2024). The dynamic growth of exports is increasingly important for the development of the Polish service sector, which in 2022 accounted for 71.8% of the value added and 70.3% of all employees in the Polish economy (GUS, 2024). Importantly, the export of services has significantly increased its share in the creation of Polish GDP. In 2010, the ratio of services exports to GDP was 7.3%, while in 2022, it reached 13.9%. Moreover, unlike trade in goods, the positive and systematically growing balance of exchange of services had a positive impact on Poland's balance of payments.

Analyses of the reasons for the dynamic development of service turnover emphasise the key role of the freedom to provide services in the EU's single internal market, of which Poland is a participant. EU member states are among Poland's most important partners in trade-in service. In 2022, they accounted for 61% of Polish services exports. The maintenance of favourable trends in Poland's services trade, as well as the development of this sector, are therefore largely determined by the competitiveness of Polish service exports to EU markets.

The article aims to assess the competitiveness of Polish service exports on the EU internal market. I conducted the evaluation at the branch level. I attempted to answer the following four detailed research questions:

RQ1: Which service branches are the most competitive in Polish service exports to the EU27?

RQ2: Is the composition of competitive advantages in Polish exports of services to the EU changing?

RQ3: Has the competitiveness of Polish service exports to the EU improved in the years 2010-2022?

RQ4: Are there differences in the competitiveness of Polish service exports on the largest EU-member states' export markets?

The remainder of this article is organised as follows. The first section will present the literature review focusing on the studies devoted to the essence of export competitiveness and ways of measuring it and research on Polish services exports, including its competitiveness. The following parts will discuss the research method, present the results of the ratio analysis, and map the branches of services exported by Poland to the EU. In conclusions, we will discuss research results, point out their limitations, and suggest further research and implications for economic policy.

LITERATURE REVIEW

Although the concept of competitiveness is widely used in modern economics, there is no clear and universally accepted definition of this category. Numerous definitions of international competitiveness refer to the position of a given country in international exchange, and in particular, to increasing its share in export markets (Olczyk, 2008; Tyson 1992; Wysokińska, 2001). Reducing international competitiveness solely to trade results raises many controversies because this approach suggests that com-

petitiveness applies only to the foreign market (Wziątek-Kubiak, 2001). Moreover, it is static and emphasises ex-post analysis of market shares (Wysokińska, 2001). Recognizing the validity of these reservations, I fully share the view quite commonly presented in the literature on the subject that within the concept of international economic competitiveness, we can distinguish two elements, *i.e.,* international competitive position (also called ex-post competitiveness or resultant competitiveness) and international competitive ability (ex-ante competitiveness, factor competitiveness) (Bossak & Bieńkowski, 2004; Gorynia, 2009; Misala, 2011; Weresa, 2008; Wosiek, 2016). The first of the mentioned categories – international competitive position – refers to the share of the economy in the broadly understood economic exchange of the country, *i.e.,* international exchange of goods, services and production factors. In turn, international competitive ability, understood as the long-term ability to cope with international competition, is a category that perceives competitiveness from its factors and conditions in a dynamic approach.

Scholars widely consider export competitiveness to be an important tool for achieving the international competitiveness of a country's economy (Caporale *et al.*, 2018; Dhiman *et al*., 2020; Gnangnon, 2019), at the same time constituting its manifestation. Despite numerous theoretical and empirical studies on export competitiveness, this term has not been precisely defined so far and remains an ambiguous concept (Siggel, 2006; Wyszkowska-Kuna, 2014). In export competitiveness studies conducted at firm, industry, regional or country level, we can define it the capability to produce and sell goods and services at the required place at competitive prices when compared to other suppliers (Sharples & Milham, 1990). According to OECD, competitiveness in international trade is a measure of a country's advantage or disadvantage in selling its products in international markets (Durand *et al*., 1992). Literature calls such advantage a competitive advantage and often associates it with the concept of comparative advantage used in the traditional theory of international trade. Comparative advantage means the ability of a country (industry) to produce goods at a lower relative cost than other countries and is reflected in the directions of a country's export and import specialisations. For this reason, the category of competitiveness (and in particular export competitiveness) is linked with export specialisation, which, however, raises serious reservations among some researchers. They express a view that even though both competitiveness and specialisation are comparative categories – both compare the efficiency of different producers – the scope of comparisons made is different (Wziątek-Kubiak, 2001). Because competitiveness 'results from the relative strength of a particular economy or industry in relation to foreign competitors as suppliers of specific products to domestic and international markets' (Wysokińska, 2001, p. 36), in its assessment, it is compared one activity of a given entity to other entities – competitors (vertical approach), while in specialisation research, various activities of one entity are compared (horizontal approach) (Fischer & Schornberg, 2007). Moreover, changes in specialisation may be influenced by demand factors that are not reflected in changes in competitiveness. Moreover, the growing intensity of intra-company exchange means that the level and changes in specialised production are not always verified by competition in the global market (Wziątek-Kubiak, 2001). Therefore, competitiveness and specialisation are not the same concepts. On the other hand, as Wziątek-Kubiak rightly notes, 'The efficiency essence of competitiveness connects it with the category of specialisation because an increase in operating efficiency is a condition for changing or maintaining specialisation' (Wziątek-Kubiak, 2001, p. 477) and 'changes in competitiveness are reflected in specialisation, and changes in the latter – in competitiveness' (Wziątek-Kubiak, 2001, p. 487).

