

The Effects of Brexit and Geopolitical Determinants on the Dynamics and Structure of Polish and Czech Agri-Food Trade with the United Kingdom in 2015–2024

Anna S. KOWALSKA¹, Anna OLSZAŃSKA¹, Klaudia PASKUDZKA¹, Joanna SZYMAŃSKA¹ and Tomáš KRTIČKA^{2*}

¹ Wrocław University of Economics and Business, Wrocław, Poland; anna.kowalska@ue.wroc.pl; anna.olszanska@ue.wroc.pl; klaudia.paskudzka@ue.wroc.pl; joanna.szymanska@ue.wroc.pl

² University of Hradec Králové, Hradec Králové, Czech Republic; tomas.krticka@uhk.cz

* Corresponding author: tomas.krticka@uhk.cz

Abstract: The primary objective of this study is to evaluate the impact of geopolitical shifts, specifically Brexit and global supply chain disruptions, on the dynamics and structure of agri-food trade between Poland, the Czech Republic, and the United Kingdom from 2015 to 2024. The research utilizes secondary data from the Trade Map (ITC) database. The analysis is based on Compound Annual Growth Rate (CAGR), dynamics indices, and Market Share metrics across selected product groups according to the Harmonized System (HS 01–24). The findings reveal a profound asymmetry in the adaptive strategies of the studied economies. Poland successfully leveraged Brexit as a catalyst for expansion, recording spectacular growth in the cereals sector (nearly a 17-fold increase in value) and meat products (market share in the UK rising to 14.8%). In contrast, the Czech model evolved toward niche specialization, showing regression in low-margin categories such as milling products and vegetables. The study confirms the occurrence of a "substitution effect," where Polish producers effectively filled supply gaps left by Western European suppliers. The results suggest high resilience of the Polish food system to non-tariff barriers, alongside a simultaneous marginalization of British imports within CEE markets.

Keywords: Brexit; agri-food trade; international competitiveness; CAGR; supply chains; non-tariff barriers.

JEL Classification: F14; F15; F51

1. Introduction

The process of the United Kingdom's withdrawal from the structures of the European Union, commonly referred to as Brexit, constitutes one of the most significant events in Europe's recent economic history.

The literature on Brexit focuses on analysing its effects on economic integration and the costs associated with the disintegration of the internal market. Institutional and analytical studies indicate that the United Kingdom's withdrawal from the Single Market entailed a shift from a model of "deep integration" to the regime established under the Trade and

Cooperation Agreement (TCA), which- despite maintaining zero tariff rates- generates significant regulatory and administrative costs (European Parliament, 2023).

Ex ante studies based on computable general equilibrium (CGE) models predicted a decline in trade intensity as a result of rising non- tariff barriers and the weakening of Single Market effects. Empirical analyses have confirmed that, after 2021, trade between the United Kingdom and the EU declined markedly, with stronger decreases observed in highly regulated sectors, including agri- food products (Du et al., 2024; European Parliament, 2023).

In the context of individual Member States, the effects are shown to vary depending on the structure of exports and the degree of dependence on the UK market. For Poland, prior to 2021, the United Kingdom was one of the key export markets for agri-food products (European Commission, 2024; Ministerstwo Rozwoju i Technologii, 2020), for the Czech Republic this importance was more moderate, though still significant in selected segments of the processing industry.

The agri-food sector is regarded in the literature as particularly sensitive to regulatory changes due to the applicable sanitary and phytosanitary (SPS) standards, certification requirements, and the short shelf life of products. (Ambroziak, 2022). The introduction of mandatory customs declarations, veterinary certificates, and border controls following the entry into force of the TCA increased transaction costs and extended delivery times.

Empirical studies indicate that even in the formal absence of tariffs, non-tariff barriers act as quasi-tariffs, reducing trade volumes. Du et al. (2024) show that the effect of the TCA was asymmetric, affecting UK exporters more strongly, while some EU exporters demonstrated a relatively greater capacity for adaptation.

European Commission reports confirm that, despite disruptions, the United Kingdom remains one of the EU's most important partners in trade in agri-food products, and the EU's trade surplus in this area remains at a high level (European Commission, 2024). This indicates a partial compensation for losses through the reorganisation of supply chains and the substitution of export destinations.

In the domestic literature, prior to the Brexit referendum, the need to revise the export strategies of the Polish agri- food sector was emphasised (Kosior & Ambroziak, 2018). Post-Brexit analyses (Ambroziak, 2022, 2024) indicate that Polish agri-food exports to the United Kingdom recorded a relatively limited decline in 2021 (approximately 4%), which points to the high adaptability of firms and a strong competitive position in selected segments- particularly in processed meat products.

With regard to the Czech Republic, the literature is less extensive; however, studies on agriculture in Central and Eastern Europe (Andrei et al., 2020) emphasise the relationship between changes in the trade regime and the sector's ability to maintain competitive advantages. It is indicated that smaller economies with a more diversified export structure may display greater resilience to unilateral demand shocks, while at the same time exhibiting a more limited capacity for expansion.

From a theoretical perspective, this adaptation aligns with the concept of "trade resilience", understood as the ability of a trade system to absorb shocks and reconfigure export destinations while maintaining the relative stability of value added.

