European Research Studies Journal
Volume XXVII, Issue 4, 2024

pp. 1077-1101

Foreign Trade in the Oil Sector Following Poland's Accession to European Union

Submitted 23/09/24, 1st revision 16/10/24, 2nd revision 13/11/24, accepted 25/11/24

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Abstract:

Purpose: *Foreign trade is one of the basic factors in the economic development of countries, and the inclusion of Poland in the Single European Market and the consequent full opening of markets and obtaining freedom of trade with the countries of the enlarged European Union were decisive for the development of exports of Polish agri-food products, including oil products. The aim of this study was to analyse and evaluate changes in foreign trade in oil products over the two decades following Poland's accession to the European Union.*
Design/Methodology/Approach: *Basic measures of descriptive statistics (indicators of structure and dynamics) and selected quantitative measures of trade competitiveness were used to identify the most important trends occurring in production and trade in the oil sector.*
Findings: *Following accession, Poland regained its position as an important exporter of rapeseed, became a major exporter of rapeseed oil, and developed export in rapeseed meal and margarines. Export revenue from oil products in 2019-2023, compared to the last pre-accession five-year period, increased eightfold, with a similar increase for import expenditure. Despite the dynamic growth of exports, Poland, similar to the European Union as a whole, remains a persistently large net importer of oil products, although the negative balance of trade is worsening, due to limited opportunities for the development of oilseed crop production, with rapidly growing domestic demand for vegetable oils (especially from the biofuel sector) and high-protein feed.*
Practical Implications: *In recent years, the high competitiveness of Polish oilseed products in the European Union market has been declining (this applies mostly to rapeseed oil and rapeseed), which became their main market after accession.*
Originality/Value: *The analysis of changes and the assessment of the competitiveness of foreign trade is of great importance for companies in the oil sector in the context of making strategic decisions.*

Keywords: *Exports, imports, oilseeds, vegetable oils, oilseed meal, margarine*.

JEL codes: *F14, Q13, Q17.*

Paper type: *Research article.*

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1. Introduction

The most important oilseed crops, whose seeds and fruits provide around 95% of the world's production of vegetable fats, include soybeans, canola, cotton, sunflower, peanuts, sesame, flax and castor, which are subject to annual field crops, and trees such as oil palm, coconut palm and olive growing in perennial plantations.

Soybeans account for the largest share of global oilseed production and trade[2] (61 and 85%, respectively, in 2023/24), followed by rapeseed (an 12 and 9% share). More than 80% of the world's soybean production is produced by: Brazil, the United States and Argentina (which are also the largest exporters), and more than 80% of the world's rapeseed production comes from: Canada, the European Union, India, China and Australia (of which Canada and Australia are key exporters, and the European Union and China are rapeseed importers).

While soybeans dominate global oilseed production and trade, the largest share of vegetable oil production and trade[3] since 2006 has been palm oil (37 and 55% respectively in 2023/24), with more than 80% of production concentrated in Malaysia and Indonesia, overtaking soybean oil in terms of production volume and export volume (a 28 and 13% share in the 2023/24 season, respectively), followed by rapeseed oil (a 14 and 8% share, respectively) and sunflower oil (an 11 and 17% share, respectively). Global production and trade of oilseed meal[4] is dominated by soybean meal (a 71% share each in the 2023/24 season), followed by rapeseed meal (a 12 and 10% share) and sunflower meal (a 7 and 11% share) (Oil World Monthly, 2024).

World oilseed production has shown a multi-year upward trend, although it is subject to fluctuations, mainly due to the high sensitivity of oilseeds to weather conditions, much greater than that of cereals. Over the past two decades (2004/05-2023/04) it has increased by 66% to 635 million tonnes. Indeed, globally, demand for food and renewable energy is growing, and the improved nutritional status of societies, together with a growing population and the development of biofuel production, increase the demand for vegetable oils.

Vegetable oil consumption is growing dynamically in developing countries with high demographics (China, India, Malaysia and Indonesia), while in developed countries, their consumption in biofuel production in particular is increasing (Boczar and

[2]*Applies to soybeans, canola, sunflower, cotton, peanuts, palm kernels, copra, sesame, flax and castor beans.*
[3]*Applies to palm, soybean, canola, sunflower, palm kernel, coconut, peanut and cottonseed oils.*
[4]*Applies to soybean, rapeseed, sunflower, cottonseed, sesame, peanut, palm kernel and coconut meal.*

Sznajder, 2011; Rosiak, Łopaciuk, and Krzemiński, 2011). Consumption in the food sector in developed countries is growing slowly due to saturated demand for vegetable fats and stagnant or declining populations. At the same time, the development of livestock production using high-protein industrial feeds, and the ban on the use of meat and bone meals in livestock feeding, are increasing the demand for oilseed meal (Dzwonkowski, Łopaciuk, and Chmielewski, 2023).

The dynamically growing demand for vegetable oils in the food and industrial sectors, and for vegetable protein in the feed sector, resulted in a significant increase in international trade in oilseeds and oilseed processing products in the 21st century, with the geographic directions of trade not changing significantly compared to earlier years (Rutkowski, 1978; Gawron, Burakiewicz, and Zapędowski, 1995), due to the lack of significant changes in self-sufficiency in this group of products in different regions of the world.

Europe and some Asian countries (China and India) continue to be deficit regions and the largest importers of oilseeds, oils and oilseed meal, with countries in North America (United States, Canada) and South America (Brazil, Argentina), as well as countries in Southeast Asia (Malaysia and Indonesia) and Oceania (Australia) remaining surplus regions and key exporters remain (Rosiak, 2018; Oilseeds: World Markets and Trade, 2024).

Poland has a small share in world oilseed production (0.6% in 2023/24), as the only oilseed crop grown on a large scale is rapeseed, which is determined by favourable soil and climatic conditions for its cultivation. Since 1990, only double-improved rapeseed varieties, so-called "00" varieties - low in erucic acid and glucosinolates - have been grown, resulting in the oil and rapeseed meal obtained from them becoming full-fledged food and feed products (Krzeminski, 1971; Budzyński and Hare, 2010).

Rapeseed plays an important role in the domestic food economy, occupying an important position in crop rotation, due to the fact that it leaves a very good position for cereal crops, which, with the high share of cereals in sowings, exceeding 70% in recent years, is very important. Rapeseed is the only domestic oilseed used on a large scale for the production of consumer and technical fats, and is a source of feed protein.

Poland's accession to the European Union was followed by dynamic development of rapeseed production and processing, as well as foreign trade in oil products, determined by the European Union's policy promoting the development of renewable energy, including biofuels. Poland currently ranks third in rapeseed production in the European Union (a 19% share in the 2023/24 season) and ninth in the world (a 5% share), while in terms of yields, Poland is surpassed in the European Union only by France and Germany (a 21% share each), and globally Poland is second only to the largest producers (Canada, China, India and Australia), compared

to which it has a much lower yield (by 32 to 80% in the 2023/24 season), although in the last two years also Ukraine and Russia, which, despite the ongoing war, have developed their production (in the 2022/23 and 2023/24 seasons, Poland's rapeseed yields were 2 and 19% lower than Ukraine's and 16 and 11% lower than Russia's, respectively).

Despite the dynamic development of rapeseed production and processing that took place after 2004, Poland has low self-sufficiency in oil products, especially in oilseed meal and vegetable oils, and therefore remains a persistently large net importer. This is due to the limited development of oilseed crop production and the growing demand for oilseed meal, mainly soybean meal (due to the development of poultry production and changes in livestock feeding technology) and vegetable oils (due to the development of biofuel production).