In light of the above considerations, we may conclude that considering specialisation as one of the elements of competitiveness research seems to be fully justified. However, the obtained research results require verification by means of other competitiveness measures described later in the article. I also postulate that export competitiveness studies should include an assessment of changes in the structure of comparative advantages because, from the perspective of the effectiveness of competing in the international market, the nature and directions of specialisation in trade may be more or less desirable, and therefore more or less competitive. It is generally accepted that the most desirable pattern of comparative advantage in a country is the one dominated by goods/services whose production requires the use of more complex production factors, in particular knowledge. This pattern of comparative advantages provides the most stable and lasting foundations for effective competition on an international scale. Con-

sequently, a change in the nature of a country's export specialisation towards the above-described, desired pattern of comparative advantage can be interpreted as an improvement in the country's export ability to compete on international markets, that is, an improvement of its export competitiveness.

Scholars use various measures in empirical studies of export competitiveness. We may divide. them into four groups: (i) indicators regarding the country's foreign trade situation (*e.g.,* share in world exports, trade balance, trade coverage index, import penetration index); (ii) specialisation indicators (export specialisation indicator, revealed comparative advantage indicator, intra-industry trade indicators); (iii) price-cost indices (price terms of trade, income terms of trade, real effective exchange rate, relative unit labour costs); (iv) price-quality indicators (relative price index, 'weight-price' index) (Ambroziak, 2016; Jagiełło, 2003; Zielińska-Głębocka, 2000). Due to the limited field of description and point-based nature, we cannot consider single indicators as precise measures of export competitiveness. Therefore, we postulate that appropriate sets of measures be used in research. A review of services export competitiveness research shows that the comparative advantage (RCA) index is the most frequently used measurement tool to determine the country's competitiveness both in specific service categories or the overall services sector (Islam, 2021; Paul & Dhiman, 2021).

The importance of services in Poland's foreign trade is the subject of numerous empirical studies. Some of them concern Poland's total service exchange (*e.g.*, Wosiek & Visvizi, 2021; Zaharieva, 2020), while some researchers focus on trade with the EU (*e.g.*, Kąkol, 2018; Stefaniak & Ambroziak A., 2021) or its individual member countries (*e.g.*, Kuźnar, 2016). The research covers both the entire services sector and individual branches, in particular trade in services with a large share of development prospects in Poland's trade, such as ICT, KIS/KIBS, R&D, or transport services. In recent years, numerous studies have been devoted to the role of services in Poland's participation in global value chains (*e.g.*, Cieślik, 2022; Kordalska & Olczyk, 2021; Odrobina & Folfas, 2020). Many scholars also address the issue of competitiveness of service exports from Poland. Table 1 presents selected research from recent years.

The review of studies indicates that relatively few studies of Polish service exports concerned their competitiveness in the EU market, most of them analysed the total value of exports. Moreover, among studies assessing competitiveness in the EU market, researchers' attention generally focused on specific service categories (ICT, KIBS), and they treated the EU as a homogeneous whole. Therefore, no article considered the issue of diversification of the competitive position of Polish service exports on the markets of individual EU member states. This article fills this research gap.

RESEARCH METHODOLOGY

Considering the previously indicated postulate of using sets of measures in export competitiveness research, and at the same time having regard to the limited volume of the study, three measures were used in the research. The first two were revealed symmetric comparative advantage index (RSCA) by Dalum *et al.* (1998) and trade balance index (TBI) by Lafay (1992). On their basis, we developed a matrix allowing for a synthetic assessment of the competitiveness of Polish service exports on the EU market, and mapped service branches on the entire EU market, and selected the largest export markets among the EU Member States.

The first index used – the RSCA index – is a modified version of the revealed comparative advantage (RCA) index Balassa (1965). The RCA indicator compares the share of product/service in the exports of the examined country *j* with the share that this product/service has in global exports (or of a given reference country/countries):

$$RCA_{ij} = \frac{X_{ij}}{X_j} : \frac{X_{iw}}{X_w} \quad (1)$$

in which:

X_{ij} - value of exports of good/service *i* in country *j*;
X_j - value of total exports in country *j*;
X_{iw} - value of world exports of good/service *i*;
X_w - value of exports world exports.