The COVID-19 pandemic constituted an independent global shock affecting food trade through logistical disruptions, restrictions on labour mobility, and a collapse in demand in the HoReCa sector. Korir et al. (2021) indicate that, in the short term, the pandemic led to significant fluctuations in prices and trade volumes for fresh and meat products.

The literature emphasises that the agri-food sector demonstrated greater resilience than many industrial branches, however, the effects of the pandemic varied depending on the degree of product processing and the export orientation of firms. In the context of Brexit, the pandemic further increased regulatory and logistical uncertainty in the first year of the TCA's operation.

Russia's aggression against Ukraine in 2022 triggered a sharp increase in the prices of energy, fertilisers, and agricultural commodities, which directly affected the costs of agricultural production and food processing in the EU. European Commission reports (European Commission, 2024) point to sharp increases in fertiliser prices in 2022 and growing inflationary pressure in the food sector.

At the same time, the liberalisation of trade in agricultural products with Ukraine reshaped the structure of imports in the Central European region, increasing price competition and affecting the margins of domestic producers (Ambroziak, 2022). The literature indicates that the accumulation of regulatory shocks (Brexit) and cost shocks (war, energy) leads to a lasting reconfiguration of value chains in the European food system.

Although there is a substantial body of literature on the general effects of Brexit and the impact of the pandemic and the war on food trade, the number of studies combining these phenomena in a comparative perspective of Poland and the Czech Republic, and focusing on the product structure of trade over the long-term horizon of 2015- 2024, remains limited.

The main objective of this study is to assess the impact of geopolitical changes- particularly Brexit and disruptions in global supply chains- on the dynamics and structure of agri-food trade between Poland and the Czech Republic and the United Kingdom. The study seeks to identify differences in the adaptive strategies of the two economies with regard to key groups of agri-food products. The following research questions are posed in the paper:

- RQ1: How did the United Kingdom's withdrawal from the EU Single Market affect the dynamics of agri-food exports and imports in Poland and the Czech Republic?
- RQ2: Which commodity groups (according to the HS classification) demonstrated the greatest resilience to non-tariff barriers, and which experienced a decline?
- RQ3: Did Polish and Czech producers effectively exploit supply gaps in the UK market through a substitution effect?

2. Methodology

To assess the impact of geopolitical changes on trade in the agri-food sector, this study uses secondary data obtained from the Trade Map database (International Trade Centre). The selected time span covers the years 2015- 2024, which allowed for a precise analysis of trends in two key sub-periods: the pre- Brexit period (2015- 2020)- covering the phase of stabilisation

and post-referendum uncertainty- and the post- Brexit period (2021- 2024), characterised by operation outside the EU Single Market.

The study's time frame also allows for the inclusion of the impact of exogenous factors, such as the COVID-19 pandemic and disruptions in global supply chains caused by the war in Ukraine.

The scope of the analysis covers trade in goods classified in Sections I–IV of the Harmonized System (HS 01–24). In order to ensure high reliability of the results and to reflect the specific production structures of Poland and the Czech Republic, a purposive selection of nine HS chapters was made. The analysis focuses on sectors of substantial importance to domestic production capacity, grouping them into three functional categories:

- Animal products: Live animals (HS 01), Meat and edible offal (HS 02), and Dairy products, eggs, and honey (HS 04);
- Plant products (raw materials): Vegetables (HS 07), Fruit and nuts (HS 08), Cereals (HS 10), and Oil seeds and industrial crops (HS 12);
- Processed products: Products of the milling industry, malt and starch (HS 11), and Sugar and confectionery (HS 17).

The application of the above selection criteria made it possible to exclude commodity groups of an exotic nature or those based on re-export, thereby ensuring that the identified changes reflect genuine shifts in the competitiveness of national food systems.

To verify the research questions, the following methods were applied:

1. Analysis of dynamics and trends- fixed-base indices (2015= 100) and the compound annual growth rate (CAGR) were used to assess the stability of growth in the analysed sub-periods. The CAGR indicator (Ambroziak et al., 2025) was calculated according to the following formula (1):

$$yCAGR = \left(\frac{v_{tn}}{v_{t_0}} \right)^{\frac{1}{n}} - 1 \quad (1)$$

Where v_{tn} denotes the value of exports/ imports in the final year, and v_{t_0} represents the value of exports/ imports in the initial year of the analysed sub-period, and n is the number of years in the analysed sub-period.

2. The Market Share indicator makes it possible to assess a country's relative competitive position in a partner's market, while limiting the influence of overall fluctuations in that market's import volume (Kowalska et al., 2021) (2):

$$MS_i = \frac{X_{i \rightarrow UK}}{M_{World \rightarrow UK}} \times 100\% \quad (2)$$

Where $X_{i \rightarrow UK}$ denotes the value of exports of goods from chapter i from the analysed country (Poland/ Czech Republic) to the United Kingdom, and $M_{World \rightarrow UK}$ represents the value of the United Kingdom's total imports from the world.

The analysis is based on nominal values expressed in EUR. It should be noted that, due to high food price inflation in the period 2021- 2024, increases in value terms may not fully correspond to increases in physical volume (quantities traded). For this reason, the results are interpreted primarily through changes in market shares and structural relationships, which are more resilient to inflationary effects than raw nominal data.