Production surpluses relative to domestic consumption occur in Poland for rapeseed (in years of high harvests), rapeseed oil and meal, and margarines. Poland is a net exporter of these products, losing self-sufficiency in years of lower harvests and becoming a net importer of rapeseed, and in recent years also a net importer of rapeseed oil.

The purpose of this study is to analyse and evaluate the changes in foreign trade in oil sector products over the two decades following Poland's accession to the European Union. Foreign trade is one of the basic factors in the economic development of countries (Bożyk, 2002), and the inclusion of Poland in the Single European Market and, as a consequence, the full opening of markets and obtaining freedom of trade with the countries of the enlarged European Union was decisive for the development of exports of Polish agri-food products, including oil products.

2. Literature Review

Foreign trade plays a key role in the economic development of countries, regions and the world, contributing to economic growth, attracting foreign investments, stimulating increased competitiveness of companies, and positively impacting the trade balance (Czarny and Sledziewska, 2009; Jaszczynski, 2016).

Foreign trade has had a significant impact on the development of the Polish agri-food sector, including the oil sector after Poland's accession to the European Union, with Poland becoming one of the largest exporters of agri-food products on the EU market.

The subject of changes and competitiveness of foreign trade in the Polish agri-food sector is the subject of research by numerous authors (Mroczek and Rubaszek, 2003; Poczta and Hardt, 2005; Chechelski, 2008; Czaja and Wach, 2009; Gruchelski and Niemczyk, 2011; Pawlak, 2011; 2013; 2014; Ambroziak and Szczepaniak, 2013; Raczkowski, 2022).

Poland's agriculture and food industries produce far more than domestic market demand. Surplus supply is channelled into exports, which, following Poland's accession to the European Union, was the main stimulus for the development of numerous industries (beef, poultry, dairy, tobacco, grain, oil and fruit, and vegetable). Processing imports have also determined the development of a number of industries (tobacco, poultry, fruit and vegetable, fish, confectionery, brewing) that import raw materials and export processed consumer products.

Exports of agri-food products increased from $3.2 billion on average in the five years before Poland's accession to the European Union to $45.2 billion on average in 2019-2023, a fourteenfold increase. The dynamics of imports were smaller, increasing almost nine times (from $3.5 billion to $29.9 billion).

As a result, the negative balance of trade before accession turned positive after accession (from -$0.3 to +$15.3 billion) and had a positive impact on the balance of foreign trade in the national economy.

In the case of the oil sector, despite the dynamic development of exports, the negative balance of trade deepened (from 0.2 on average in 1999-2003 to $2.1 billion in 2019-2023). In the structure of Poland's foreign trade in agri-food products, the share of export revenue from oil products remains low, while the share of expenditure on their import remains high.

In the export revenue of agri-food products, the share of oil products export receipts increased from 2.5% on average in 1999-2003 to 3.4% in 2004-2008 and 4.0% in 2009-2013, before declining to 3.4 and 3.3%, respectively, in the following two five-year periods. Expenditure on imports of oil products averaged 11.8% in 1999-2003, and remained at a similar level in the subsequent post-accession years, fluctuating from 11.6% in 2014-2018 to 12.8% in 2009-2013.

The dynamically growing foreign trade turnover of the agri-food sector following accession resulted in increasingly strong integration of the domestic market with external markets, including in particular the EU market. The high importance of exports and imports in the market balances of individual industries, including the oil industry, means that price changes along the domestic marketing chain are strongly correlated with price volatility in external markets.

Global prices for most agricultural raw materials and foodstuffs transmit to domestic prices, which in most cases is done through the EU market, which has a decisive share in trade. In the case of the oil sector, the key determinants of rapeseed and rapeseed processing product prices on the domestic market are the price quotations of rapeseed on the Paris Matiff exchange and the exchange rate of the Polish currency against the Euro.

3. Material and Methods

The analysis of changes in foreign trade in the oil sector was carried out based on data from the Central Statistical Office and the Ministry of Finance for four main product groups: oilseeds (codes according to the Combined Foreign Trade Commodity Nomenclature CN 1201 to 1207), vegetable oils (CN 1507 to 1515), oilseed meal (CN 2004 to 2006) and margarine (CN 1517), which were aggregated to five-year averages for the years: 1999-2003, 2004-2008, 2009-2013, 2014-2018 and 2019-2023.

Basic measures of descriptive statistics (indicators of structure and dynamics) were used to identify the most important trends in the oil sector's production and trade. The analysis and evaluation of changes were carried out based on average annual data for selected periods and the following quantitative measures of trade competitiveness (Szczepaniak and Ambroziak, 2015):

- Trade balance (which is the difference between exports and imports, and shows whether the country is a net exporter or importer in a given group of products; a positive balance is desirable),
- The self-sufficiency index (which is the ratio of production to internal consumption, and a value of this index above 100 indicates that there is excess supply in the market or goods are produced for export; high values of this index are desirable),
- The export specialisation index (which is the ratio of exports to production and shows what proportion of production is directed to exports; high values of this index are desirable),
- The import penetration ratio (which is the ratio of imports to market supply, understood as production adjusted for the foreign trade balance, and shows the share of imports in market supply; low values of this ratio are desirable),
- The export-import coverage ratio (TC) (which is the ratio of exports to imports and illustrates in relative terms the extent to which export revenue covers import expenditure; high values of this ratio are desirable),
- The terms of trade (TOT) price index (nominal) (which is the ratio of foreign exchange prices in exports to prices in imports in a given period to the previous period and, with a value above 1, indicates that the growth rate of prices in exports is greater than in imports, or that the rate of decline in prices in exports is less than in imports; values of this index above 1 are desirable) (Terms of Trade, 2024),
- The rate of change of exports and imports (which illustrates changes in foreign trade, calculated using the compound percentage formula).

4. Research Results and Discussion

4.1 Changes in Foreign Trade of Oil Products

Oilseeds: *Exports:* The only oilseed crop produced in Poland on a large scale remains rapeseed, with its share of domestic oilseed acreage falling from 98% on average in the five years before Poland's accession to the European Union to 93% in 2019-2023 (Production of Agricultural and Horticultural Crops, 2004-2024). Poland's accession to the European Union and the European Union's policy promoting the development of renewable energy, including biofuels, as well as obliging member states to increase the share of biocomponents and biofuels in liquid fuel consumption gave a strong impetus to the development of rapeseed production.

With the food sector's slow-growing demand for rapeseed oil due to the high saturation of the market with vegetable fats, rapidly growing demand for this feedstock from the domestic and European biofuel sector was forged (Rosiak, 2016; Renewable Energy, 2023), which had an impact on increasing prices and improving the absolute and relative profitability of rapeseed production.

After several years of stagnation in the run-up to Poland's accession to the European Union in 2004, rapeseed yields grew rapidly, increasing from less than 1 million tonnes on average in the five years before accession (1999-2003) to 1.8 million tonnes in 2004-2008, 2.2 million tonnes in 2009-2013, 2.6 million tonnes in 2014-2018, and 3,2 million tonnes in 2019-2023 as a result of a more than twofold increase in cultivated area (from less than 0.5 million hectares on average in the last five years before accession to more than 1 million hectares in 2019-2023), but also a 50% increase in yields (from 2.1 to 3.2 tonnes/ha).

