Scientific Journal of Gdynia Maritime University

No. 126/23, 19–32
ISSN 2657-6988 (online)
ISSN 2657-5841 (printed)
DOI: 10.26408/126.02

Submitted: 10.05.2022
Accepted: 13.05.2023
Published: 30.06.2023

EASTERN EUROPEAN UNION COUNTRIES IN THE INTRA-EU FOOD TRADE IN 1999–2019

Marcin Pigłowski

Gdynia Maritime University, Faculty of Management and Quality Science, 81-87 Morska St., 81-225 Gdynia, Poland, ORCID 0000-0002-4032-2333,
e-mail: m.piglowski@wznj.umg.edu.pl

Abstract: The results of research on intra-European Union (EU) food trade conducted by the Eastern EU countries were presented in 1999-2019, including exports and imports. The study applied cluster analysis: Eastern EU countries' share of intra-EU food trade increased from 5% (in 1999) to 15% (in 2019). These countries traded mostly in beverages, cereals, fruit and vegetables. Eastern EU countries traded in food mainly among themselves, including their closest neighbours, regionally and with Germany. To increase their share of exports to other EU countries, these countries could use lower food prices and the benefits of traditional approaches to food production.

Keywords: European Union, food trade, Standard International Trade Classification, Eastern European countries, cluster analysis.

1. INTRODUCTION

Total EU trade with other countries of the world and intra-EU trade account for about 40% of global trade [Dezseri 2011]. In turn, according to Breuss [2015], in 2012 intra-EU trade accounted for about 20% of total world trade by value. In 2013, in the case of most EU countries, at least 60% of their trade was intra-EU trade [Morschett, Schramm-Klein and Zentes 2015]. However, it is worth noting that, for the Eastern EU countries, this share is even higher [Morschett, Schramm-Klein and Zentes 2015; Baláž, Karasová and Williams 2017]. However, in terms of intra-EU food trade, several factors should be mentioned: institutional differences between countries, the establishment of the euro area, distances between trading countries, the size of markets, endowment factors, product quality, and network linkages in trade [Fertő, Bakucs and Fałkowski 2021].

Bruno et al. [2021] noted that food was among the five most important sectors for the EU in terms of employment and share of value added, while Kropp et al. [2011] pointed out that food was considered a critical infrastructure sector by the European Commission. On the other hand, from a global aspect, food was the least

internationally connected sector [Ascani et al. 2020]. In turn, Garmann [2014] found that food trade was growing strongly and it was most often intra-industry trade.

According to Szajkowska [2009], close cooperation and scientific expertise can contribute to eliminating barriers for intra-EU food trade. In the words of Urban, Jensen and Brockmeier [2016], intra-EU food trade accounts for a significant share of EU trade. Alatriste-Contreras [2015] also noted that the food, drink and tobacco sector was one of the most traded within the EU. This is confirmed by FoodDrinkEurope's annual reports, although it must be acknowledged that this share has been falling in recent years. In 2018, about 3/4 of EU food and drink exports were destined for the Common Market; in 2019 it was more than two-thirds, while in 2020 it was only just over 60%.

It can be also noted that among the countries that dominated in this respect were the Western EU countries, i.e. Germany, France, the Netherlands, Belgium, Italy, Spain and the United Kingdom. On the other hand, the traded products were mainly: various food products, meat products, drinks, dairy products and processed vegetables and fruits [FoodDrinkEurope 2019, 2020, 2021].

Similarly, Zolin and Uprasen [2018], when analysing the period 1999–2015, listed Germany, the Netherlands, France, Italy, the United Kingdom, Belgium and Spain among the countries most active in intra-EU food trade. It is also worth noting that Poland is actually the only country from the Eastern EU listed in the top ten in terms of intra-EU food trade [Zolin and Uprasen 2018; FoodDrinkEurope 2019, 2020, 2021].

Intra-EU trade in food is therefore an important part of trade between EU countries. Research in this area, however, mainly concerns the leading countries in this field, which are the countries of the Western EU, while the subject of intra-EU food trade by the Eastern EU is rarely addressed comprehensively. Therefore, the aim of the research was to analyse intra-EU food trade (both import and export) carried out by Eastern EU countries, to identify their main trading partners in the EU and the categories of food products traded in the period 1999–2019.