3. Results

3.1. Dynamics of Poland's and the Czech Republic's Trade in Selected Agri-Food Products with the United Kingdom

The data presented (Table 1) cover a decade of trade transformation, taking into account the impact of Brexit and the COVID-19 pandemic. To provide a reliable account of these changes, the analysis was based on five turning points:

- 2015 (Base year)- the starting point of the analysis, representing stable intra-EU trade;
- 2019 ("Old order" peak)- the last full year before the pandemic and the beginning of the Brexit transition period;
- 2020 (Transitional and crisis year)- a period marked by supply chain disruptions and regulatory uncertainty;
- 2021 (EU exit)- the end of the Brexit transition period;
- 2024 (Current situation)- the most recent data reflecting the new balance following the full implementation of trade rules applicable to a third country.

Table 1. Trade balance of Poland and Czechia with the United Kingdom in key product groups, together with the dynamics of changes (thousand EUR, %)

HS code	Commodity group	Country	2015	2019	2020	2021	2024	Growth (2015–2024)
01	Live animals	PL	-6,652	-2,954	-8,214	-6,373	-15,450	-132.3%
		CZ	329	130	478	551	254	-22.80%
02	Meat	PL	340,799	471,389	474,252	545,585	888,906	160.80%
		CZ	-1,930	-5,702	-4,805	-1,251	-3,662	-89.7%
04	Dairy products	PL	77,495	85,773	56,806	103,067	164,667	112.50%
		CZ	-2,950	-2,271	-156	-3,952	-5,938	-101.3%
07	Vegetables	PL	114,856	163,769	162,082	179,950	211,909	14.50%
		CZ	-4,187	-5,502	-1,447	-303	-309	+92.6%
08	Fruit	PL	52,307	56,207	45,200	74,809	98,389	88.10%
		CZ	-1,806	-605	-845	-242	-348	+80.7%
10	Cereals	PL	9,389	1,697	8,678	56,135	157,864	1,581.4%
		CZ	-69	-46	493	-11	339	n.a.*
11	Products of the milling industry	PL	5,859	8,246	10,554	10,460	8,281	41.30%
		CZ	13,425	240	-1,595	-1,245	-1,047	-107.8%
12	Oil seeds	PL	1,582	4,104	3,527	7,974	8,012	406.40%
		CZ	1,708	990	902	902	3,227	88.90%
17	Sugar and confectionery	PL	28,584	23,762	25,387	31,599	91,005	218.40%
		CZ	44,111	38,717	42,285	44,819	84,475	91.50%

Note: In the case of cereals for Czechia, the percentage change is not interpretable due to the transition from a negative value (deficit in 2015) to a positive value (surplus in 2024).

The comparative analysis reveals a fundamental difference in the structure of the two countries' trade with the United Kingdom. Poland consistently generates a substantial trade surplus, particularly in highly processed sectors such as meat (HS 02) and dairy products (HS 04). At the same time, Czechia records a deficit in most of these categories, indicating that it is a net importer of food products from the UK market.

The most pronounced increase was recorded in the cereals sector (HS 10). Poland expanded its positive trade balance from just under EUR 9.4 million in 2015 to nearly EUR 158 million in 2024. This represents an almost seventeenfold increase, suggesting an effective filling of supply gaps in the UK market following Brexit. Although the percentage growth in the meat category (HS 02) (+160.8%) is lower than in cereals (HS 10), in absolute terms it constitutes the most significant success of Polish exports. The increase in the surplus by more than half a billion euros annually indicates that the Polish meat- processing industry has become a key pillar of the United Kingdom's food security. Against the backdrop of the success of processed products, the live animals category (HS 01) appears problematic. Poland deepened its deficit in this group by 132.3%, indicating that imports of breeding material from the United Kingdom substantially exceed exports to that market. This is the only category in which dependence on UK supplies has clearly increased.

The trade profile of Czechia with the United Kingdom is considerably more modest and rests on different foundations than that of Poland. In contrast to Poland, Czechia records a trade deficit in key staple product categories such as meat (HS 02), dairy products (HS 04), and fruit and vegetables (HS 07, 08), indicating that it functions primarily as an importer of these goods from the UK (or via the UK) rather than as a significant supplier. Although the balance for vegetables and fruit remains negative, Czechia has recorded a substantial improvement, with deficit reductions of +92.6% and +80.7%, respectively, suggesting an optimisation of supply chains. Sugar and confectionery (HS 17) remains the only category in which Czechia maintains a high and stable surplus (EUR 84.5 million in 2024), nearly doubling its 2015 result.

3.2. Dynamics of Poland's and Czechia's Trade with the United Kingdom

The use of fixed- base indices (2015= 100) makes it possible to precisely distinguish three phases shaping the contemporary architecture of trade exchange: pre-referendum stabilisation, the period of uncertainty (2019- 2020), and operation outside the EU Single Market (after 2021). The data presented in Tables 2 and 3 reveal profound asymmetries in the responses of individual commodity groups to the new geopolitical conditions.

Poland demonstrated a remarkable adaptive capacity, effectively transforming its trade model in response to non-tariff barriers. An evolution can be observed from the traditional dominance of animal products towards the export of strategic raw materials and highly processed plant-based products (Table 2).