Table 1. Recent research on the competitiveness of Polish services exports

Study	Years covered	Country (countries) in focus)/trade partner	Industry	Methods/ measures applied	Main conclusions
Wyszkowska-Kuna (2016)	2000-2013	New EU member states/world	KIBS	export performance, trade balance, RCA index	Poland wasn't competitive in total KIBS exports, but thanks to high growth rates of its exports of computer and information services and other business services, it managed to achieve trade surpluses and comparative advantage in both fields by the end of the analysed period.
Talar (2016)	2005-2014	Poland, other CEE and BRiCS countries/world	ICT services	Trade share, trade balance, trade coverage, RCA index	Poland did not reveal a comparative advantage in the export of ICT services, but it did have a positive balance. Trade indicators for Poland showed very strong growth, indicating improving competitiveness of ICT exports. Competitiveness indicators in intra-EU trade were less advantageous than in extra-EU trade.
Kuźnar (2016)	2004-2012	Poland/Germany	EBOPS categories, High-tech KIS sub-Sectors,	market shares in exports and imports, export composition, trade balance, RSCA	Poland recorded a comparative advantage in travel, transport and construction services. The share of high-tech services increased in Poland's services exports, but Poland did not reveal a comparative advantage in any of its high-tech knowledge-intensive services.
Kąkol (2018)	2008-2016	Poland/ EU-28 market	EBOPS categories, High-tech KIS sub-sectors	Cost-price and productivity indicators, revealed symmetric comparative advantage (RSCA) index	Poland had a comparative advantage in construction; manufacturing services; transport; maintenance and repair services, as well as such high-tech KIS sub-sectors as information and computer services. Poland based its competitiveness in intra-EU28 trade in services primarily on price and cost advantages.
Stefaniak & Bąk (2018)	2008-2015	EU member states/world	Total services	taxonomic development measures	Ranks of particular EU countries (including Poland) were unstable in the analysed period. Poland ranked between 22nd (in 2009) and 10th (2010) among the 28 countries surveyed, and in 2015, it took 15th place.
Zaharieva (2020)	2014-2018	EU member states/world	EBOPS categories	market share competitiveness matrix	Based on the observations on the change in world market share and changing demand for services for the period 2010-2018, Poland was in the position of rising stars and recorded the greatest improvement in export competitiveness next to Hungary, Ireland, Lithuania, Romania, Slovakia, Croatia and, the Netherlands.
Wosiek & Visvizi (2021)	2010-2019	Poland/world	EBOPS categories	Visvizi-Wosiek RCA (VWRCA) index	Poland revealed comparative advantages in transport, construction and R&D services, and has a real chance to gain a comparative advantage in personal, cultural and recreational services in the next several years. The threat of losing the advantage is noticeable in the category of goods-related services and manufacturing services.
Stefaniak & Ambroziak (2021)	2013-2018	EU member states/ Intra-EU trade, Extra-EU trade	ICT services	Trade share, revealed symmetrical comparative advantage (RSCA) index, trade balance index	Over the years 2013-2018 Poland held weak trade position but improved net trade indices. Moreover, similarly to leaders in ICT services trade, Poland did better in extra-EU trade rankings than in the EU Internal Market.

Source: own study.

The research compared the share of the service industry in Poland's exports of services to the EU27 with the share of this service industry in the export of the rest of the world (excluding Poland) to the EU market. The RCA index can only take positive values, and a comparative advantage in trade in goods/services occurs when the RCA is greater than one. Otherwise, when RCA takes fractional values, the country under study has no revealed comparative advantage. Due to the asymmetric distribution and the lack of a finite upper limit of RCA, several modified formulas with a symmetric distribution have been developed. Particularly well-known is the one proposed by Dalum *et al.,* which is presented by the formula:

$$RSCA_{ij} = \frac{RCA_{ij} - 1}{RCA_{ij} + 1} \quad (2)$$

The RSCA index was in the range [-1,1], with positive and negative values indicating the existence and absence of a revealed comparative advantage, respectively.

The second indicator that I used in the research was the trade balance index (TBI):

$$TBI_{ij} = \frac{X_{ij} - M_{ij}}{X_{ij} + M_{ij}} \quad (3)$$

in which:

X_{iw} - value of exports of good/service *i* in country *j*;

M_{ij} - value of imports of good/service *i* in country *j*.

Trade balance index, like RSCA, has values in the range [-1,1]. Its positive values mean a trade surplus and indicate the exporting country's competitive advantage over local suppliers from the importing country. In turn, negative values characterise countries that do not have competitive advantages in exports of a given good/service. Noteworthy, it is necessary to be very careful in the interpretation of the TBI value, because the relatively low absolute value of the TBI level, oscillating around 0, does not necessarily indicate low export competitiveness, but it may result from the development of intra-industry trade.

Separately calculated RSCA and TBI indicators do not provide a clear answer as to the export competitiveness of a given branch of services on the export market because a situation may occur in which a favourable (positive) value of one of these indicators is accompanied by an unfavourable (negative) level of the value of the other one. Therefore, using the concept proposed by Widodo (2009), a matrix combining both measures of competitiveness was developed; on its basis, it is possible to comprehensively assess the competitiveness of the country's exports and map services on export markets. The services that a given country exports may belong to one of the four groups presented in Figure 1. Group A includes those services in which the country has both a comparative advantage (RSCA>0) and a trade surplus (TBI>0). If there is a comparative advantage in the trade of a given service and at the same time the country is a net importer (RSCA>0, TBI<0), it belongs to group B. The next group – C – includes those services in the case of which the country is a net exporter but does not have a comparative advantage in trade (TBI>0, RSCA<0). The last possible situation – which corresponds to part D of the matrix – is trade-in services with no comparative advantage and a negative exchange balance. A clear assessment of export competitiveness is possible in relation to services included in parts A (competitive exports) and D (non-competitive exports) of the matrix. In the case of groups B and C, this assessment is not possible due to the discrepancy in the results of the indicators used.