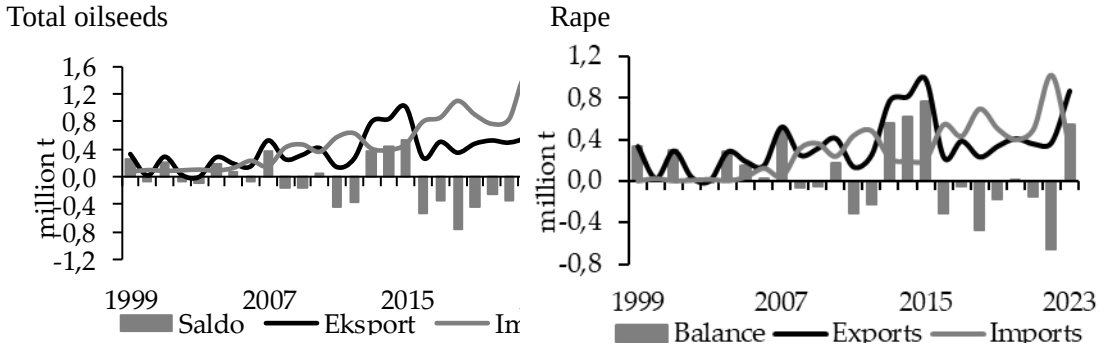
Table 1. *Oilseed balance*[a].

Specification	**Average over the years:**									
	1999-2003	**2004-2008**	**2009-2013**	**2014-2018**	**2019-2023**	**1999-2003**	**2004-2008**	**2009-2013**	**2014-2018**	**2019-2023**
	Oilseeds					**Rape**				
Production (thousands of tonnes)	995,7	1822,5	2257,6	2681,5	3339,5	979,9	1794,0	2226,1	2619,1	3215,2
Exports (thousands of tonnes)	142,0	288,9	392,4	599,6	647,0	139,6	280,0	379,3	528,0	469,3
Exports (USD million)	33,0	108,8	208,3	298,5	438,7	31,0	99,0	191,5	240,8	264,4
Export price (USD/tonne)	232,1	376,5	530,9	497,8	678,0	221,9	353,4	504,7	456,1	563,4
Imports (thousands of tonnes)	94,6	210,7	496,2	731,9	963,5	9,7	104,7	350,3	417,1	552,8
Imports (USD million)	50,8	149,8	356,7	460,5	730,5	2,7	51,0	202,8	211,7	354,4
Import price (USD/tonne)	537,1	710,9	718,8	629,2	758,2	281,1	486,8	579,1	507,6	641,2
Domestic consumption (thousands of tonnes)	948,3	1744,3	2361,4	2813,8	3656,1	850,0	1618,6	2197,0	2508,2	3298,7

[a] *no change in inventory.*

Source: *CSO, MF (Ministry of Finance) own study.*

Figure 1. *Oilseed trade from 1999 to 2023*



Source: *MF, own study.*

With rapidly growing production, Poland has regained its position as a major exporter of rapeseed, which it lost in the 1990s. Rapeseed exports increased from 140 thousand tonnes on average in the five years before accession to 287 thousand tonnes in 2004-2008, and accounted for 14 and 16% of domestic production, respectively, before increasing to 379 thousand tonnes on average in 2009-2013, and 528 thousand tonnes in 2014-2018, with its share of production increasing to 17 and 20%, respectively. In 2019-2023, rapeseed exports decreased to 469 thousand tonnes and accounted for 15% of production (Table 1, Figure 1). In the last five years, Poland has lost its position as a net exporter of this commodity.

Oilseed export volumes both before and following accession were dominated by rapeseed, but the ratio of its share decreased from 98% in 1999-2003 to 73% in 2019-2023, with an increase in the share of linseed from less than 1% to 12%, soybeans from less than 1% to 7%, and sunflower seeds from less than 1% to 5%, which were mostly re-exported.

Oilseeds: *Imports:* Before joining the European Union, Poland imported significant quantities of rapeseed only in years of crop failure. In the five years before accession, rapeseed imports declined to an average of 10 thousand tonnes, accounting for only 10% of the volume of oilseed imports. Following accession, it steadily increased to 105 thousand tonnes on average in 2004-2008, 350 thousand tonnes in 2009-2013, 417 thousand tonnes in 2014-2018, and 553 thousand tonnes in 2019-2023, and the ratios of its share in the volume of oilseed imports increased to 50, 71 and 57% in 2014-2018 and 2019-2023, respectively.

In the last five years, Poland has transformed from an exporter to a net importer of rapeseed, with the surplus of imports over exports averaging 83 thousand tonnes. Historically, the highest imports were realised in 2022, amounting to 1,027 thousand tonnes (accounting for 24% of domestic consumption), almost three times higher than its exports.

The dynamic increase in rapeseed imports following accession, in the years of both low and high domestic harvests, was mainly due to the possibility of buying the commodity at lower prices in Ukraine, which has been developing rapeseed production for export since the mid-2000s (Izdebski, Jakubowski, Skudlarski, Hare, Maznev, and Zaika, 2014), and improved profitability of import transactions due to the reduction of duties in the oilseed trade.

Record imports in 2022, with a high domestic harvest of more than 3.6 million tonnes, also followed irregularities related to the large transit of Ukrainian rapeseed through Poland due to the war in Ukraine and Russia's blocking of transport routes for Ukrainian agricultural commodities through the Black Sea.

In addition to rapeseed, Poland imports mainly soybeans, linseed, sunflower seeds, peanuts, sesame, poppy and mustard seeds for food and other industries (e.g. pharmaceutical) and for re-export, which has intensified in recent years. Total imports of these seeds in the five years prior to accession averaged 85,000 tonnes, and following accession steadily increased to 411,000 tonnes in 2019-2023, of which linseed imports increased the most, twenty-three-fold to 113,000 tonnes.

Prior to accession, peanuts (27%) and sunflower seeds (23%) accounted for the largest share of oilseed imports, while rapeseed accounted for 10%, soybeans 9%, and linseed 5%. Following accession, the import share of rapeseed (to 57% in 2019-2023) and linseed (to 11%) increased significantly, with little change in the share of soybeans (10%) and a large decrease in the share of peanuts (to 8%) and sunflower seeds (to 7%).

Vegetable oils: *Exports:* The only oil pressed from oilseeds in Poland on a large scale is rapeseed oil, which share in domestic production of crude vegetable oils is almost 100% (Industrial Products Production, 2004-2024). Production of rapeseed oil in the five years prior to Poland's accession to the European Union was low, averaging 335,000 tonnes, and was almost entirely consumed in the domestic market for food purposes.

Therefore, exports of rapeseed oil at that time were small, averaging 8 thousand tons, which accounted for 2% of domestic production. A dynamic increase in rapeseed oil production and exports occurred after accession. Rapeseed oil production increased to 537 thousand tonnes on average in 2004-2008, 846 thousand tonnes in 2009-2013, 1208 thousand tonnes in 2014-2018, and 1330 thousand tonnes in 2019-2023, while its exports increased to 141 thousand tonnes (26% of domestic production), 262 thousand tonnes (27%) and 305 thousand tonnes (28%), respectively, before decreasing to 135 thousand tonnes (10%) in the last five years (Table 2, Figure 2).

The production of rapeseed oil in 2019-2023 was four times higher than in the five years prior to accession, and its exports increased seventeen-fold. Both before and

following accession, rapeseed oil dominated the export volume of vegetable oils, with a 92-95% share, but in the last five-year period (2019-2023) its share ratio decreased dramatically (to 37%), with a large increase in the share of sunflower (from 2 to 38%) and soybean (from 3 to 19%) oils, which were mainly imported from Ukraine and re-exported to the markets of European Union countries.

Such a significant increase in rapeseed oil exports following Poland's accession to the European Union was primarily due to the German market's rapidly growing demand for this raw material consumed in biofuel production. In the first years after accession, domestic demand for rapeseed oil grew slowly due to high market saturation with edible vegetable fats and delays in the development of biofuel production.