The most striking feature of the analysis is the cereals sector (HS 10), which recorded explosive growth. The dynamics index reached 1671.7% in 2024, indicating an almost seventeenfold increase in export value relative to the base year. The breakthrough surge after

2021 suggests that, in the face of destabilisation in eastern markets, Poland became a key alternative supplier for the United Kingdom.

Table 2. Export and import dynamics for Poland–United Kingdom trade (2015 = 100, %)

HS Code	Commodity group	2015	2019	2020	2021	2024
		Exports				
01	Live animals	100	0.0	0.0	2,518.8	10,843.8
02	Meat	100	128.1	128.9	126.7	206.7
04	Dairy products	100	124.6	128.1	133.1	211.7
07	Vegetables	100	152.2	140.8	151.6	179.0
08	Fruit	100	106.9	92.6	117.0	154.3
10	Cereals	100	101.9	133.5	603.5	1,671.7
11	Products of the milling industry	100	116.4	122.6	112.9	137.4
12	Oil seeds	100	236.4	278.3	334.5	393.9
17	Sugar and confectionery	100	108.5	109.9	125.8	306.0
		Imports				
01	Live animals	100	44.3	123.2	101.6	257.7
02	Meats	100	92.7	93.1	10.5	18.5
04	Dairy products	100	231.9	552.2	133.8	205.2
07	Vegetables	100	363.8	132.7	39.9	59.1
08	Fruit	100	104.7	118.3	9.3	15.0
10	Cereals	100	14,153.6	7,016.1	1,548.2	41.1
11	Products of the milling industry	100	96.1	74.7	58.2	134.2
12	Oil seeds	100	205.9	351.7	109.7	244.6
17	Sugar and confectionery	100	236.3	216.0	202.3	243.4

A similar, though specific, pattern is observed in the live animals category (HS 01). Following a period of virtually no trade (2016- 2020), the index reached 10843.8% in 2024. Such an extreme value results from a low- base effect, nevertheless, the scale of the return of Polish producers is unprecedented. At the same time, the pillars of trade- meat (HS 02) and dairy products (HS 04)- recorded steady growth, doubling their values by 2024 (to 206.7% and 211.7%, respectively), which indicates strong loyalty among UK consumers.

In import relations with the United Kingdom, the opposite phenomenon can be observed- namely, a progressive erosion in the importance of UK goods. Dramatic declines in the meat (HS 02) and fruit (HS 08) sectors, where the indices fell to 18.5% and 15.0%, respectively, point to an almost complete disappearance of these flows in statistical terms.

Czechia's trade with the United Kingdom in the analysed period is characterised by considerably greater instability than Poland's, showing strong fluctuations and clear signs of market displacement in key categories (Table 3).

In the export domain, the most pronounced decline was recorded in the milling industry (HS 11). The dynamics index fell to only 4.3% in 2024, indicating the near- complete elimination of Czech flour from the UK market. Czechia is also the only country among those analysed that recorded a real decline in vegetable exports (HS 07) in 2024 relative to the base year (2024= 89.6%), pointing to a loss of competitiveness following the introduction of full border controls.

On the other hand, a positive performance was observed in the dairy sector (HS 04), where Czechia maintained higher dynamics than Poland for most of the period, ending 2024 with an index of 219.5%. In the area of imports, Czechia consistently increased its purchases of sugar (HS 17), reaching an index of 290.4%, which contrasts with the trends observed in Poland and suggests a different structure of industrial demand.

Table 3. Dynamics of Czechia's exports to and imports from the United Kingdom (2015 = 100, %)

HS Code	Commodity group	2015	2019	2020	2021	2024
Exports						
01	Live animals	100	25.4	96.9	160.6	107.8
02	Meat	100	62.2	81.1	312.2	227.0
04	Dairy products	100	235.7	298.1	236.2	219.5
07	Vegetables	100	90.3	139.6	92.5	89.6
08	Fruit	100	1,823.1	2,288.5	2,307.7	669.2
10	Cereals	100	158.7	400.5	107.1	364.1
11	Products of the milling industry	100	12.3	3.6	1.5	4.3
12	Oil seeds	100	111.7	101.8	87.7	193.7
17	Sugar and confectionery	100	115.3	99.7	104.7	196.3
Imports						
01	Live animals	100	0.5	10.8	148.4	161.8
02	Meat	100	286.8	242.8	74.0	191.1
04	Dairy products	100	141.1	123.6	175.3	208.7
07	Vegetables	100	130.1	37.8	9.9	9.9
08	Fruit	100	58.9	78.6	46.0	28.5
10	Cereals	100	133.6	96.4	82.2	130.8
11	Products of the milling industry	100	181.9	252.8	175.6	200.1
12	Oil seeds	100	540.7	493.5	366.4	231.8
17	Sugar and confectionery	100	116.2	174.9	166.4	290.4

The comparative analysis indicates that Poland more effectively exploited supply gaps in the UK market, particularly in the agricultural raw materials sector (cereals). Czechia, by contrast, faces a pronounced decline in traditional sectors (milling, vegetables), which may stem from higher logistical costs and a smaller scale of production compared with the Polish agri-food sector.