2. DATA AND METHODS

For the purposes of the study, the Food and Agriculture Organisation of the United Nations (FAO)'s definition of food was adopted. According to this, food includes the commodities mentioned in the Standard International Trade Classification (SITC) sections: 0 (Food and live animals), 1 (Beverages and tobacco), 4 (Animal and vegetable oils and fats) and division 22 (Oil-seeds and oleaginous fruits) [UN 2006; FAO 2021].

SITC Codes, divisions names and adopted shortened names in brackets were presented in Table 1.

Table 1. Food products according divisions codes of the SITC

SITC Code	Product
00	Live animals other than animals of division 03 (Live animals)
01	Meat and meat preparations (Meat)
02	Dairy products and birds' eggs (Dairy products)
03	Fish (not marine mammals), crustaceans, molluscs and aquatic invertebrates, and preparations thereof (Fish, seafood)
04	Cereals and cereal preparations (Cereals)
05	Vegetables and fruit (Vegetables, fruits)
06	Sugars, sugar preparations and honey (Sugars, honey)
07	Coffee, tea, cocoa, spices, and manufactures thereof (Coffee, tea, cocoa, spices)
08	Feeding stuff for animals (not including unmilled cereals) (Feeding stuff)
09	Miscellaneous edible products and preparations (Miscellaneous products)
11	Beverages (Beverages)
12	Tobacco and tobacco manufactures (Tobacco)
19	Adjustments (Beverages/tobacco-other)
22	Oil-seeds and oleaginous fruits (Oil-seeds, oleaginous fruits)
41	Animal oils and fats (Animal oils, fats)
42	Fixed vegetable fats and oils, crude, refined or fractionated (Fixed vegetable fats, oils)
43	Animal or vegetable fats and oils, processed; waxes of animal or vegetable origin; inedible mixtures or preparations of animal or vegetable fats or oils, n.e.s.* (Animal/vegetable oils, fats), * n.e.s. – not elsewhere specified
49	Adjustments (trade broken down at chapter nc level only) (Animal/vegetable oils-other)

Source: own study.

Data on food according to the SITC was exported from Eurostat (the statistical office of the EU) database to Microsoft Excel (Microsoft Corporation, Redmond, USA) and covered:

- Flow: import, export;
- Indicators: value in euros (then converted into billions of euros), quantity in 100 kg (then converted into billions of kg);
- Period: 1999-2019, i.e. 21 years (data before 1999 and for 2020 was not available) [Eurostat 2021].

For the period 1999–2001 it was necessary to recalculate data as it was given in kg, not in 100 kg. Data not available in the Eurostat (marked with ":" in cells) was treated by Microsoft Excel as data with the value "0". When processing the data, the "subtotal" and "transpose" functions were used as well as sorting. Next, the data was transferred to Statistica 13.3 (TIBCO Software Inc., Palo Alto, USA) and subjected to a cluster analysis (one of the multivariate exploratory techniques) using two-way joining method. All countries were treated as EU countries throughout the study period.

A two-way joining cluster analysis was used to present similarities in trade of Eastern European countries, taking into consideration: food flow in terms of import and export, indicators in euro and kg, and 21 years or 18 products. This method can be applied when both cases (in rows) and variables (in columns) can simultaneously uncover patterns of clusters. Although similarities between clusters can related to different subsets of variables, which means that results are not homogeneous, it is also believed that the two-way joining method can be a powerful analysis tool [Tibco 2021]. In this analysis, different coloured squares (from green, through yellow, orange and red to brown) are presented, with the latter colours indicating clusters.

The findings of the two-way joining cluster analysis were presented in Supplementary Material in Figures S1 (for all Eastern European countries) and in Figures S2–S14 and Table S1 (for each of these countries separately).

Supplementary Material is available from the author.

3. RESULTS

3.1. The intra-EU food trade in terms of value and quantity

The trend in intra-EU food trade in 1999–2019 was upward but rather linear. Indeed, for both the Western EU countries (Fig. 1) and the Eastern EU countries (Fig. 2), there was no clear change in trade after the enlargement of the EU with 10 new countries in 2004 and three more in the following years. This increase may have been important for the Eastern EU countries but it is not visible due to their small share in intra-EU food trade.