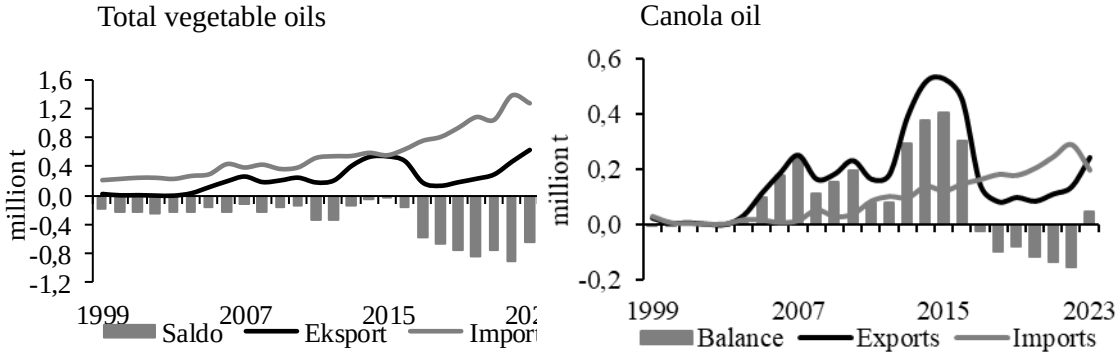
Table 2. *Balance of vegetable oils*[a].

Specification	**Average over the years:**									
	1999-2003	**2004-2008**	**2009-2013**	**2014-2018**	**2019-2023**	**1999-2003**	**2004-2008**	**2009-2013**	**2014-2018**	**2019-2023**
	Vegetable oils					**Canola oil**				
Production (thousands of tonnes)	334,7	572,2	852,2	1220,1	1337,3	334,7	571,8	846,0	1208,4	1330,3
Exports (thousands of tonnes)	8,4	159,9	251,3	371,8	360,6	7,8	149,5	230,2	343,0	134,7
Exports (USD million)	6,0	154,8	290,0	340,5	468,4	5,0	141,0	262,0	304,6	166,6
Export price (USD/tonne)	711,1	968,3	1154,3	915,8	1299,0	643,3	943,3	1138,4	888,0	1237,0
Imports (thousands of tonnes)	227,7	358,2	468,3	665,7	1139,5	10,3	23,1	71,0	150,5	222,4
Imports (USD million)	117,1	330,9	584,1	702,9	1438,5	4,9	26,1	89,5	140,1	286,2
Import price (USD/tonne)	514,1	923,9	1247,1	1055,9	1262,4	478,0	1133,4	1259,7	930,7	1286,6
Domestic consumption (thousands of tonnes)	554,1	770,5	1069,3	1514,0	2116,1	337,2	445,4	686,8	1016,0	1418,1

[a] *no change in inventory*

Source: *CSO, MF, own study.*

Figure 2. *Foreign trade in vegetable oils from 1999 to 2023*



Source: *MF, own study.*

Vegetable oils: *Imports:* Due to the shortage of raw materials for the production of high-quality margarines, and in order to expand the range of oils sold, in 1999-2003 Poland imported an average of 278,000 tonnes of oils, mainly from plants grown in other climatic zones. Its structure was dominated by soybean oil (which accounted for 49% of the volume of oil imports) and palm oil (23%), followed by sunflower oil (12%) and coconut oil (7%).

Imports of rapeseed oil were supplementary, mainly in the years of its lower domestic production. In the five years prior to Poland's accession to the European Union, rapeseed oil imports averaged 10,000 tonnes (5% share of oil import volume).

Following accession, the import of vegetable oils grew dynamically to 358 thousand tonnes on average in 2004-2008, 468 thousand tonnes in 2009-2013, 666 thousand tonnes in 2014-2018, and 1140 thousand tonnes in 2019-2023, of which rapeseed oil imports increased the most to 23, 71, 151 and 222 thousand tonnes, respectively. In 2019-2023, vegetable oil imports were five times higher than in the last pre-accession five-year period, and including rapeseed oil imports increased twenty-two-fold. In the volume of oil imports, the share of sunflower oil (up to 31%) and rapeseed oil (up to 20%) increased significantly, with a large decrease in the share of soybean oil (down to 20%). The share of palm oil and coconut oil fell slightly (to 22 and 4%, respectively).

The increase in imports of vegetable oils following accession compensated for the significant loss of rapeseed oil on the domestic market, which was caused by its rapidly growing exports until 2016. Imports of oils were also supported by the improved profitability of these transactions, due to the abolition and reduction of tariffs on trade in these products. The increase in imports followed the growing domestic consumption of oils for food purposes (mainly in secondary processing: food processing and catering) and industrial purposes (mainly in the production of biofuels), and in recent years also resulted from the development of their re-exports.

Oil sharps: *Exports:* After joining the European Union, Poland also increased its exports of rapeseed meal, which is a by-product of rapeseed processing for the oilseed industry. Rapeseed meal remains the only oilseed meal exported from Poland on a large scale, but the ratio of its share in the volume of oilseed meal exports decreased from 99% in 1999-2003 to 82-96% following accession.

Export of rapeseed meal in 1999-2003 averaged 200 thousand tonnes, accounting for 40% of domestic production (Table 3, Figure 3), increasing on average to 348 thousand tonnes in the first five years following accession, and then to 559 thousand tonnes in 2009-2013, 660 thousand tonnes in 2014-2018, and 693 thousand tonnes in 2019-2023. The ratio of the share of rapeseed meal exports in their domestic production in the following five years after accession was 41, 44, 36, 35%, respectively.

Such a significant increase in rapeseed meal exports was the result of the dynamic development of rapeseed production and processing that followed Poland's accession to the European Union together with the slowly growing demand of the domestic feed industry for this raw material.

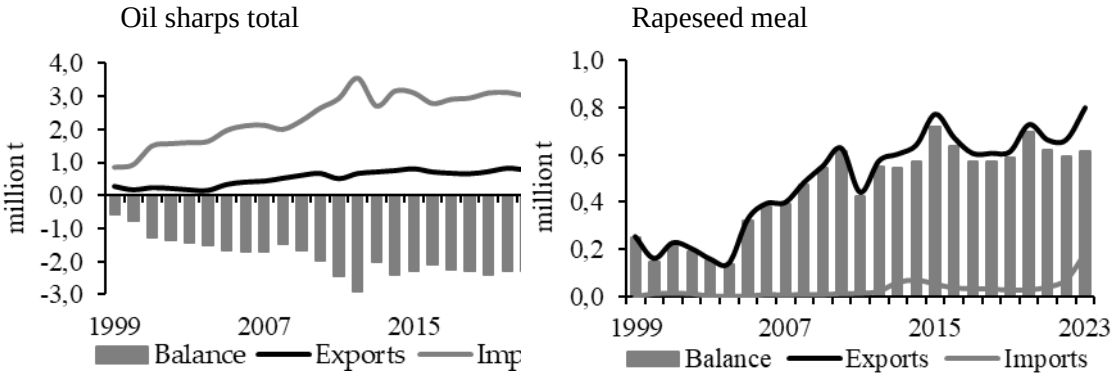
Table 3. *Oilseed meal balance* [a].