3.3. CAGR Dynamics in Poland's and Czechia's Agricultural Trade with the United Kingdom

Dividing the analysis, into sub-periods- the pre-Brexit period (2015–2020) and the post-Brexit period (2020–2024), makes it possible to precisely capture the point at which the vectors of trade dynamics changed. The use of the CAGR indicator mitigates short- term fluctuations, revealing the long- term adaptive trends of both economies.

The analysis of the compound annual growth rate (CAGR) across two time intervals – the pre-Brexit period (2015–2020) and the period following the full implementation of the new trade rules (2020–2024) – points to a pronounced asymmetry in trade relations. While Polish exports demonstrated strong resilience and growth, imports from the United Kingdom experienced a sharp decline in many categories (Table 4).

The most remarkable change was recorded in the cereals sector (HS 10). The compound annual growth rate in the post-Brexit period (2020–2024) reached 88.12%, representing an increase of more than 82 percentage points compared with the pre-Brexit period. This suggests that Polish cereal producers effectively filled supply gaps in the UK market, becoming a key alternative supplier in the new geopolitical environment.

Table 4. Compound annual growth rate (CAGR, %) of Poland's trade with the United Kingdom

HS Code	Commodity group	Export 2015-2020	Export 2020-2024	Difference (p.p.)	Import 2015-2020	Import 2020-2024	Difference (p.p.)
01	Live animals	n.a.*	n.a.*	–	4.26	20.27	16.01
02	Meat	5.21	12.54	7.33	-1.41	-33.23	-31.82
04	Dairy products	5.08	13.38	8.30	40.74	-21.92	-62.66
07	Vegetables	7.08	6.20	-0.88	5.82	-18.32	-24.14
08	Fruit	-1.52	13.62	15.14	3.41	-40.37	-43.78
10	Cereals	5.95	88.12	82.17	134.00	-72.34	-206.34
11	Products of the milling industry	4.15	2.90	-1.25	-5.67	15.77	21.44
12	Oil seeds	22.72	9.07	-13.65	28.60	-8.68	-37.28
17	Sugar and confectionery	1.91	29.17	27.26	16.65	3.03	-13.62

Note: As the value in 2020 was zero, the standard CAGR cannot be computed for this interval.

In the groups constituting the traditional pillars of exports- meat (HS 02) and dairy products (HS 04)- more than a twofold acceleration in growth was observed. The CAGR for meat increased from 5.21% to 12.54%, and for dairy products from 5.08% to 13.38%. Such strong acceleration indicates the durable embedding of Polish products in UK supply chains and the high resilience of these sectors to complex veterinary procedures. The fruit sector (HS 08), meanwhile, underwent a transformation from a declining trend (-1.52%) to dynamic growth at 13.62%. A significant acceleration was also recorded in the export of sugar and confectionery (HS 17), where the CAGR rose from 1.91% to 29.17%.

In import relations from the United Kingdom to Poland after 2020, a phenomenon of a sharp collapse in growth dynamics can be observed across most categories. The strongest decline affected the cereals (HS 10), fruit (HS 08), meat (HS 02), and dairy products (HS 04) sectors, where the CAGR fell to -72.34%, -40.37%, -33.23%, and -21.92%, respectively.

This points to the near- complete displacement of UK agricultural raw materials by suppliers from the EU Single Market or eastern sources (Ukraine). The only exceptions are products of the milling industry (HS 11), which, after a period of decline before 2020, rebounded to a CAGR of 15.77%, and sugar (HS 17), which maintained positive, albeit significantly weakened, growth (a decrease from 16.65% to 3.03%). In the live animals category (HS 01), a sharp increase in imports was recorded in the most recent period (20.27%); however, due to zero base values in some years of the 2015–2020 interval, a full mathematical comparison of the export CAGR cannot be determined using the standard method.

The CAGR analysis demonstrates that Brexit affected Poland's trade selectively. For exports, it became a catalyst for growth, particularly in the cereals category and in highly processed products. For imports, by contrast, post-Brexit barriers proved critical, leading to a profound marginalisation of UK agri-food products in the Polish market.

The analysis of Czech–UK trade in the examined period indicates substantially greater volatility and deeper structural reorientations than in the case of Poland. With a smaller scale of mass production, Czechia shows a tendency towards abrupt shifts in the dynamics of individual product categories following Brexit (Table 5).

Table 5. Compound annual growth rate (CAGR, %) of Czechia’s trade with the United Kingdom

HS Code	Commodity group	Export 2015-2020	Export 2020-2024	Difference (p.p.)	Import 2015-2020	Import 2020-2024	Difference (p.p.)
01	Live animals	-0.63	2.69	3.32	-35.98	96.96	132.94
02	Meat	-4.11	29.36	33.46	19.41	-5.80	-25.21
04	Dairy products	24.41	-7.36	-31.77	4.32	13.99	9.67
07	Vegetables	6.89	-10.50	-17.39	-17.67	-28.42	-10.74
08	Fruit	87.03	-26.46	-113.49	-4.70	-22.41	-17.70
10	Cereals	31.99	-2.35	-34.34	-0.72	7.92	8.64
11	Products of the milling industry	-48.67	5.02	53.69	20.38	-5.67	-26.05
12	Oil seeds	0.36	17.44	17.08	37.61	-17.21	-54.82
17	Sugar and confectionery	-0.06	18.46	18.52	11.83	13.52	1.69

The most striking change in Czechia’s exports is the “revival” of the meat sector (HS 02). Before 2020, this category was in decline (CAGR –4.11%); however, after Brexit it experienced a sharp increase to 29.36%. The positive difference of as much as 33.46 percentage points suggests that Czech producers effectively filled market niches vacated by other EU suppliers.