Researchers have widely used Widodo's approach in studies of trade in goods (Ambroziak, 2013; Cieślik, 2021; Jayadi & Aziz, 2017; Pawlak & Smutka, 2022), and in the analysis of service exports (Ambroziak, 2018; Ambroziak & Stefaniak, 2022; Cunha & Forte, 2017; Jiang & Lin, 2020; Stefaniak & Ambroziak, 2021). In some studies, scholars extended the analysis to include additional indicators, and some researchers – adopting Widodo's approach – modified the indexes on the basis of which the matrix was created (Ambroziak, 2013).

Since the TBI indicator focuses on the assessment of the export competitiveness of the examined country in relation to local suppliers from the importing country, I used the third indicator in this research, *i.e.,* the export share index (ESI). The share of the examined country in total exports to the market of the importing country allowed me to assess its ability to compete on this market in relation to other foreign suppliers.

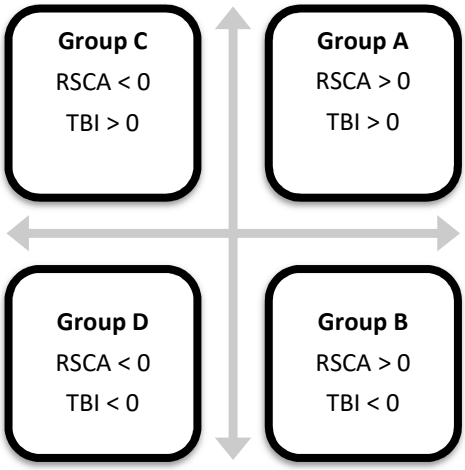

Figure 1. Product mapping scheme for export markets
Source: Widodo, 2009.

The research covered the period 2010-2022, which is determined by the availability of comparable statistical data according to the standards introduced by BPM6 (IMF, 2009). I based the research solely on the balance of payments statistics, so it did not consider the third way of providing services in international trade – the commercial presence model. RSCA, TBI, and ESI indicators have been calculated for the 11 main standard service categories of the Extended Balance of Payments Services Classification (EBOPS, 2010), *i.e.,* SA – SK service categories. All data used in the research come from the Eurostat database.

RESULTS AND DISCUSSION

Between 2010 and 2022 service exchange of Poland with other EU countries increased dynamically. Exports were more than tripled and imports grew nearly 2.5 times. Throughout the entire period Poland recorded a positive and growing balance of trade in services. In 2022, it was nearly 12 times higher than at the beginning of the period under study (Figure 2). Exports were characterised by very high geographical concentration and minor changes in the group of the largest importers of services from Poland. Both in 2010 and in 2022, more than half of Polish exports of services were directed to the markets of only three countries – Germany, the Netherlands, and France. There was a noticeable decrease in the share of Germany in Polish exports (by 12.6 percentage points) and an increase in the shares of the other most important trading partners (Table 2). The branch structure of Polish exports to the EU (Table 3) was dominated by transport services (37.9%), and especially road transport (22.8%), whose shares increased significantly compared to 2010. The second branch of services in terms of export value was other business services (22.3%) – their importance in Polish exports to the EU decreased slightly. The most important categories of services exported to the EU also included telecommunications, computer and information services, the share of which doubled compared to 2010 (to 10.7%), mainly due to computer services (9.4%). Travel remained an important branch of services, but its share decreased sharply compared to 2010 (by 18.3 percentage points) and in 2022 it amounted to 10%.

Figure 3 presents mapping matrices of the branches of services exported by Poland to the EU in 2010 and 2022, developed on the basis of the Widodo method. Analysis of the chart shows that in 2010, 5 out of 11 analysed EBOPS categories were in the most favourable quadrant of the matrix, showing positive values of both the RSCA and TBI indicators. These were: Manufacturing services on physical inputs owned by others (SA), Maintenance and repair services (SB), transport services (SC), travel (SD), and construction (SE). The remaining six categories (SF-SK), including other business services (SJ), which accounted for nearly 23% of Polish exports, were in the least favourable quarter of the matrix. In 2022 the number of competitive services branches in Poland's exports to the EU in-

creased to 6. This group included the same categories as in 2010, except travel, and was also joined by Telecommunications, computer and information services (SI) and Personal, cultural and recreational services (SK). In total, they accounted for nearly 64% of Polish exports to EU countries. The number of service branches whose exports were characterised by negative values of the RSCA and TBI indices decreased to 3 (Travel, Insurance and pension services and Charges for the use of intellectual property). The competitiveness of the exports of two branches of services – financial services (SG) and other business services (SJ) – was difficult to assess, because although Poland was a net exporter in their case, it did not reveal comparative advantages in their exports.