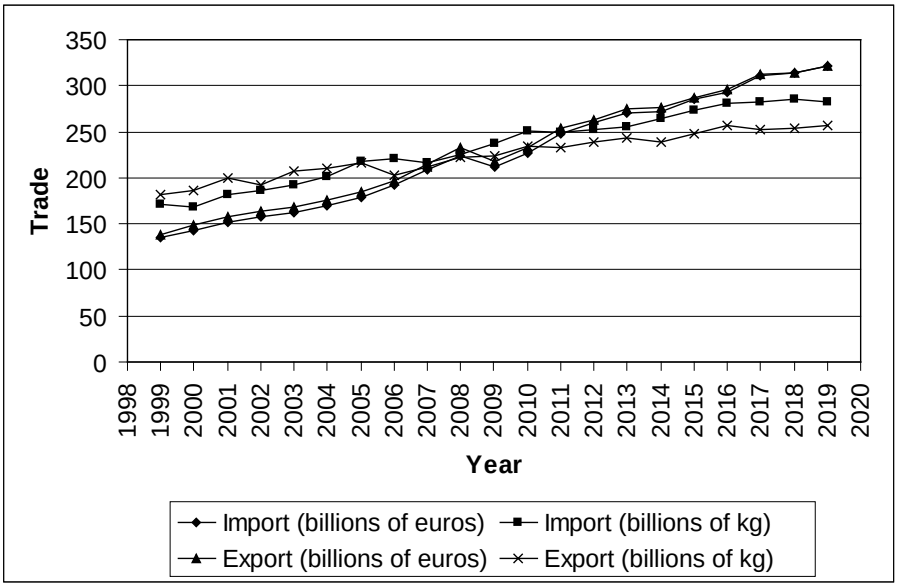

Fig. 1. The intra-EU food trade in 1999–2019 for Western EU countries

Source: own study.

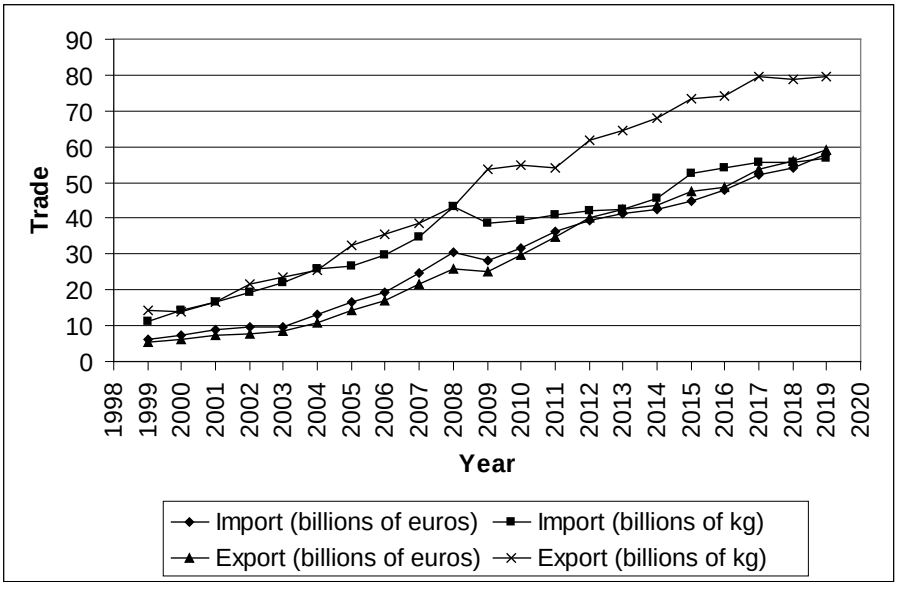

Fig. 2. The intra-EU food trade in 1999–2019 for Eastern EU countries

Source: own study.