A similar upward trend was observed in the sugar and confectionery category (HS 17). The stabilisation of growth at 18.46% (compared with almost zero growth before 2020) indicates a lasting strengthening of the Czech sugar industry’s position in the UK market. An interesting development is also the slowdown of declines in products of the milling industry (HS 11): after a substantial contraction in 2015–2020 (–48.67%), the sector returned to growth at 5.02% (an improvement of nearly 54 percentage points). In the case of oil seeds (HS 12), growth dynamics increased from 0.36% to 17.44%.

It should be noted, however, that these successes came at the expense of other sectors. Czechia’s fruit exports (HS 08) experienced a substantial collapse, falling from 87.03% to –26.46% (a difference of as much as –113.49 percentage points).

In the area of imports from the United Kingdom to Czechia, the live animals category (HS 01) deserves particular attention. The compound annual growth rate in this segment increased from –35.98% before 2020 to 96.96% in the post-Brexit period. Such a substantial fluctuation (a jump of 132.94 percentage points) suggests either an intensive rebuilding of livestock herds or a sudden shift in the sourcing model towards UK breeding material.

In contrast to the trends observed in Poland, after 2020 Czechia maintained positive import dynamics in the dairy (HS 04, CAGR 13.99%) and cereals (HS 10, CAGR 7.92%) categories, which may indicate a greater dependence of Czech processing industries on specific components imported from the UK. At the same time, Czechia recorded a decline in imports of meat (HS 02) and oil seeds (HS 12), where growth rates fell into negative territory, at –5.80% and –17.21%, respectively.

While Polish exports are based on steady acceleration in large-scale sectors (meat, cereals), the Czech model after 2020 displays features of corrective restructuring. Czechia successfully reversed negative trends in the export of meat (HS 02) and products of the milling industry (HS 11), while simultaneously significantly increasing imports in the livestock sector (HS 01), which may help build the foundations for the future competitiveness of the agri-food sector.

3.4. Comparative Analysis of Poland's and Czechia's Shares in UK Imports

The key indicator enabling an assessment of the actual competitive strength of agri-food products is their market share, defined as the ratio of a given country's exports to the United Kingdom's total imports from the world. The data presented in Tables 6 and 7 reveal markedly different adaptive strategies and levels of penetration of the UK market by Poland and Czechia.

For Poland, the period 2015–2024 was a time of systematic strengthening of its market position, suggesting that non-tariff barriers paradoxically became an impetus for expansion (Table 6).

Table 6. Poland's share in the United Kingdom's import market (2015–2024, %)

HS Code	Commodity group	2015	2019	2020	2021	2024	Change 2015-2024 (p.p.)
01	Live animals	0.00	0.00	0.00	0.08	0.22	+0.22
02	Meat	8.32	11.71	13.13	12.76	14.79	+6.47
04	Dairy products	2.54	3.09	3.35	3.72	4.09	+1.55
07	Vegetables	3.12	4.74	4.45	4.99	4.41	+1.30
08	Fruit	1.17	1.23	1.08	1.40	1.51	+0.33
10	Cereals	0.68	0.70	0.78	3.29	6.80	+6.12
11	Products of the milling industry	3.35	3.27	3.44	3.22	2.73	-0.61
12	Oil seeds	0.29	0.71	0.65	0.65	0.66	+0.37
17	Sugar and confectionery	2.32	2.99	3.35	3.44	5.18	+2.85

The most favourable results were recorded in the meat sector (HS 02), where a model “substitution effect” was observed. Poland's share increased from 8.32% to 14.79%, meaning that currently roughly one in every seven kilograms of meat imported into the UK originates from Poland. The correction in 2021 was only incidental in nature and was quickly offset by a strong rebound.

A similarly significant breakthrough occurred in the cereals sector (HS 10). The tenfold increase in market share- from a marginal 0.68% to 6.8%- suggests that Polish producers effectively captured market shares previously held by traditional suppliers from Western Europe (France, Germany). This success also extends to sugar and confectionery (HS 17), whose share more than doubled (to 5.18%). The growth observed in groups subject to stringent sanitary and phytosanitary (SPS) controls demonstrates the high operational efficiency of the Polish agri-business sector.

Signals of weakening emerge only from the milling sector (HS 11) and vegetables (HS 07). In the latter case, despite an increase in value, the decline in market share from 4.99%

(2021) to 4.41% (2024) indicates an exhaustion of the previous momentum- the UK import market in this category is expanding faster than supplies from Poland.

Czechia's share in the UK agricultural market is considerably more modest and shows signs of strong sectoral polarisation as well as withdrawal from low-margin markets (Table 7).