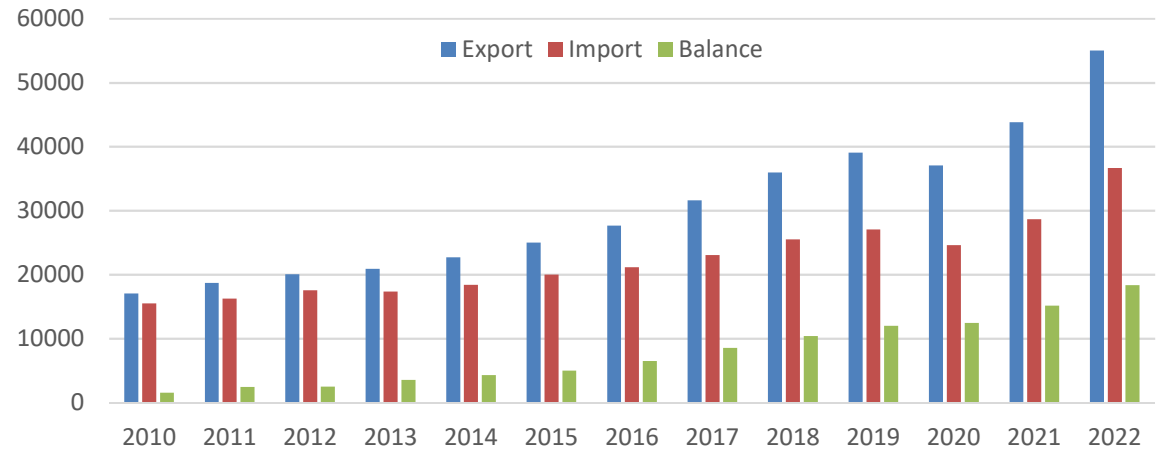

Figure 2. Poland-European Union (EU-27) trade between 2010 and 2022, in million euro
Source: own elaboration based on Eurostat data.

Table 2. Geographic structure of Poland's exports to the EU27 in 2010 and 2022 in percentages

2010			2022		
1.	Germany	41.0	**1.**	Germany	28.4
2.	France	7.1	**2.**	The Netherlands	12.8
3.	The Netherlands	8.1	**3.**	France	9.8
4.	Italy	3.4	**4.**	Italy	5.8
5.	Sweden	4.1	**5.**	Belgium	5.3
6.	Austria	3.7	**6.**	Austria	5.2
7.	Belgium	4.0	**7.**	Denmark	5.0
8.	Czechia	6.4	**8.**	Sweden	4.8
9.	Denmark	2.7	**9.**	Lithuania	3.4
10.	Slovakia	3.8	**10.**	Finland	3.0
11.	Other EU Countries	15.6	**11.**	Other EU Countries	16.6

Source: own study based on Eurostat data.

The level of the export share index also proves the relatively high competitiveness of traditional service industries (SA – SE of EBOPS categories) in Polish exports to the EU in 2010 and 2022 (Figure 4). Similarly to the RSCA and TBI indicators, it also shows that the least competitive industries in Poland's exports to the EU market in the analysed years included SF and SH categories. Moreover, SG. The ESI changes also confirm that the export competitiveness of SI and SK branches has significantly improved in the examined years. However, it is still lower than that of traditional service industries. At the same time, contrary to what results from the mapping matrices analysis, between 2010 and 2022 there was an improvement in the export competitiveness of tourist services (ESI increased from 1.62% to 2.21%). In the case of other business services (SJ), ESI changes show that Poland's competitive position on the EU market has improved in the years under study, but compared to other branches of Polish services exports, this category was characterised by a relatively low (although growing) Poland's share in world exports to the EU market.

Table 3. Polish export to the EU27 in 2010 and 2022 by service category in percentages

EBOPS category		2010	2022
SA	Manufacturing services on physical inputs owned by others	6.0	5.7
SB	Maintenance and repair services	2.0	4.0
SC	Transport	26.0	37.9
	Including:		
	- Road transport	17.1	22.8
	- Air transport	2.3	2.8
SD	Travel	28.3	10.0
SE	Construction	4.8	3.8
SF	Insurance and pension services	0.8	0.8
SG	Financial services	1.9	1.7
SH	Charges for the use of intellectual property	0.6	0.8
SI	Telecommunications, computer and information services	5.3	10.7
	Including:		
	- Telecommunications services	1.3	0.8
	- Computer services	3.7	9.4
	- Information services	0.2	0.5
SJ	Other business services	22.9	22.3
	Including:		
	- Research and development services	1.5	2.0
	- Professional and management consulting services	8.4	11.7
	- Technical, trade-related, and other business services	13.1	8.7
SK	Personal, cultural and recreational services	0.8	1.5

Source: own study based on Eurostat data.