However, the share of food trade in total intra-EU trade over the period studied (1999–2019) for Western EU countries increased by 11% (in euro) and by about 17% (in kg), while for Eastern EU countries it increased by 9% and about 20%, respectively. Considering absolute values, the Western UE countries increased intra-EU food trade by 2.5 times in value in euro and 1.5 times in volume, despite an apparent collapse in 2008–2009 during the economic crisis. However, the Eastern EU countries increased this trade approximately 10 times and 5 times respectively, so the growth rate was much higher. Although the Western EU countries still clearly dominate intra-EU food trade, this share has declined (in 1999 it was about 95%, but by 2019 it had fallen to about 85%). Therefore, the share of Eastern EU countries in intra-EU food trade has increased from 5% (in 1999) to 15% (in 2019).

In turn, if we consider the kg to euro ratio, the average price of food has been increasing throughout this period, reaching 1kg for 1euro in 2011–2012 in the case of the Western UE countries, and has continued to rise thereafter. However, for the Eastern EU countries, this level was only reached in 2019.

Among the Eastern EU countries, Bulgaria reported a positive trade balance in intra-EU food trade in 1999–2006 and 2009–2019, Hungary in 1999–2019, Lithuania in 2005, 2007 and 2016–2019 and Poland in 2003–2019. Similarly, as far as particular products are concerned, a positive trade balance in the period researched (1999–2019) was recorded by:

- Hungary (in the case of: live animals; meat; cereals; vegetables, fruits; sugars, honey; feeding stuff; beverages; oil-seeds, oleaginous fruits and fixed vegetable fats, oils);
- Lithuania (live animals; dairy products; fish, seafood; cereals; sugars, honey; feeding stuff; tobacco and oil-seeds, oleaginous fruits);
- Poland (meat; dairy products; fish, seafood; cereals; vegetables, fruits; sugars, honey; coffee, tea, cocoa, spices; miscellaneous products; tobacco; oil-seeds, oleaginous fruits and animal oils, fats).

Other Eastern EU countries also reported positive trade balances, albeit in a smaller number of products. Among these countries, Poland was particularly dominant in intra-EU food trade. A visible increase in imports of vegetables, fruits, as well as meat and coffee, tea, cocoa, spices (in euro) and beverages (in kg) occurred at the turn of 2007 and 2008. Exports of mainly meat, vegetables, fruits (in euros) and cereals, vegetables, fruits (in kg) also increased over a similar period. Czechia and Hungary also recorded an increase in exports of beverages and cereals (measured in kg). respectively during the same period.

3.2. Products and partners of the Eastern EU countries in intra-EU food trade

Not only did a detailed analysis of individual Eastern EU countries enable trading products to be identified but also the main trading partners of these countries in the intra-EU food flow. The results of the two-way joining cluster analysis indicated that clusters had been particularly evident since around 2010, but even more so over the last few years, confirming the systematic increase in trade over the relevant period.

In terms of account trade by value (in euro), imports within particular products were as follows:

- Beverages (imported by Cyprus from Greece, by Estonia from Finland, by Malta from Italy and by Slovakia from Czechia);
- Cereals (imported by Croatia from Hungary and Italy, by Cyprus from Greece, by Estonia from Latvia, by Latvia from Lithuania, by Malta from Italy, by Romania from Hungary and by Slovakia from Czechia);
- Coffee, tea, cocoa, spices (imported by Bulgaria, Croatia, Czechia, Hungary, Poland and Romania from Germany, by Cyprus from Greece, by Estonia from Finland, by Latvia from Lithuania and by Slovakia from Czechia);
- Dairy products (imported by Croatia, Hungary from Germany, by Cyprus from Greece, by Czechia from Germany and Poland, by Latvia from Lithuania and by Slovakia from Czechia);
- Meat (imported by Bulgaria, Hungary and Poland from Germany, by Croatia from Germany and the Netherlands, by Czechia from Germany and Poland, by Malta from Italy, by Romania from Germany and Hungary, by Slovakia from Czechia and by Slovenia from Austria);
- miscellaneous products (imported by Croatia and Hungary from Germany, by Cyprus from Greece, by Estonia from Finland, Latvia and Lithuania, by Latvia from Lithuania and by Slovakia from Czechia);
- Fruit and vegetables (imported by Bulgaria and Cyprus from Greece, by Croatia, Malta and Slovenia from Italy, by Czechia, Hungary and Poland from Germany, by Estonia from Latvia, by Latvia from Lithuania, by Lithuania from the Netherlands and by Slovakia from Czechia).