Table 7. Czech Republic's share in the UK import market (2015–2024, %)

HS Code	Commodity group	2015	2019	2020	2021	2024	Change 2015-2024 (p.p.)
01	Live animals	0.074	0.022	0.086	0.158	0.069	-0.005
02	Meat	0.001	0.001	0.001	0.005	0.003	+0.0013
04	Dairy products	0.058	0.134	0.178	0.151	0.097	+0.0389
07	Vegetables	0.003	0.003	0.005	0.003	0.002	-0.001
08	Fruit	0.000	0.008	0.011	0.011	0.003	+0.0021
10	Cereals	0.013	0.021	0.046	0.011	0.029	+0.0156
11	Products of the milling industry	3.698	0.382	0.110	0.048	0.095	-3.6024
12	Oil seeds	0.201	0.233	0.166	0.119	0.225	+0.0239
17	Sugar and confectionery	3.145	4.297	4.110	3.877	4.494	+1.3487

The most dramatic structural change was recorded in the category of products of the milling industry (HS 11). Czechia, which held a solid share of around 3.70% in 2015, has almost completely disappeared from this segment (below 0.10% in 2024). This contrasts with Poland's relatively strong position (2.73%), which may indicate the displacement of Czech exporters by Polish firms operating at a larger production scale.

The foundation of Czechia's presence remains the sugar and confectionery sector (HS 17), where Czechia controls 4.49% of the market. This is the only area in which Czechia competes meaningfully with Poland, and the combined share of both countries (over 9.5%) points to the dominance of the Central and Eastern European region in this segment. In contrast to Poland, Czechia shows negligible presence in fresh products (meat, vegetables), suggesting a concentration on neighbouring markets and a limited willingness to overcome SPS (*Sanitary and Phytosanitary measures*) barriers in the UK market.

The comparative analysis highlights differences in the strategic approaches of the two economies. While Poland achieved deep and broad penetration of the UK market (particularly in large- scale product categories), the Czech model evolved towards narrower specialisation. Brexit became an impetus for expansion for Poland, whereas for Czechia it proved to be a selective factor, forcing a withdrawal from traditional markets (such as milling) in favour of maintaining highly specialised niches.

4. Discussion

The results of the analysis point to a profound dichotomy in the responses of the food systems of Poland and Czechia to the new geopolitical conditions. After 2021, Poland moved from a phase of uncertainty to one of assertive market expansion, as confirmed by the sharp increase in the CAGR indicator for key sectors. The particularly remarkable success in the cereals sector (HS 10) suggests that Poland has become a food "safety valve" for the United Kingdom in the face of destabilisation of supply chains from the East (the war in Ukraine).

In contrast to Poland, the Czech model exhibits features of selective restructuring. While Polish exporters capitalised on economies of scale, Czechia was almost completely displaced from low-margin markets such as products of the milling industry (HS 11). This may indicate that non-tariff barriers (SPS controls and customs bureaucracy) constitute prohibitive obstacles for smaller production systems that are unable to absorb transaction costs through export scale.

It is worth noting the phenomenon of trade asymmetry. While exports from Poland and Czechia to the UK are increasing in many categories, imports from the United Kingdom are undergoing progressive marginalisation. This supports the thesis that Brexit has become a stronger impediment for UK exporters than for EU producers, who benefit from a broader raw-material base and more efficient logistical organisation within the EU.

5. Conclusions

The conducted comparative analysis of trade dynamics, compound annual growth rate (CAGR) indicators, and market shares in the UK market made it possible to formulate comprehensive answers to the research questions and to identify key trends in the agri-food sectors of Poland and Czechia in the period 2015- 2024.

With regard to the first research question (RQ1), concerning the impact of Brexit on trade dynamics, it was found that the United Kingdom's withdrawal from the EU Single Market affected the analysed economies in markedly different ways. For the Polish agri-food sector, Brexit paradoxically became a catalyst for pro- development processes. Non- tariff barriers did not halt expansion; on the contrary, in the post-Brexit period the compound annual growth rate in key sectors, such as meat processing, more than doubled (with CAGR increasing from 5.21% to 12.54%). A different tendency was observed in Czechia, where the new regulatory conditions acted as a selective barrier, leading to a profound decline in traditional export categories. At the same time, in both countries a process of marginalisation of imports from the United Kingdom was observed, indicating that bureaucratic barriers proved more burdensome for UK exporters than for suppliers from the Central and Eastern European region.

With regard to the second research question (RQ2), a clear hierarchy of resilience across commodity groups was identified. The sectors with the highest adaptive potential (so-called *growth leaders*) were cereals (HS 10), meat (HS 02), and dairy products (HS 04). In these areas, Poland demonstrated unprecedented operational efficiency, increasing its share in UK meat imports from 8.3% to nearly 15%. Products of the milling industry and vegetables were classified as sectors sensitive to regulatory changes, likely due to the high unit costs of complying with sanitary and phytosanitary (SPS) controls in the context of relatively low margins.

The analysis relating to the third research question (RQ3) confirmed the occurrence of the phenomenon referred to as a "model substitution effect." Poland effectively captured market shares previously held by traditional suppliers from Western Europe, such as France, Germany, and the Netherlands. The most striking evidence supporting this thesis is the cereals sector, in which Poland's share in the UK market increased nearly tenfold. The

substantial growth in exports after 2021 indicates that Polish producers rapidly filled supply gaps resulting from the reorientation of the United Kingdom's sourcing channels and global disruptions triggered by the war in Ukraine.