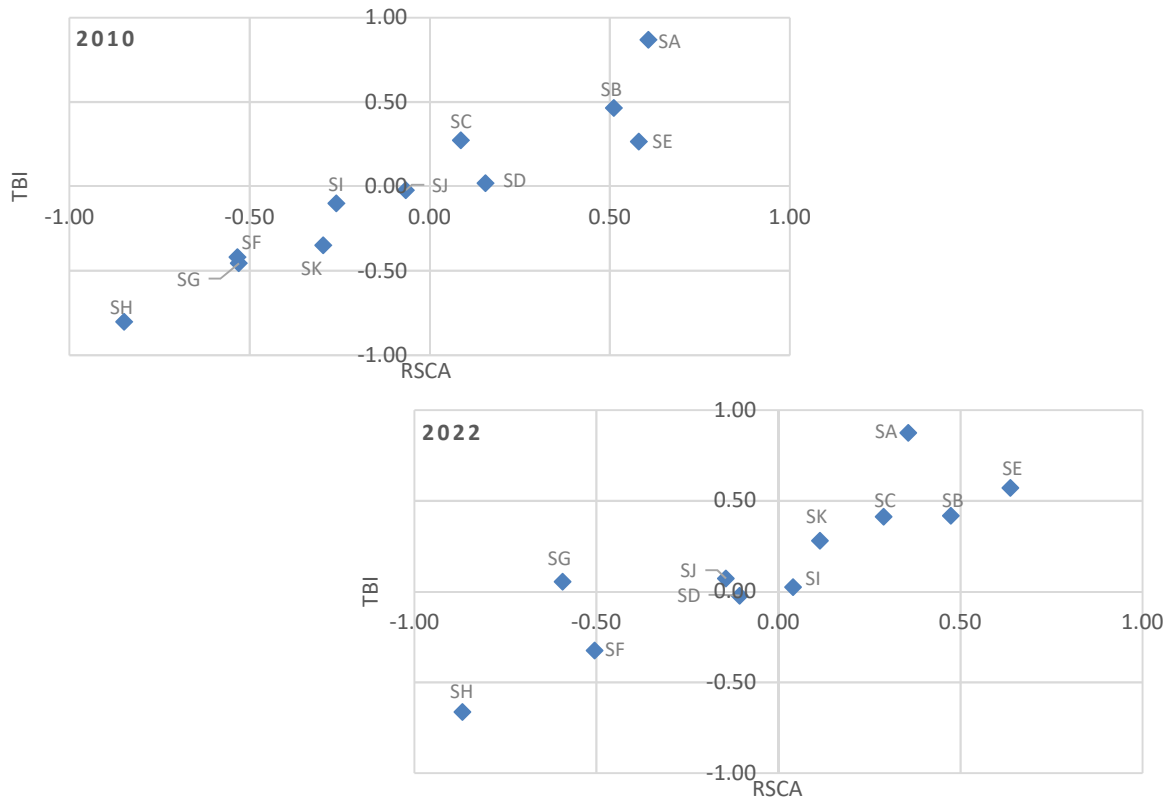

Figure 3. Mapping matrices of the branches of services exported by Poland to the EU in 2010 and 2022

Source: own elaboration based on Eurostat data.

In addition to changes in the composition of competitive advantages of Polish service exports to the EU in 2010-2022, we can observe changes of the range of these advantages. The analysis of Figure 4 shows the improvement in the competitiveness, both in general and across all service industries, except insurance and pension services (SF), because only in their case did Poland reduce its share in global exports to the EU market. In the case of the RSCA index, Poland recorded an increase in only five branches (SC, SE, SF, SI and SK), while the TBI improved in all branches except SB and SD (Figure 5). Basing the assessment on changes in all three indices, we can therefore conclude that during the period under study, four out of 11 branches increased their competitiveness on the EU market and these were: SC, SE and SI, and SK.

Figure 4. Export share index (ESI) in Polish exports of services to the EU in 2010 and 2022 by EBOPS categories in percentages

Source: own elaboration based on Eurostat data.

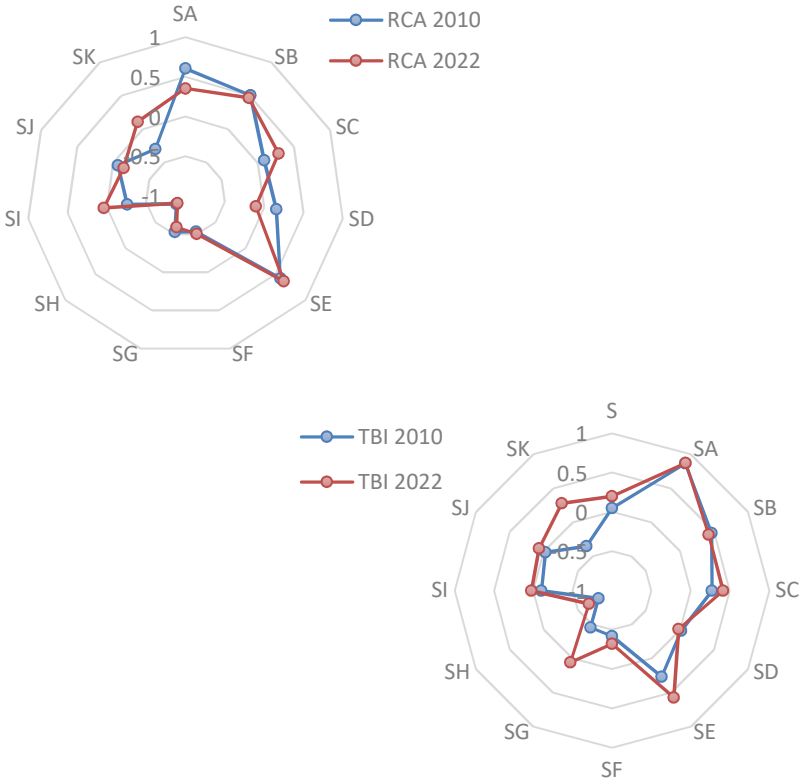

Figure 5. RSCA and trade balance indicators in Polish exports of services to the EU in 2010 and 2022 by EBOPS categories

Source: own elaboration based on Eurostat data.