Specification	**Average over the years:**									
	1999-2003	**2004-2008**	**2009-2013**	**2014-2018**	**2019-2023**	**1999-2003**	**2004-2008**	**2009-2013**	**2014-2018**	**2019-2023**
	Oil sharps					**Rapeseed meal**				
Production (thousands of tonnes)	502,1	858,3	1278,3	1830,2	2005,9	502,0	857,8	1268,9	1812,7	1995,4
Exports (thousands of tonnes)	202,4	364,0	633,3	723,8	841,9	199,8	347,7	559,0	659,5	693,4
Exports (USD million)	22,6	63,6	178,7	195,5	284,0	22,5	57,0	146,4	170,3	206,0
Export price (USD/tonne)	111,5	174,6	282,2	270,1	337,3	112,5	163,9	261,9	258,3	297,1
Imports (thousands of tonnes)	1293,1	1975,6	2832,7	2994,3	3271,1	9,1	7,1	24,7	46,4	72,0
Imports (USD million)	270,2	578,6	1017,9	1089,1	1417,2	1,0	1,3	8,0	13,0	20,1
Import price (USD/tonne)	209,0	292,8	359,4	363,7	433,2	112,9	181,5	321,9	281,3	279,8
Domestic consumption (thousands of tonnes)	1592,9	2469,9	3477,7	4100,7	4435,0	311,2	517,1	734,6	1199,5	1374,0

[a] no change in inventory

Source: *CSO, MF, own study.*

Figure 3. *Foreign trade in vegetable oils from 1999 to 2023*



Source: *MF, own study.*

Oil sharps: *Imports:* Due to the feed protein deficit, Poland has been steadily importing significant quantities of oilseed meal, primarily soybean meal, which cannot be fully replaced by rapeseed meal. Between 1999 and 2003, oilseed meal imports rose to an average of 1.3 million tonnes, from less than 1 million tonnes in the second half of the 1990s. This compensated for the loss of animal meal in the feed balance, which was imported at 0.3-04 million tonnes per year, and was banned in late 2000.

Following Poland's accession to the European Union, oilseed meal imports continued the upward trend of previous years due to the rapid development of poultry production and changes in livestock feeding technology. Imports of oilseed meal increased on average to 2 million tonnes in 2004-2008, 2.8 million tonnes in 2008-2013, 3 million tonnes in 2014-2018, and 3.3 million tonnes in the last five years. Soybean meal maintained the largest share of oilseed meal imports in volume, with the ratio declining from 92% in 1999-2003 to 90% in the first five-year period following accession, and 65% in the following five-year period (in which a significant amount of sunflower meal was imported for energy purposes), before rising to 75% in 2014-2018 and 83% in 2019-2023.

Margarines: *Exports:* In the period before Poland's accession to the European Union, margarine exports were low. In 1999-2003, with margarine production averaging 350,000 tonnes, 28,000 tonnes were exported, which accounted for only 8% of its production. Following accession, margarine exports grew steadily, despite a progressive decline in its production from 405 thousand tonnes on average in 2009-2013 to 368 and 321 thousand tonnes in the next two quinquennia, a consequence of declining domestic demand for margarine due to a decline in their direct consumption in households[5].

Exports increased to 49,000 tonnes on average in 2004-2008, 120,000 tonnes in 2019-2013, 130,000 tonnes in 2014-2018 and 199,000 tonnes in 2019-2023, and export-to-production ratios increased to 14, 30, 36 and 62%, respectively (Table 4, Figure 4). Between 1999 and 2023, the average production of margarines was 8% lower than in the last five years prior to accession, while their exports increased seven-fold.

The dynamic development of margarine exports after Poland's accession to the European Union was fostered by the full opening of the large European market to Polish products through the abolition of customs duties and all restrictions, and, despite the equalisation of prices in both markets, the still lower prices of margarine in the domestic than in the European market, while maintaining their high quality.

Table 4. *Balance of margarine*[a]

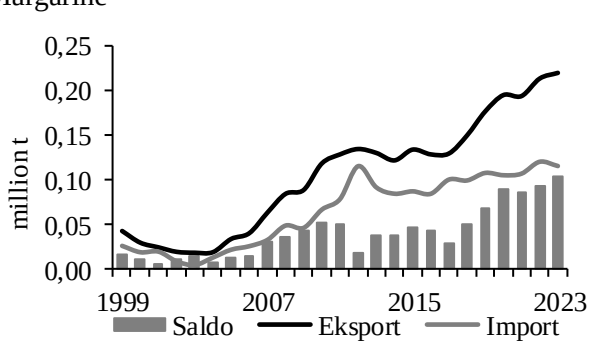
Specification	**Average over the years:**				
	1999-2003	**2004-2008**	**2009-2013**	**2014-2018**	**2019-2023**
	Margarine				
Production (thousands of tonnes)	350,1	346,9	404,5	368,1	321,3
Exports (thousands of tonnes)	27,5	48,6	120,1	132,7	199,4
Exports (USD million)	21,1	63,8	169,4	167,9	291,9

[5]*According to the CSO Family Budget Survey, direct household consumption of margarine has been declining since the mid-1990s, reversing an upward trend in its consumption in the first half of the 1990s during the economic transition. Between 2004 -2022, monthly household consumption of margarine more than doubled to 0.23 kg per person.*

Export price (USD/tonne)	769,4	1313,5	1410,2	1265,6	1464,4
Imports (thousands of tonnes)	15,1	28,1	79,7	91,2	111,4
Imports (USD million)	10,5	36,0	129,7	133,7	188,1
Import price (USD/tonne)	693,2	1281,3	1627,3	1465,4	1688,5
Domestic consumption (thousands of tonnes)	337,8	326,4	364,1	326,7	233,4

[a] *no change in inventory*
Source: CSO, MF, own study.

Figure 4. *Foreign trade in margarine from 1999 to 2023*



Source: *MF, own study.*

Margarines: *Imports:* Poland's accession to the European Union and the consequent opening of the Polish market to goods from countries from the enlarged Community also resulted in a dynamic increase in margarine imports. Their imports in the five years before accession were low, averaging 15,000 tonnes and accounting for only 4% of domestic consumption, but in the subsequent years they steadily increased to 28,000 tonnes on average in 2004-2008, 80,000 tonnes in 2009-2013, 91,000 tonnes in 2014-2018 and 111,000 tonnes in 2019-2023, and the ratios of their share in domestic consumption rose to 9, 22, 28 and 48%, respectively. In 2019-2023, margarine imports, just like exports, were seven times higher than in the five years before accession. However, the balance of trade in these products remained positive.

4.2 Commodity Structure of Foreign Trade in Oil Products

Exports: Poland's accession to the European Union did not significantly change the commodity structure of foreign trade in oil products, regarding both exports and imports (Table 5).

The most significant item in the export of oil products continued to be rapeseed and its processing products, with rapeseed oil exports growing most significantly. In the value structure of oil product exports, the total share of rapeseed oil and rapeseed meal before as well as following accession exceeded 70%, but in the last five years (2019-2023) it decreased to 44%, mainly as a result of a large decrease in the volume and revenue of rapeseed oil exports.

Table 5. *Structure of foreign trade in oil products by product group*

Specification	Average over the years:				
	1999-2003	2004-2008	2009-2013	2014-2018	2019-2023
Exports in % of value					
Oilseeds	**37,7**	**27,8**	**24,6**	**29,8**	**29,6**
of which: rapeseed	36,1	25,3	22,6	24,0	17,8
Vegetable oils	**7,5**	**39,6**	**34,3**	**34,0**	**31,6**
of which: rapeseed	6,3	36,1	31,0	30,4	11,2
Oil meal	**28,3**	**16,3**	**21,1**	**19,5**	**19,1**
of which: rapeseed	28,2	14,6	17,8	17,7	14,8
Margarine	**26,5**	**16,3**	**20,0**	**16,8**	**19,7**
Total oil products	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**
of which: rapeseed and derivatives	70,6	76,0	71,4	72,1	43,8
Imports in % of value					
Oilseeds	**11,3**	**13,7**	**17,1**	**19,3**	**19,4**
of which: peanuts	4,2	3,2	2,7	3,2	2,9
sunflower	2,0	1,9	1,7	1,8	1,7
rapeseed	0,6	4,7	9,7	8,9	9,4
soybeans	0,5	0,3	0,6	1,6	1,7
linseed	0,4	0,3	0,4	1,3	1,8
Vegetable oils	**26,2**	**30,2**	**28,0**	**29,5**	**38,1**
of which: soybean	10,7	6,7	3,5	3,8	6,0
palm	5,6	10,6	11,5	10,0	8,1
sunflower	3,1	4,4	3,8	4,1	11,0
rapeseed	1,1	2,4	4,3	5,9	7,6
Oil meal	**60,2**	**52,8**	**48,7**	**45,6**	**37,5**
of which: soybean	57,9	50,0	41,0	40,1	33,8
Margarine	**2,3**	**3,3**	**6,2**	**5,6**	**5,0**
Total oil products	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**
of which: rapeseed and derivatives	1,9	7,2	14,4	15,3	17,5

Source: *MF, own study.*

In the analysed years, as a result of changes in volume and transaction prices, the share of vegetable oils in the value structure of oil products exports increased (from 8% in the five years prior to accession to 32% in 2019-2023), with a decrease in the share of oilseeds (from 38 to 30%), oilseed meal (from 28 to 19%) and margarine (from 27 to 20%).