The main conclusion of the study is that Poland has successfully transformed geopolitical threats into an impulse strengthening its comparative advantage. This success is based on a favourable price-to-quality ratio and the reliability of supply during periods of crisis. Interpretative caution is nevertheless warranted, as although nominal export values have grown dynamically, a substantial part of this increase after 2021 has been driven by global food price inflation. However, the consistent rise in market shares confirms a genuine strengthening of Poland's competitive position, independent of price effects. The Czech food system, by contrast, demonstrated lower flexibility, evolving towards a narrow niche specialisation concentrated primarily in the sugar sector.

Conflict of interest: none

References

- Ambroziak, Ł. (2022). Handel rolno-spożywczy Polski z Wielką Brytanią w pierwszym roku po brexicie. *Przemysł Spożywczy*, 76(5), 4–9. <https://doi.org/10.15199/65.2022.5.1>
- Ambroziak, Ł. (2024). Polsko-brytyjski handel rolno-spożywczy po brexicie. *Przemysł Spożywczy*, 78(11), 16–20. <https://doi.org/10.15199/65.2024.11.1>
- Ambroziak, Ł., Szczepaniak, I., Kiforenko, O., & Zalewski, A. (2025). Comparison of the Agricultural Production Potential of Mercosur Countries and the EU in the Context of the EU–Mercosur Partnership Agreement. *Sustainability*, 17(24), 11135. <https://doi.org/10.3390/su172411135>
- Andrei, J.V., Popescu, G.H., Nica, E., & Chivu, L. (2020). The impact of agricultural performance on foreign trade concentration and competitiveness: Empirical evidence from Romanian agriculture. *Journal of Business Economics and Management*, 21(2), 317–343. <https://doi.org/10.3846/jbem.2020.11988>
- Du, J., Liu, X., Shepotylo, O., & Shi, Y. (2024). *Unbound: UK Trade post-Brexit*. Aston University Business School. <https://coilink.org/20.500.12592/6cp4c72>
- European Commission. (2021). *The EU-UK Trade and Cooperation Agreement*. https://commission.europa.eu/strategy-and-policy/relations-united-kingdom/eu-uk-trade-and-cooperation-agreement_en
- European Commission. (2024). *EU agri-food trade achieved a record surplus in 2023*. Agriculture and Rural Development. https://agriculture.ec.europa.eu/media/news/eu-agri-food-trade-achieved-record-surplus-2023-2024-04-05_en
- European Parliament. (2023). *The EU-UK Trade and Cooperation Agreement two years on: Unpacking early evidence - European Implementation Assessment*. [https://www.europarl.europa.eu/thinktank/en/document/EPRS_STU\(2023\)747433](https://www.europarl.europa.eu/thinktank/en/document/EPRS_STU(2023)747433)
- Korir, L., Drake, A., Collison, M., Camacho-Villa, T.C., Sklar, E., & Pearson, S. (2021). Current and emergent economic impacts of Covid-19 and Brexit on UK fresh produce and horticultural businesses., *95th Annual Conference, March 29-30, 2021, Warwick, UK (Hybrid)*, Artykuł 312068. <https://ideas.repec.org/p/ags/aesc21/312068.html>
- Kosior, K., & Ambroziak, Ł. (2018). Brexit – potential implications for the Polish food sector. W.M. Wigier & A. Kowalski (Eds.), *The Common Agricultural Policy of the European Union – the present and the future* (pp. 159–176). Institute of Agricultural and Food Economics National Research Institute.
- Kowalska, A.S., Gurkova, K., Olszańska, A., Soukal, I., & Matejcek, M. (2021). Assessment of the Competitive Position of the V4 Group Countries in the Foreign Trade of Agri-food Industry Products. In J. Maci, P. Maresova, K. Firlej, & I. Soukal (Eds.), *Proceedings of the international scientific conference Hradec Economic Days 2021* (pp. 449–460). University of Hradec Králové. <https://doi.org/10.36689/uhk/hed/2021-01-045>

Ministerstwo Rozwoju i Technologii. (2020). *Polsko-brytyjskie relacje po brexicie—Co powinni wiedzieć przedsiębiorcy*. Ministerstwo Rozwoju i Technologii. <https://www.gov.pl/web/rozwoj-technologie/polsko-brytyjskie-relacje-po-brexicie---co-powinni-wiedziec-przedsiębiorcy>

Trade Map—Bilateral trade between Czech Republic and United Kingdom. (2026).

https://www.trademap.org/Bilateral_TS.aspx?nvpm=1%7c203%7c%7c826%7c%7cTOTAL%7c%7c%7c2%7c1%7c1%7c2%7c2%7c1%7c1%7c1%7c1%7c1

Trade Map—Bilateral trade between Poland and United Kingdom. (2026).

https://www.trademap.org/Bilateral_TS.aspx?nvpm=1%7c616%7c%7c826%7c%7cTOTAL%7c%7c%7c2%7c1%7c1%7c2%7c2%7c1%7c1%7c1%7c1%7c1