Imports in terms of quantity (in kg) were much less diverse and included:

- Beverages (imported by Croatia from Slovenia, by Cyprus from Greece, by Estonia from Lithuania, by Malta from Italy, by Poland and Slovakia from Czechia and by Slovenia from Croatia);
- Cereals (imported by Estonia from Latvia and Lithuania, by Hungary from Slovakia, by Latvia from Lithuania and by Romania from Hungary);
- Feeding stuff (imported by Czechia from Germany, by Estonia from Latvia and by Hungary from the Netherlands);

- Fruit and vegetables (imported by Croatia from Hungary, by Czechia from Germany, by Estonia from Latvia, by Lithuania from Poland, by Malta from Italy and by Slovakia from Czechia).

In turn, exports by value (in euros) of individual products, were as follows:

- Beverages (exported from Estonia to Finland and Latvia and from Slovakia to Czechia);
- Cereals (exported from Bulgaria to Greece, Romania and Spain, from Croatia to Italy, from Czechia to Germany, from Estonia to Finland, from Hungary to Italy and Romania, from Lithuania to Latvia, from Poland to Germany and from Slovakia to Czechia and Hungary);
- Dairy products (exported from Cyprus to the United Kingdom, from Czechia to Germany, from Estonia to Finland, Latvia and Lithuania, from Latvia to Lithuania, from Lithuania to Poland, from Slovakia to Czechia and Hungary and from Slovenia to Italy);
- Fish, seafood (exported from Croatia and Malta to Italy, from Estonia to Finland and from Lithuania and Poland to Germany);
- Meat (exported from Czechia to Slovakia, from Hungary and Poland to Germany, from Estonia to Latvia and from Slovakia to Czechia and Hungary);
- Miscellaneous products (exported from Croatia to Slovenia and from Estonia to Finland and Latvia);
- Sugars, honey (exported from Croatia to Italy and from Slovakia to Czechia and Hungary);
- Fruit and vegetables (exported from Cyprus to the United Kingdom, from Czechia to Slovakia, from Hungary and Poland to Germany, and from Slovakia to Czechia).

Exports in terms of quantity (in kg) included:

- Beverages (exported from Croatia to Slovenia, from Czechia to Poland from Estonia to Latvia and from Slovenia to Italy);
- Cereals (exported from Bulgaria to Greece, Romania and Spain, from Hungary to Italy and Romania, from Latvia and Poland to Germany, from Lithuania to Latvia and Spain, from Malta to Italy, from Romania to Italy and Spain and from Slovakia to Austria, Hungary and Poland);
- Dairy products (from Estonia to Latvia and Lithuania and from Latvia to Lithuania);
- Fruit and vegetables (from Cyprus to Germany and the United Kingdom).

Trade by value (in euro) was more diversified (in terms of product types) than trade by volume (in kg). The most traded products, both for import and export, were: beverages, cereals, fruit and vegetables. It can also be observed that trade was mostly carried out by the closest neighbours. This is particularly evident in the case of Malta, with Italy as most important trading partner, while Cyprus' main trading partner was Greece.

However, the Eastern EU countries most often traded among themselves. Regional trade within the Visegrad Group (comprising Poland, Czechia, Slovakia and Hungary) or the three Baltic countries (Lithuania, Latvia and Estonia) is also visible. Nevertheless, it should also be noted that for the Eastern EU countries both in the case of import and export (in euro), Germany was the most important trading partner among the Western EU countries.

4. DISCUSSION

Martínez-Zarzoso, Voicu and Vidovic [2020] listed several beneficial factors emerging from food trade following the accession of Eastern European countries to the EU: elimination of administrative barriers (reduced custom costs, less delays, less formalities), elimination of technical barriers (mutual recognition, minimum requirements, harmonisation of rules and regulations), and reduction of risks and uncertainties (meeting commitments, reduced political risks). Bojnec and Fertő [2008, 2009a, 2012] pointed out that food trade increased following the accession of new countries to the EU. In turn, Zolin and Uprasen [2018], whenb analysing data for the period 1993–2007, found that the accession of new Member States to the EU had resulted in a significant increase in intra-EU food trade, both between existing EU countries and the enlarged EU. They added that this applied mostly to product groups such as live animals, seafood, cereals, fruit and vegetables, sugars, feeding stuff, beverages and tobacco. This was also confirmed by studies, which showed that the Eastern EU countries traded mainly in beverages, cereals, fruit and vegetables within the Common Market.