Imports: Following Poland's accession to the European Union, imports of oil products continued to be dominated by oilseeds (mainly soybean), but their share in the value structure of total oil product imports steadily declined from 60% in the five years prior to accession to 38% in 2019-2023, with an increase in the share of spending on vegetable oils from 26 to 38%, on oilseeds from 11 to 19%, and on margarine from 2 to 5%.

In the value structure of oilseed imports, the volume and share of spending on rapeseed (from 5% in the five years prior to accession to 49% in 2019-2023) and linseed (from 3 to 10%) increased the most, with a large decrease in the share of

spending on peanuts (from 37 to 15%) and sunflower seeds (from 18 to 9%), which previously dominated imports.

In the value structure of vegetable oil imports, the volume and share of spending on rapeseed oil (from 4% on average in the five years prior to accession to 20% in 2019-2023) and sunflower oil (from 12 to 29%, respectively) increased the most, with little change in the volume and stabilisation of the share of spending on palm oil (21%), and a decrease in the volume and share of spending on soybean oil (from 41 to 16%) and coconut oil (from 8 to 5%).

Despite low spending on rapeseed and its processing products prior to accession, it steadily increased after accession, and its share in the value structure of imports of total oil products increased from 2% on average in the five years before accession to 18% in 2019-2023.

4.3 Geographical Structure of Foreign Trade in Oil Products

Exports: The abolition of all barriers to access to the large EU market resulted in a dynamic increase in exports of Polish oil products to that market after 2004. In the case of rapeseed and rapeseed meal, the abolition of trade barriers was of no significance in relation to the old member states (EU-15), as Poland had already exported these products to their markets under duty-free conditions in the pre-accession period.

Table 5. *Structure of foreign trade in oil products by product group*

Specification	**Average over the years:**				
	1999-2003	**2004-2008**	**2009-2013**	**2014-2018**	**2019-2023**
Exports in % of value					
EU 27	54,4	95,3	97,1	97,4	95,6
EU 15	41,6	77,3	63,8	59,5	73,4
EU 12	12,8	18,0	33,3	37,9	22,2
EFTA and other developed countries economically	3,4	0,6	1,2	1,0	1,7
CIS	18,0	1,7	1,1	1,4	2,1
Central and Eastern Europe	0,2	0,2	0,1	0,1	0,2
Economically developing countries	24,0	2,2	0,5	0,1	0,4
Total	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**
Imports in % of value					
EU 27	72,8	39,6	38,0	42,5	38,2
EU 15	64,7	32,8	30,6	31,2	26,3
EU 12	8,1	6,8	8,4	11,3	11,9
EFTA and other developed countries	1,7	4,4	5,1	2,0	1,9
CIS	2,8	8,4	16,0	15,6	26,9
Central and Eastern Europe	0,2	0,1	0,1	0,0	0,3
Economically developing countries	22,5	47,5	40,8	39,9	32,7
Total	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**

Source: *MF, own study.*

The old EU member states (EU-15) market was already the most important market for Polish oil products in the pre-accession period. In value terms, its share in Polish oil products exports averaged 42% in 1999-2003, and increased to 77% in the first five years after accession.

In subsequent years, the share of old member states in Polish oil product exports decreased to 64% on average in 2009-2013 and 59% in 2014-2018, with the share of new member states increasing to 33 and 38%, respectively, although the situation has reversed in the last five years. The ratio of the share of old member states in the export of Polish oil products increased to 73%, with its decline for new member states to 22%. The combined share of old and new member states (the EU-27 including the UK) in Polish oil products exports rose from 54% in the five years prior to accession to 95% in 2004-2008 and 96-97% in the following five years.

Following accession, Polish exports of oil products became almost exclusively intra-EU exports. In the geographic structure of exports, the importance of CIS countries (a decrease in the share from 18% on average in 1999-2003 to 2% in 2019-2023), such as Russia, Ukraine and Belarus, to which before integration Poland mainly exported margarine and rapeseed oil, and economically developing countries (a decrease from 24 to less than 1%, respectively), such as China and Mexico, to which, in turn, Poland mainly exported rapeseed, declined. In the last five-year period (2019-2023), the largest recipients of Polish oilseed products were EU-15 countries, including primarily Germany (a 65% share in the value of oilseed exports compared to 15% in the last five-year period prior to accession), followed by the Czech Republic (8%), the Netherlands (6%), Denmark (5%) and the United Kingdom (5%) (which, after leaving the EU in 2020, continues to trade with the grouping without tariffs or quantitative restrictions for goods that meet certain rules of origin).

Imports: The market of the old EU member states (EU-15) prior to accession was also the largest market on which Poland purchased oil products (a 65% share of the import value on average in 1999-2003). In this market, Poland mainly bought meal and vegetable oils, but also oilseeds and margarines. Economically developing countries were also a significant supplier of meal and oils at that time (a 23% share), including primarily Argentina (from which soybean meal began to be imported, previously it was mainly purchased from Brazil) and Indonesia (from which palm oil was imported).

Following accession, the share of EU-15 countries in Polish oilseed imports decreased (to 33% in 2004-2008 and 26% in the last five years) as a result of the decline in imports of soybean meal from that direction, which was already mainly imported from Argentina. The share of economically developing countries in Polish imports of oil products therefore significantly increased following accession (to 48% in 2004-2008). However, in subsequent years, their share in Polish imports of oil products decreased to an average of 33% in the last five years, boosted by the

decline in palm oil imports from Malaysia and Indonesia, which were replaced by their imports mainly from European Union countries. On the other hand, the share of CIS countries increased steadily (from 3% in 1999-2003 to 8% in the first five years following accession, 16% in the next two five-year periods, and 27% in 1999-2003), as a result of an increase in imports of oilseeds and vegetable oils from that direction, mainly rapeseed and sunflower and soybean oils from Ukraine.

Despite the substantial drop, the share of EU-27 countries in Polish oilseed imports remained significant (40% of the import value on average in 2004-2008 and 38% in 2019-2023). In the last five years (2019-2023), the largest supplier of oil products to the Polish market was Ukraine (a 22% share in the value of oil products imports), followed by Argentina (17%), which in the first three post-accession quinquennia occupied first place in oil product imports to the Polish market, Brazil (11%), Germany (10%) and the Netherlands (8%).

