Finding high export potential goods in the target market – The future prospect of Polish exports to the United States

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Abstract: One of the key tasks in economic policy is to properly identify industries and goods that have a high potential for sale in foreign markets to design the most effective supporting programs for exporters. The purpose of this paper is to define the tool for identifying the most promising industries in exports. For this aim, first, competitiveness evaluation is recognized on a basis of the revealed competitiveness index (RCA) by Ricardian trade theory. This is an examination of the supply side – the current export potential of a country and its competitiveness. Secondly, the demand side is examined. That part of the calculation model uses the data of import value and its dynamics. The empirical testing is conducted on a basis of Poland's exports RCA and data imports to the United States in 2017-2021 at the 4-digit level. The model results indicate export from Poland to the US, which characterizes a high potential growth.

Keywords: international trade, export, RCA

JEL Classification codes: F13, F14, F17

INTRODUCTION

Exports, which have recently been boosted by the decline in the value of the Polish currency, have had a very positive impact on GDP performance last year. Sales of Polish goods abroad increased by more than a quarter in 2021 compared to the previous year. However, this was not an easy result to repeat in 2022 due to rising production costs associated with the prices of fuel, energy, raw materials, as well as declining consumer demand. An additional factor significantly limiting sales of Polish goods are semiconductor shortages and production restrictions in the German automotive industry, for which Polish manufacturers are important component suppliers.

So far, more than 80% of Polish exports are received by EU member states and the United Kingdom. Such a high concentration of sales in Europe can mean that exporters are strongly dependent on the economic situation and demand in a particular region of the world, and this is not particularly safe for maintaining sales in the long term. Germany, the largest market for Polish manufacturers, recorded a very low industrial production growth index in the first quarter of this year , only 0.6. In Poland, it was 5.3 (OECD, 2022).

Therefore, the deteriorating economy and falling demand, combined with the problems of the automotive industry and the unstable geopolitical situation in Central Europe, give rise to the belief that Polish manufacturers need to increase their presence in non-European markets. An additional opportunity to establish a presence there is provided by the position of Asian

suppliers in world markets, including the US market, which has been severely weakened by the pandemic.

1 METHODOLOGY

The purpose of the following analysis is to identify the industries with the greatest export potential, and test that format for the identification of the most potential perspective Polish commodities in the US market. The calculation uses foreign trade data of Poland and the United States for 2017-2021 from the Comtrade trade database (source: UNCTAD). The statistics include 1,261 commodity groups according to the CN classification of the Combined Nomenclature at the 4-digit level.

To examine the demand side of the target market, data on commodity imports to the United States were used. Based on these, annual changes in the value of imports (V) were calculated, determining the average of these changes (k) from 2017 to 2021.

$k = av($____!!!"!#$)$ (1)

Next, it was necessary to identify commodities whose imports to the United States increased in 2021 compared to 2020 more than the growth trend in 2017-2021. To do this, the expected value (EV) in 2021 was calculated as the product of k and the actual value (RV) in 2020.

$$EV = k \cdot RV \quad (2)$$

Based on the difference between the actual value in 2021 and the expected value, commodities with higher-than-average growth in import demand in the US market were marked. Since the difference between the expected value and the actual value in 2021 for all U.S. imports was 15.5%, this value was taken as the cutoff value for determining the group of goods with the highest sales potential in the U.S. market (Williamson et al. 2005, 2006).

In the second stage, the most competitive Polish export commodities were determined, i.e.

the supply side of the assessed potential was determined. For this purpose, the Revealed Comparative Advantage (RCA) index, popularly known as the RCA index or Balassa index (hereafter: RCA index), was used (Balassa, 1965; Hoen, Oosterhaven, 2006), which is commonly used to assess whether a producer (exporter) of a given commodity is competitive with a country producing and exporting that commodity at or below the world average. The revealed comparative advantage in the product i (RCA>1) confirms the competitiveness of that product's exports (Hanson et al., 2015). The higher a country's RCA value for a product, the greater the strength of exports in that product. The above measure is used to assess the competitiveness of commodity exports and a country's comparative advantage by commodity group (Misala, 2011).

!"#

RCA!" = ∑%∈!'(!#"% (3)

∑%∈'!(%

- P is the set of all goods, where i ∈ P;
- XAi export of a good i and by country A;
- Xwi world export of a good i;
- Σ jP XAj denotes the total exports of country A (of all goods j from the set P;
- Σ jP Xwj denotes the total world exports (of all goods j from the set P);

2 RESULTS AND DISCUSSION

Based on the above formula, out of the 1,261 commodity groups analyzed, 252 groups of goods, for which RCA>1, i.e. in which Poland achieves comparative advantages in international trade, were identified. At the same time, it is also worth noting the dynamics of change of the analyzed indicator, as on this basis it is possible to identify those goods whose export competitiveness has increased the most in recent years.