Mapping matrices of the services categories exported by Poland to the main EU markets (Germany, France, and the Netherlands) indicated relatively little differentiation in the composition of competitive advantages (Figure 6). In 2022, in all three countries, Polish export of four service branches (SA, SB, SC, SE) was highly competitive, and additionally in Germany – SK, and in France, and the Netherlands – SI. Exports of other service categories to these markets were uncompetitive, except for SD in Germany, SG in France and SG and SJ in the Netherlands. In these cases, negative RSCA and positive TBI values did not allow for a clear assessment of export competitiveness. The above patterns in the composition of competitive advantages also confirmed the development of the ESI except for the export of SA and SB services to France. In this case, Poland's shares in global exports to the French market were low in relation to other branches of service (Figure 7). Moreover, the level of ESI on the three main export markets proves that Polish exporters of traditional services (SA-SE) had the greatest competitive advantage on the German market, while in the export of other branches of services (SF-SK), they are the most competitive on the Dutch market.

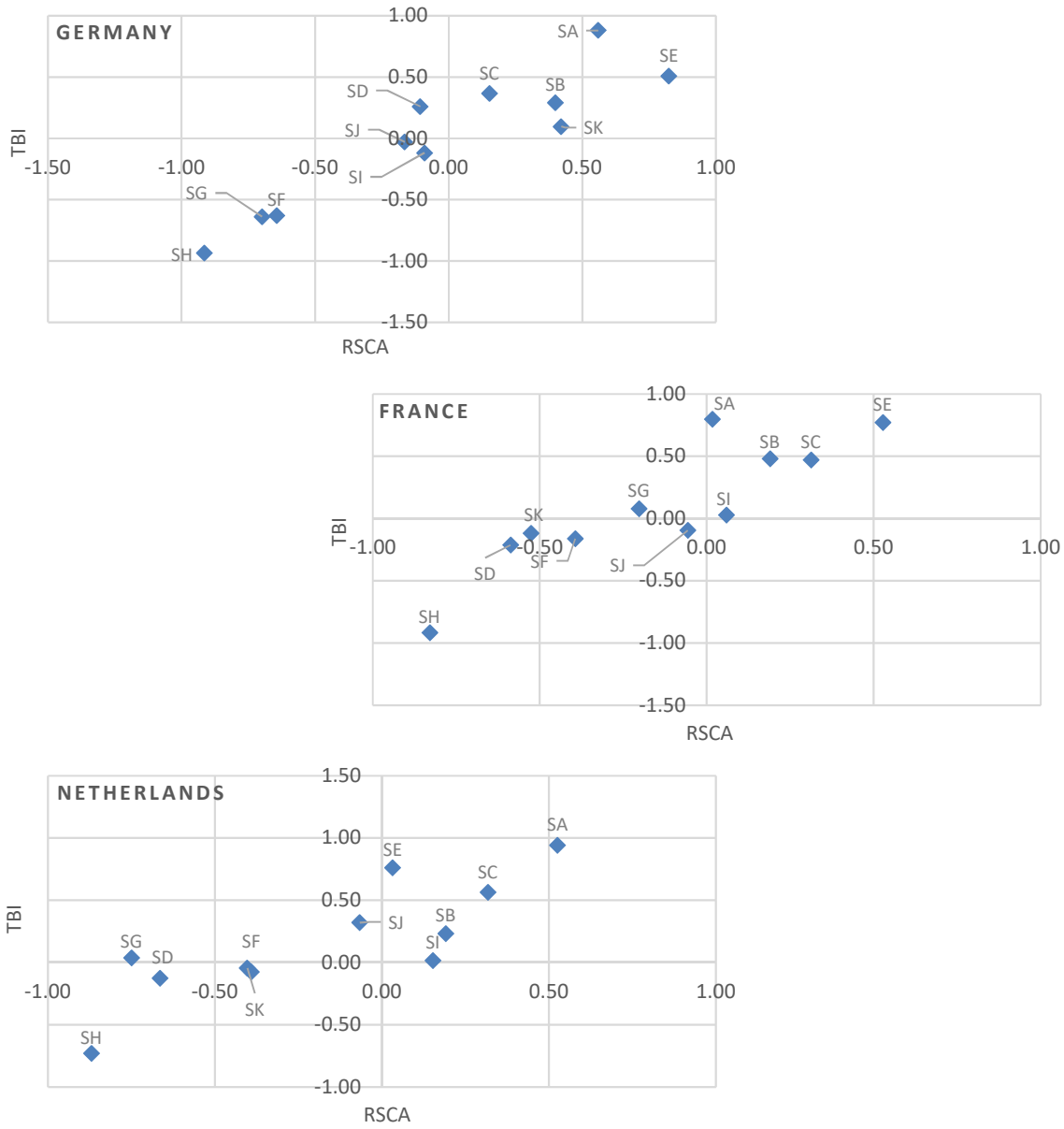

Figure 6. Mapping matrices of the branches of services exported by Poland to Germany, France, and the Netherlands in 2022

Source: own elaboration based on Eurostat data.