Table 7. *Structure of foreign trade in oil products by country*

Average over the years:									
1999-2003		**2004-2008**		**2009-2013**		**2014-2018**		**2019-2023**	
Exports in % of value									
Denmark	16,0	Germany	56,3	Germany	40,4	Germany	36,2	Germany	64,8
Germany	14,9	Czech Republic	7,7	Czech Republic	16,0	Czech Republic	21,7	Czech Republic	8,1
China	14,5	Denmark	5,1	Slovakia	8,0	Slovakia	7,3	Netherlands	6,3
Russia	7,9	Sweden	3,7	Hungary	3,4	Belgium	4,0	Denmark	5,2
Mexico	6,0	Slovakia	3,6	Netherlands	3,1	Spain	3,5	Great Britain	5,2
Total	**59,3**	**Total**	**76,4**	**Total**	**70,9**	**Total**	**72,7**	**Total**	**64,8**
Imports in % of value									
Germany	24,7	Argentina	39,0	Argentina	30,6	Argentina	26,7	Ukraine	22,2
Netherlands	23,0	Germany	13,5	Germany	14,2	Germany	14,6	Argentina	16,5
Belgium	12,1	Netherlands	10,5	Ukraine	14,2	Ukraine	11,2	Brazil	11,2
Argentina	8,7	Ukraine	7,8	Netherlands	7,0	Netherlands	8,0	Germany	9,7
Indonesia	4,1	Switzerland	3,1	USA	4,7	Paraguay	6,4	Netherlands	7,6
Total	**72,6**	**Total**	**73,9**	**Total**	**70,7**	**Total**	**66,9**	**Total**	**67,2**

Source: *MF, own study.*

4.4 Evaluation of the Trade Performance of Oil Products

Poland's accession to the European Union and subsequent access without any restrictions to the large EU market has resulted in a steady increase in foreign trade turnover in oil products since 2004.

The average value of exports of oil products in the last five years (2019-2023) amounted to $1,483 million and was almost four times higher than in the five years following Poland's accession to the European Union (2004-2008), and eighteen times higher than in the five years prior to accession (1999-2003).

The dynamics of imports were lower, with the average value of imports of oil products in 2019-2023 at $3,774 million, more than three times higher than in 2004-2008 and more than eight times higher than in 1999-2003 (Table 8).

Despite the dynamic development of exports following accession, Poland, like the entire European Union, remains a persistently large net importer of oil products due to limited opportunities for the development of oilseed production with growing demand for vegetable oils (due to the development of biofuel production) and oilseed meal, mainly soybean (due to the development of poultry production and changes in livestock feeding technology).

The negative balance of foreign trade in oil products in 2019-2023 averaged $2,291 million, which is more than three times higher than in 2004-2008 and more than six times higher than in 1999-2003. It was not only the growing prevalence of import volumes over exports of oil products that contributed to such a significant worsening of the deficit, but also the substantial increase in their prices on international markets, which in the last five years were two times higher than in 1999-2003 on average.

Both before and following Poland's accession to the European Union, the balance of foreign trade in oil products was most affected by the predominance of expenditure on imports over receipts from exports of oilseeds and vegetable oils, and to a lesser extent oilseeds, while the balance of trade in margarine remained positive.

In 2019-2023, the oilseed meal trade deficit averaged $1,133 million, which is almost five times more than in the five years prior to accession, vegetable oil trade increased nine-fold to $970 million, and oilseeds sixteen-fold to $292 million. With the deepening of the trade deficit in oilseeds and products of their primary processing, the positive balance of trade in margarine increased from $11 million on average in 1999-2003 to $104 million in 2019-2023, i.e. almost ten-fold.

In the group of oilseeds and oilseed products, the balance of trade in rapeseed and oilseed products (rapeseed oil and rapeseed meal) was positive and growing, with the exception of the last five years, in which there was a deficit of $24 million on average. In 2014-2018, the surplus of export revenue over expenditure on imports of rapeseed and its derivatives amounted to $351 million, 61% higher than in 2004-2008 and more than eight times higher than in 1999-2003.

Poland has low self-sufficiency (measured by the ratio of production to domestic consumption) in oil products, despite the improvement that occurred after Poland's accession to the European Union, and therefore remains a large importer. It is particularly low in the production of oilseed meal (with the self-sufficiency ratio increasing from 32% on average in 1999-2003 to 45% in 2014-2018 and 2019-2023) and vegetable oils (increasing from 60% on average in 1999-2003 to 81% in 2014-2018 and falling to 63% in the last five years).

In oilseed production, Poland has relatively high self-sufficiency, with the self-sufficiency rate declining from 105% in the pre-accession period and the first five years following accession, to 95-96% in the next two five-year periods and 91% in 2019-2023. Poland was fully self-sufficient before and following accession in the production of rapeseed and rapeseed products, especially rapeseed meal, with the exception of the last five years, in which the self-sufficiency rate for rapeseed dropped to 98% (from 115% in the pre-accession five-year period and 101-111% in the three subsequent post-accession five-year periods), and for rapeseed oil to 94% (from 99% in the pre-accession five-year period and 119-128% in the three subsequent post-accession five-year periods).

For rapeseed meal, despite the decline, it remained very high, at 145% against 161% in the last pre-accession five-year period, and 151-173% in the three consecutive post-accession five-year periods. Poland's self-sufficiency in margarine production improved the most following accession. The self-sufficiency rate rose from 104% on average in 1999-2003 to 106, 111, 113 and 138% in the following five years.

Following Poland's accession to the European Union, the ratio of coverage of import expenditure by oil products export receipts (TC) improved but remained low. For oil products as a whole, with increasing trade flows, it increased from 18% in the last five years before accession to 36, 41 and 42% in the next three five-year periods, and decreased to 39% in 2019-2023.

For rapeseed and its processed products combined, the TC ratio remained high, although it steadily declined. While in 1999-2003 total export revenue for rapeseed, oil and rapeseed meal was seven times higher than their import expenditure, this advantage diminished in subsequent years with increasing trade. In the first five years following accession, export receipts of rapeseed and its derivatives were almost four times higher than expenditure on their imports, in the next two five-year periods almost twice as much, and in 2019-2023 4% lower.

The oil sector's dependence on imports is high and did not change significantly following Poland's accession to the European Union. The import penetration rate, which illustrates the share of imports in market supply (in foreign trade balance-adjusted production) remained highest for oilseed meal (both before accession and in the two subsequent five-year periods after accession it exceeded 80%, before declining to 73-74% in 2014-2019 and 2019-2023) and vegetable oils (exceeding 40% throughout the period in study, and in the last five-year period exceeded 50%).

A systematic increase in this indicator was recorded for margarine, from less than 5% in 1999-2003 to just under 9% in 2004-2008, 22% in 2009-2013, 28% in 2014-2018 and 48% in the last five years. The share of imports in the supply of oilseeds also grew steadily, from 10% in the last five-year period prior to accession to 12 and 21% in the first two periods compared and 26% in the two subsequent periods.

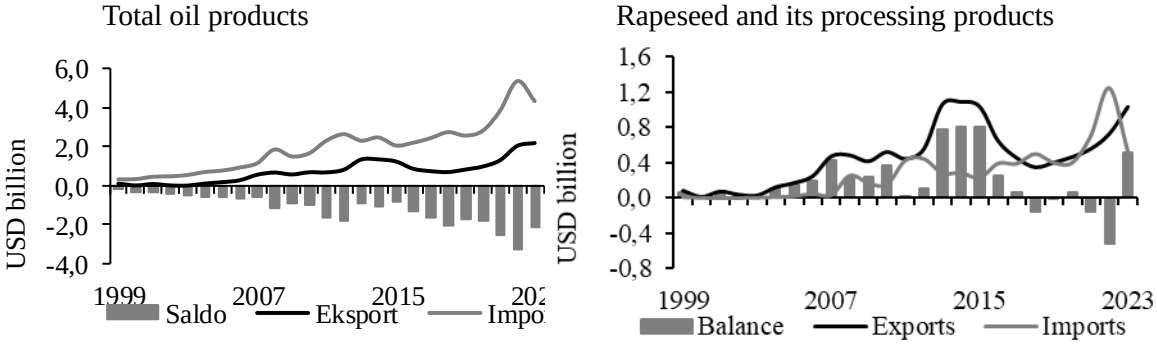
Table 8. *Indicators of changes in foreign trade in oil products.*