Table 1. presents a list of 20 Polish goods with the highest export potential to the United States. The above list was created based on the percentage difference between the expected (EV) and actual (RV) value of US imports in 2021(column [3]) and the index of revealed comparative advantage of RCA in the same year (column [4]). In addition, consideration was given to how the attractiveness of a given commodity in export markets changed between 2017 and 2021 (under the condition: 1<RCA2017<RCA2021) (column [5]). However, this information is only an additional variable indicating how the export competitiveness of the commodities for which demand in the United States has increased the most has changed since 2017.

Tab. 1 Commodities in manufacturing and export with the highest sales potential in the United States

CN code	Product label	RV/EV w %	RCA2021	RCA2021/RCA2017 w %
1	2	3	4	5
89 05	Light-vessels, fire-floats, dredgers, floating cranes, and other vessels the navigability of ...	287,0%	2,55	1135%
89 01	Cruise ships, excursion boats, ferryboats, cargo ships, barges and similar vessels for the ...	122,7%	3,36	86%
72 11	"Flat-rolled products of iron or nonalloy steel, of a width of < 600 mm, hot-rolled or cold-rolled ...	102,9%	1,39	55%
72 13	Bars and rods of iron or non-alloy steel, hot-rolled, in irregularly wound coils	93,0%	1,65	-18%
27 07	Oils and other products of the distillation of high temperature coal tar; similar products ...	80,0%	1,32	367%

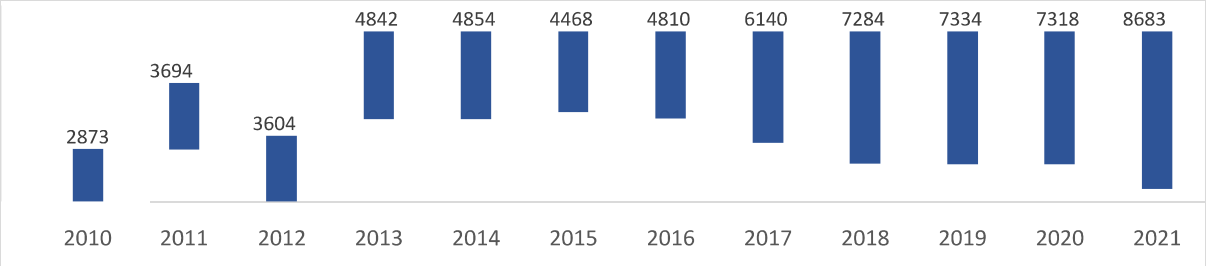
78 01	Unwrought lead :	78,2%	1,78	5%
73 06	"Tubes, pipes and hollow profiles ""e.g., open seam or welded, riveted or similarly closed"", ...	77,0%	1,51	44%
91 03	Clocks with watch movements (excluding wrist-watches, pocketwatches and other watches of heading ...	76,7%	2,95	-62%
80 01	Unwrought tin	74,4%	1,56	420%
43 04	Artificial fur and articles thereof (excluding gloves made of leather and artificial fur, footware ...	69,6%	1,03	389%
74 03	Copper, refined, and copper alloys, unwrought (excluding copper alloys of heading 7405)	68,1%	2,23	7%
72 14	Bars and rods, of iron or non-alloy steel, not further worked than forged, hot-rolled, hot-drawn ...	67,4%	1,67	-28%
72 16	Angles, shapes and sections of iron or non-alloy steel, n.e.s.	67,1%	3,93	8%
76 02	Waste and scrap, of aluminium (excluding slags, scale and the like from iron and steel production, ...	63,7%	1,83	-18%
31 02	Mineral or chemical nitrogenous fertilisers (excluding those in pellet or similar forms, or ...	62,0%	1,40	-5%
41 01	"Raw hides and skins of bovine ""incl. buffalo"" or equine animals, fresh, or salted, dried, ...	61,8%	1,73	36%
15 01	Pig fat, incl. lard, and poultry fat, rendered or otherwise extracted (excluding lard stearin ...	61,7%	2,29	44%
47 07	"Recovered ""waste and scrap"" paper or paperboard (excluding paper wool)"	59,5%	2,09	90%
44 10	"Particle board, oriented strand board ""OSB"" and similar board ""e.g. waferboard"" of wood ...	59,2%	2,00	11%
40 06	Rods, bars, tubes, profiles and other forms of unvulcanised rubber, incl. mixed rubber, and ...	56,85%	1,06	48%

Source: own calculations, based on Comtrade data

The United States has recently been identified by the Polish Economic Institute as the most promising market for Polish exports among non-EU markets (PIE, 2022). This export sales direction received the best result due to such characteristics as size, high growth dynamics and the value of Polish exports to date.

The United States is currently the 9th largest market for Polish exporters. In 2021, sales of goods from Poland to the US market increased by 19% from 2021, reaching $8.7 billion. From 2010 to 2021, there was a threefold increase in the value of Polish exports to the US. Between 2010 and 2021, the average annual growth rate of these exports was 10.6%, significantly higher than for total exports in this period (6.6%).