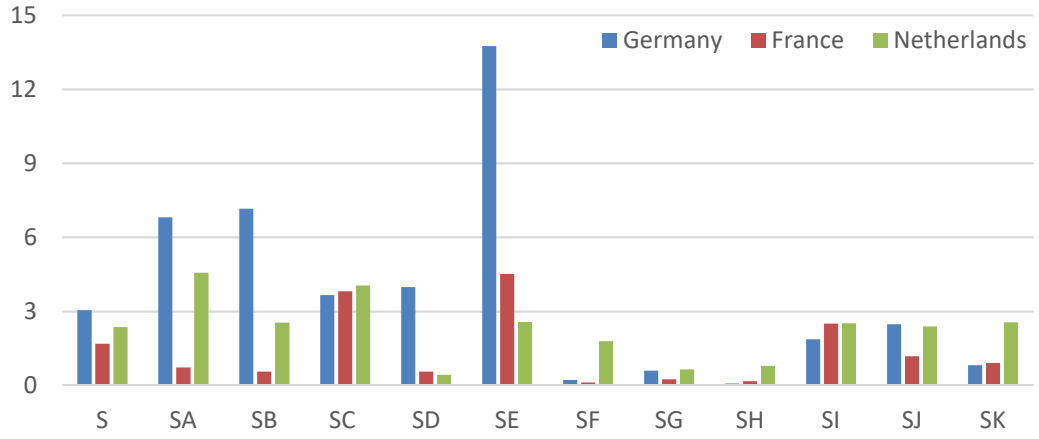

Figure 7. Export share index (ESI) in Polish exports of services to Germany, France, and the Netherlands in 2022 by EBOPS categories, in percentages
Source: own elaboration based on Eurostat data.

CONCLUSIONS

The conducted research allows for formulating several conclusions regarding the competitiveness of Poland's service exports to EU27 countries in the years 2010-2022.

Firstly, the most competitive industries in Polish service exports included goods-related and manufacturing services, transport, travel and construction services (*i.e.,* SA-SE of EBOPS branches), while the least competitive branches were financial services, insurance and pension services, and charges for the use of intellectual property (SF-SH of EBOPS branches).

Secondly, during the period under study, the composition of competitive advantages in Polish service exports did not change significantly. Admittedly, telecommunications, computer and information services (SI), personal, cultural and recreational services (SK) and other business services (SJ) joined to the competitive exports branches, however their competitiveness was still lower than that of the traditional services industries (SA-SE categories). Relatively small changes in the structure of competitive advantages dominated by traditional service branches did not indicate a significant improvement in the competitiveness of Polish service exports to the EU.

Thirdly, except for charges for the use of intellectual property (SH), during the period under study, each service branch recorded an increase in the value of at least one of the export competitiveness measures used in the research. However, the only branches of Polish service exports whose competitive advantages increased in the period under study were transport, construction, telecommunications, computer and information and personal, cultural and recreational services. Only in their case did the research results show simultaneously deepening export specialisation, increasing trade surplus, and rising shares in exports to the EU market.

Fourthly, based on traditional service industries, the pattern of competitive advantages in Polish service exports was characterised by relatively little differentiation across the main EU export markets. At the same time, research showed a diverse range of competitive advantages in these markets. In the export of traditional branches of services, the greatest advantage occurs in the German market and in the export of other service industries – in the Dutch market.

Fifthly, research confirmed the need to use sets of appropriately selected measures to assess the competitiveness of a country's exports.

The obtained research results can be a starting point for verifying the industry structure and partly also the geographical structure of Polish service exports to the EU. On their basis, researchers can indicate the categories of services with the best prospects for the development of exports to the EU market and the surveyed member states.

However, the limitations and imperfections of the research method used should be considered. Firstly, I conducted the research for 11 main standard service categories of EBOPS. Deepening the analysis by including at least second-level balance of payments service categories in the research would allow for more precise identification of groups of services with high export potential to EU markets. In particular, this applies to the group of other business services, which is very important in Polish exports and, at the same time, extremely diversified. Secondly, there are alternative measures and methods of assessing export competitiveness that I have not used due to the limited volume of the study. These methods and measures are worth using to verify or supplement the presented research results. Thirdly, I conducted the analysis ex-post and did not consider the changing conditions for the development of trade in services in the EU, in particular those related to the consequences of the COVID-19 pandemic and the war in Ukraine. This raises the need to continue research and observe the directions and dynamics of changes in the future.

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Conflict of Interest

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