Friesenbichler and Glocker [2019], though not pointing directly to food, found that the economies of Eastern EU countries had integrated into an intra-industry, international value chain, leading to a convergence of the composition sector to "core" countries like Germany. It is worth noting that, according to the relevant research, Germany is the most important food trade partner of the Eastern EU countries among the Western EU countries. Jambor [2014] noted that the share of intra-industry food trade had also increased significantly following EU enlargement but added that the food exported from the new member states was of low quality and only complementarity rather than competition in production could be observed.

Interestingly, however, Olper and Raimondi [2008], when examining the pre-accession period (1994–2003), found that the integration process in agriculture between Poland, Czechia, Slovakia and Hungary was twice as strong as that between them and most of the then EU countries (Denmark, France, Germany, Greece, Italy, the Netherlands, Portugal, Spain and the United Kingdom). In turn, Chevassus-Lozza et al. [2008] noted that Eastern European countries in the pre-accession period had had to upgrade production technologies and make some institutional changes to sanitary inspection methods and border checkpoints. As border controls were to

cease for intra-EU trade, the European Commission required candidate countries to implement an appropriate food safety strategy in compliance with EU standards.

A slightly different view was taken by Bojnec and Fertő [2009b], who found that during the years before enlargement Czechia and Slovakia had already been successful in quality competition but not in price competition. They added that quality competition at high prices was the result of direct foreign investment as well as investment in research and development, improved technology and restructuring of the food industry. According to them, Hungary and Poland were also successful in quality competition and, to a lesser extent, in price competition, where trade surplus was achieved at low prices. Slovenia, on the other hand, was not very successful in quality competition and only to a small extent in the price competition.

At this point, it should be mentioned that, according to a study, in the Western EU countries, 1 kg of food cost 1 euro as early as 2011–2012 and continued to increase thereafter, while in the Eastern EU countries this price was only reached in 2019. Exporters from this EU region can therefore take advantage of the price difference and at the same time be more competitive on the markets of the Western EU countries.

Antohi, Zlati and Ionescu [2019] acknowledged that food trade had become a speciality of Visegrad countries following their accession to the EU in 2004 but also added that there had been a deterioration in their food trade balance. In turn, Kovács [2018] found that Hungary's accession to the EU had generally been beneficial to Hungarian agriculture, although he also added that Hungary's traditional food trade surplus with Poland, Czechia and Slovakia had turned into a deficit. Comparing the periods 1999–2004 and 2005–2010, Kocsis and Major [2018], found that the opening of the Common Market had given Poland, in particular, new opportunities in agriculture. Csaki and Jambor [2015], when analysing the ten-year period of presence of Eastern European countries in the EU, found that, in terms of agriculture for Poland and the Baltic countries, this time had been very beneficial, while Romania, Bulgaria and Slovenia had made the least use of their potential. Similarly, Bojnec and Fertő [2014], focusing on dairy products, found that most of the new member states had had difficulties in making their exports competitive but added that Poland and the Baltic countries were more competitive in this respect. Here, it is worth repeating that Poland is the only country from the Eastern EU mentioned among the top ten in intra-EU food trade [FoodDrinkEurope 2019, 2020, 2021], and according to research conducted, this country has maintained a positive food trade balance over a very long period, i.e. 2003–2019.

Chevassus-Lozza et al. [2008] pointed out that, between 1999 and 2004, Poland, Czechia, Slovakia and the Baltic countries had recorded over 100% growth in food products exports to the EU; to a lesser extent, Hungary, Slovenia, Romania and Bulgaria had also experienced growth. However, the share of food exports in total exports between 1999 and 2004 remained similar and amounted to more than half for Poland and Hungary, about half for Romania and Bulgaria and about one third

for Czechia, Slovakia, the Baltic countries and Slovenia. They indicated that during the period studied (1999–2004), among Eastern European countries, Poland, Czechia and Hungary were the main exporters of food products to the EU, and they exported primarily meat, dairy products and, to a lesser extent, fruit. However, they also added that, despite this marked increase, the share of these exports was relatively small, much lower than intra-EU food exports between the old member countries.