Fig. 1 Exports of goods from Poland to the United States between 2010 and 2021, USD million



Source: Trade Map, International Trade Centre UNCTAD/WTO

According to the latest data covering trade in goods in 2021, published by UNCTAD, the most important group remained (as in previous years) Turbo-jets, turbo-propellers and other gas turbines, for which the United States is the first largest market. The value of these exports to the United States amounted to more than $1 billion in 2021, over 12% of total Poland's exports to the U.S. market.

Tab. 2 Commodity groups in Polish exports to the United States in 2021

CN code	Product label	Export	Share in total export, in % ($ thousands)
8411	Turbo-jets, turbo-propellers and other gas turbines	1 049 065	12,08%
9021	Orthopaedic appliances; including crutches, surgical belts and trusses; splints and other fracture appliances; artificial parts of the body; hearing aids and other which are worn, carried or implanted in the body to compensate for a defect or disability	732 744	8,44%
9403	Furniture and parts thereof, n.e.c. in chapter 94	384 847	4,43%
7106	Silver (including silver plated with gold or platinum); unwrought or in semi-manufactured forms, or in powder form	354 101	4,08%
8708	Motor vehicles; parts and accessories, of heading no. 8701 to 8705	186 312	2,15%

8544	Insulated wire, cable and other electric conductors, connector fitted or not; optical fibre cables of individually sheathed fibres, whether or not assembled with electric conductors or fitted with connectors	184 771	2,13%
8803	Aircraft; parts of heading no. 8801 or 8802	181 763	2,09%
8483	Transmission shafts (including cam and crank) and cranks; bearing housings and plain shaft bearings; gears and gearing; ball or roller screws; gear boxes and other speed changers; flywheels and pulleys; clutches and shaft couplings	163 847	1,89%
8903	Yachts and other vessels; for pleasure or sports, rowing boats and canoes	160 408	1,85%
8481	Taps, cocks, valves and similar appliances for pipes, boiler shells, tanks, vats or the like, including pressure-reducing valves and thermostatically controlled valves	160 121 826	1,84%
9018	Instruments and appliances used in medical, surgical, dental or veterinary sciences, including scintigraphic apparatus, other electro-medical apparatus and sight testing instruments	136 100 700	1,57%
8507	Electric accumulators, including separators therefor; whether or not rectangular (including square)	126 604 898	1,46%
8413	Pumps; for liquids, whether or not fitted with measuring device, liquid elevators	122 411 278	1,41%
9401	Seats (not those of heading no. 9402), whether or not convertible into beds and parts thereof	116 873 745	1,35%
1806	Chocolate and other food preparations containing cocoa	112 109 727	1,29%
8426	Derricks, cranes, including cable cranes, mobile lifting frames, straddle carriers and works trucks fitted with a crane	109 364 830	1,26%
8517	Telephone sets, including telephones for cellular networks or for other wireless networks; other apparatus for the transmission or reception of voice, images or other data (including wired/wireless networks), excluding items of 8443, 8525, 8527, or 8528	97 030 550	1,12%
203	Meat of swine; fresh, chilled or frozen	90 842 340	1,05%
9027	Instruments and apparatus; for physical or chemical analysis (e.g. polarimeters, spectrometers), for measuring or checking viscosity, porosity, etc, for measuring quantities of heat, sound or light	87 601 304	1,01%
8431	Machinery parts; used solely or principally with the machinery of heading no. 8425 to 8430	75 633 249	0,87%

Source: Comtrade, UNCTAD

Comparing the results of current trade and the identified commodities with the highest export potential from Poland to the United States, there is no commodity group in the top 20 results that appears in both statements. In conclusion, it can be noted that in the set presented in Table 1. there are goods from groups so far not particularly popular in the US import from Poland (see Table 2).

Among the main commodity groups in Polish exports (2 digit), we have only one from which goods are in the designated set with high export potential - this is category 89, i.e. Ships, boats and floating structures, which includes two subgroups with the highest export potential, namely 89 05 and 89 01 (see Table 1) and 89 03 (see Table 2). At the same time, the value of the RCA indicates that these products have seen a significant increase in the value of their exports since 2017 compared to exports of other goods.

The occurrence of large discrepancies between the commodity groups in the Table 1. and

Table 2. indicates that there is a wide spectrum of commodities whose exports from Poland to the United States so far are insignificant but can be considerably improved. Above that, the described summary clearly shows a strong differentiation of goods both in terms of technological sophistication, degree of processing or destination (consumer products, products for industry or construction).

Therefore, it is difficult to identify a narrow group of specialties for Polish exports in the future.

CONCLUSION

The proposed analytical tool identifies export commodity groups with high sales potential in the target market. The proposed example identifies specific goods produced in Poland that are in increasing demand in the United States. At the same time, these goods show high competitiveness in foreign markets. The designated group of goods is characterized by high import potential in the US. Proper identification of goods with high export potential can help develop effective support tools as part of the country's pro-export policy. In the example presented, it can be assumed that the targeting of pro-export support towards Polish exporters will contribute to an increase in export revenues and give them long-term stability resulting from the diversification of markets.

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