Specification	Average over the years:									
	1999-2003	2004-2008	2009-2013	2014-2018	2019-2023	1999-2003	2004-2008	2009-2013	2014-2018	2019-2023
	Total oil products					**Rapeseed and its processing products**				
Exports (USD million)	82,7	391,0	846,4	1002,4	1483,0	58,5	297,0	599,9	715,7	637,0
Imports (USD million)	448,6	1095,3	2088,4	2386,2	3774,3	8,6	78,4	300,3	364,8	660,7
Balance (USD million)	-365,9	-704,3	-1242,0	-1383,8	-2291,3	49,9	218,6	299,7	350,9	-23,7
Export dynamics (%)	-26,0	48,4	22,5	-14,6	26,7	-28,3	31,4	26,3	-13,5	-4,4
Import dynamics (%)	13,2	26,9	11,2	2,6	13,9	-10,1	101,5	13,2	14,6	6,6
Coverage of import value with exports (%)	18,4	35,7	40,5	42,0	39,3	680,2	378,8	199,8	196,2	96,4
	Oilseeds					**Rape**				
Balance (thousands of tonnes)	47,5	78,2	-103,8	-132,3	-316,6	129,9	175,3	29,1	110,9	-83,4
Balance (USD million)	-17,8	-41,0	-148,4	-162,0	-291,8	28,2	48,0	-11,4	29,1	-90,0
Self-sufficiency score (%)	105,0	104,5	95,6	95,3	91,3	115,3	110,8	101,3	104,4	97,5
Export specialisation (%)	14,3	15,9	17,4	22,4	19,4	14,2	15,6	17,0	20,2	14,6
Import penetration rate (%)	10,0	12,1	21,0	26,0	26,4	1,1	6,5	15,9	16,6	16,8
Coverage of import value with exports (%)	65,0	74,2	58,4	64,8	60,1	1148,1	194,2	94,4	113,7	74,6
Terms of trade	1,0	1,2	1,4	1,1	1,1	1,0	0,9	1,2	1,0	1,0
	Vegetable oils					**Canola oil**				
Balance (thousands of tonnes)	-219,3	-198,3	-217,1	-293,9	-778,9	-2,6	126,5	159,2	192,4	-87,8
Balance (USD million)	-111,1	-176,1	-294,0	-362,3	-970,0	0,1	114,9	172,6	164,5	-119,6
Self-sufficiency score (%)	60,4	74,3	79,7	80,6	63,2	99,2	128,4	123,2	118,9	93,8
Export specialisation (%)	2,5	27,9	29,5	30,5	27,0	2,3	26,1	27,2	28,4	10,1
Import penetration rate (%)	41,1	46,5	43,8	44,0	53,8	3,1	5,2	10,3	14,8	15,7
Coverage of import value with exports (%)	5,1	46,8	49,7	48,4	32,6	101,0	539,5	292,9	217,4	58,2
Terms of trade	1,0	0,8	0,9	0,9	1,2	1,0	0,6	1,1	1,1	1,0
	Oil sharps					**Rapeseed meal**				
Balance (thousands of tonnes)	-1090,7	-1611,6	-2199,4	-2270,5	-2429,1	190,8	340,7	534,3	613,2	621,4
Balance (USD million)	-247,7	-515,0	-839,2	-893,6	-1133,2	21,5	55,7	138,5	157,3	185,9
Self-sufficiency score (%)	31,5	34,8	36,8	44,6	45,2	161,3	165,9	172,7	151,1	145,2
Export specialisation (%)	40,3	42,4	49,5	39,6	42,0	39,8	40,5	44,1	36,4	34,7
Import penetration rate (%)	81,2	80,0	81,5	73,0	73,8	2,9	1,4	3,4	3,9	5,2
Coverage of import value with exports (%)	8,4	11,0	17,6	18,0	20,0	2197,3	4450,8	1838,8	1306,5	1023,2
Terms of trade	1,0	1,1	1,3	1,0	1,1	1,0	0,9	0,9	1,1	1,2
	Margarine									
Balance (thousand tons)	12,3	20,5	40,4	41,5	88,0	x	x	x	x	x

Balance (USD million)	10,6	27,8	39,7	34,2	103,9	x	x	x	x	x
Self-sufficiency score (%)	103,6	106,3	111,1	112,7	137,7	x	x	x	x	x
Export specialisation (%)	7,8	14,0	29,7	36,0	62,0	x	x	x	x	x
Import penetration rate (%)	4,5	8,6	21,9	27,9	47,7	x	x	x	x	x
Coverage of import value with exports (%)	201,4	177,1	130,6	125,6	155,2	x	x	x	x	x
Terms of trade	1,0	0,9	0,8	1,0	1,0	x	x	x	x	

Source: *MF, own study.*

Figure 5. *Foreign trade in oil products from 1999 to 2023.*



Source: *MF, own study.*

Following accession, Poland's production and export capacity in the oil sector increased, indicated by an increase in the export specialisation index showing the share of exports in production, which increased the most in the case of margarine. With an initial increase and then a decrease in the production of margarine, the share of exports in their production rose steadily from 8% on average in 1999-2003 to 62% in 2019-2023.

The share of exports in rapeseed oil production also rose steadily from 2% in the five-year period prior to accession to 28% in 2014-2018, but fell to 10% in the last five years. The share of exports in rapeseed production increased from 14% on average in 1999-2003 to 20%, and like rapeseed oil, decreased to 15% in the last five years. The share of exports in rapeseed meal production was high both before and after accession, and amounted to 40% on average in 1999-2003, rising to 41 and 44% respectively in the next two quinquennia, before declining to 36 and 35% in the following quinquennia.

In the first years following Poland's accession to the European Union, the competitiveness of trade in rapeseed and its processing products and margarine on the European Union market, as measured by the terms of trade index (nominal price), declined, indicated by a decline in the terms of trade index to below 1, the deepest for rapeseed oil to 0.6 on average in the first five years following accession.

In subsequent years, the competitiveness of the trade in these products improved, with the price terms of trade indexes most often exceeding 1, but in recent years they fell again and were equally 1, with the exception of rapeseed meal, the index of which was higher than 1, indicating that its competitiveness in the European market remained high.

5. Conclusions

Poland's accession to the European Union and the EU policy promoting the development of renewable energy, including biofuels, as well as Poland's inclusion in the Single European Market and the consequent full opening of markets and gaining freedom of trade with EU countries are the two main factors that have had a decisive impact on the dynamic development of the domestic oil sector, including the development of rapeseed production and processing, and foreign trade in oil products that occurred over the past two decades.

After accession, Polish exports of oil products became almost exclusively intra-EU exports, with EU countries also remaining a large supplier, although their share declined while that of other countries increased.

Following accession, Poland regained its position as an important exporter lost in the 1990s and became a major exporter of rapeseed oil, developing exports of rapeseed meal and margarine. Despite the development of exports, Poland, like the entire European Union, remains a persistent net importer of oil products, with a worsening negative balance of trade.

This is due to limited opportunities for the development of oilseed crop production, with rapidly growing domestic demand for vegetable oils (mainly from the biofuel sector) and oilseed meal (due to the development of poultry production and changes in livestock feeding technology).

The high post-accession competitiveness of Polish oil products in the European market, which following accession became their main market, has been declining in recent years, most notably for rapeseed oil, but also for canola. This declining competitiveness is evidenced by the transformation in the last five years of the balance of trade in these products to negative, the decline in the ratio of import coverage with exports to below 100, a large reduction in the ratio of the share of exports in production, as well as a reduction in the terms of trade index.

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