In turn, Bojnec and Fertő [2009a], comparing pre- and post-accession periods in agro-food trade with the Western EU countries, also stated that had Poland improved its trade from deficit to surplus, while Hungary and Bulgaria had regressed from surplus to deficit. Results for Romania were less stable, and Czechia, Slovakia, Slovenia and Croatia were net importers of agro-food products. Rusali [2014], on the other hand, pointed out that Romania was already running a food trade deficit with the EU in the pre-accession period, and following accession to the EU in 2007, this deficit widened sharply between 2007 and 2011.

At this point, it should be noted that, after the Eastern European countries joined the EU, while these countries were given access to the CommonMarket, their markets were also opened to Western European countries. Accordingly, intensive farming, developed food processing and distribution networks, as well as the possibility of acquiring indigenous food brands, gave Western European countries the opportunity to significantly expand their trade on the markets of Eastern European countries. These factors gave an important advantage to Western European countries, so that the share of Eastern European countries in intra-EU food trade increased. However, according to the study, this increase was relatively small (from 5% in 1999 to 15% in 2019).

It is also worth noting that the generally moderate competitiveness of food from Eastern EU countries may also be a result of the Common Agricultural Policy (CAP), under which subsidies are directed mainly to large-scale farms, and there are relatively few such farms in this region of Europe. Meanwhile, small farms, with low intensity of use and maintaining biodiversity, receive insufficient support within the CAP [Câmpeanu and Fazey 2014; Pe'er and Lakner 2020]. Moreover, the most powerful and competitive economies in the EU, such as Germany, France, Italy and the United Kingdom, have also benefitted most from support under the second pillar of the CAP, i.e. the European Agricultural Fund for Rural Development (EAFRD) [Monsalve, Zafrilla and Cadarso 2016]. Therefore, an important challenge for the governments of the Eastern European countries is to continue to strive for allocation of agricultural subsidies under the CAP.

However, Jehlička et al. [2020] highlighted several characteristic elements of the food market in Eastern EU countries, presenting them as food alternatives. These are the complementarity and interdependence between food exchange, transfer and production, which can build creativity and resilience, understanding of the formal market and informal activities as often interdependent areas, and the use of sustainable practices on a daily basis.

5. CONCLUSIONS

The accession of Eastern European countries to the EU required them to adapt to food legislation, including sanitary requirements, but also gave them valuable access to the Common Market. However, despite the increase in the share of these countries in intra-EU food trade between 1999 and 2019 from 5% to 15%, it is still relatively small. Poland was the dominant country in this trade, but due to population and area potential, Czechia and Romania also have opportunities in this respect (a similar role is played, for example, by the Netherlands or Belgium among Western EU countries).

In the studied period, the Eastern EU countries traded food mainly among themselves, especially with their closest partners, also regionally (e.g. Visegrad Group – Poland, Czechia, Slovakia and Hungary, Baltic countries – Lithuania, Latvia and Estonia), and the only the Western EU country visible in this trade was Germany. These countries traded mainly: beverages, cereals and fruits and vegetables. Therefore, if the Western EU countries become more open to food products from the Eastern EU countries, it could contribute to deeper European integration. However, significant problems are the poor transport network in these countries, the lack of recognisable food concerns and small and fragmented farms, while large farms are favoured under the Common Agricultural Policy.

In the Western EU countries, 1 kg of food cost on average 1 euro as early as 2011–2012, while this was only reached in the Eastern EU countries in 2019. Therefore, these countries can take advantage of their price competitiveness. In addition, in the Eastern EU countries farming is mostly carried out in a traditional way (with less use of fertilisers, plant protection products or veterinary drugs). This gives them the opportunity to produce food in an extensive or even ecological way and enables the promotion of regional products. Further research on intra-EU food trade, taking into account Eastern European countries, should consider changes in food supply chains that may have occurred as a result of the Covid-19 pandemic and the war in Ukraine.

REFERENCES

Alatriste-Contreras, M.G., 2015, *The Relationship Between the Key Sectors in the European Union Economy and the Intra-European Union Trade*, Economic Structures, vol. 4, pp. 1–24.

Antohi, V., Zlati, M., Ionescu, R.-V., 2019, *Visegrad Economies' Active Implication in a "new" EU: A New Regional Economic Approach*, The World Economy, vol. 42, pp. 2924–2974.

Ascani, A., Bettarelli, L., Resmini, L., Balland, P.-A., 2020, *Global Networks, Local Specialisation and Regional Patterns of Innovation*, Research Policy, vol. 49, no. 104031, pp. 1–20.

Baláž, V., Karasová, K., Williams, A.M., 2017, *The V4 Countries and the EU: A Comparative Perspective*, [in:] Fish, M., Gill, G., Petrovic, M. (eds.), *A Quarter Century of Post-Communism Assessed*, Palgrave Macmillan, Cham, pp. 129–159.

Bojnec, Š., Ferto, I., 2008, *European Enlargement and Agro-food Trade*, Canadian Journal of Agricultural Economics / Revue Canadienne d'Agroeconomie, vol. 56, pp. 563–579.

Bojnec, Š., Ferto, I., 2009a, *Agro-food trade competitiveness of Central European and Balkan countries*, Food Policy, vol. 34, pp. 417–425.

Bojnec, Š., Ferto, I., 2009b, *Determinants of Agro-food Trade Competition of Central European Countries with the European Union*, China Economic Review, vol. 20, pp. 327–337.

Bojnec, Š., Ferto, I., 2012, *Does EU Enlargement Increase Agro-Food Export Duration?* The World Economy, vol. 35, pp. 609–631.

Bojnec, Š., Ferto, I., 2014, *Export Competitiveness of Dairy Products on Global Markets: The Case of the European Union Countries*, Journal of Dairy Science, vol. 97, pp. 6151–6163.

Breuss, F., 2015, *European Union in the Globalised World*, [in:] Demetriou, K. (ed.), *The European Union in Crisis*, Springer, Cham, pp. 219–257.

Bruno, R.L., Douarin, E., Korosteleva, J., Radosevic, S., 2021, *The Two Disjointed Faces of R&D and the Productivity Gap in Europe*, Journal of Common Market Studies, pp. 1–24.

Câmpeanu, C., Fazey, I., 2014, *Adaptation and Pathways of Change and Response: A Case Study from Eastern Europe*, Global Environmental Change, vol. 28, pp. 351–367.

Chevassus-Lozza, E., Latouche, K., Majkovič, D., Unguru, M., 2008, *The Importance of EU-15 Borders for CEECs Agri-food Exports: The Role of Tariffs and Non-tariff Measures in the Pre-accession Period*, Food Policy, vol. 33, pp. 595–606.

Csaki, C., Jambor, A., 2015, *Ten Years of EU Membership: How Agricultural Performance Differs in the New Member States*, EuroChoices, vol. 15, no. 2, pp. 35–41.

Dezseri, K., 2011, *Trade and FDI Related Effects of the Monetary Union and Structural Adjustment in the Central European New Member States of the EU*, [in:] Welfens, P., Ryan, C. (eds.), *Financial Market Integration and Growth*, Springer, Berlin, Heidelberg, pp. 339–387.

Eurostat (The Statistical Office of the European Union), 2021, *EU Trade Since 1988 by SITC (DS-018995)*, European Commission, Brussels (7–11.10.2021), https://ec.europa.eu/eurostat/data/database.

FAO (Food and Agriculture Organization of the United Nations), 2021, *Statistical Pocketbook. World Food And Agriculture 2021*, Rome.

Fertő, I., Bakucs, Z., Fałkowski, J., 2021, *Dairy Sector Trade Dynamics: Some Insights on the Evolution of Trade Linkages within the EU*, Journal of Agricultural Economics, vol. 72, pp. 698–711.

FoodDrinkEurope, 2019, *Data & Trends, EU Food and Drink Industry 2019*, Brussels.

FoodDrinkEurope, 2020, *Data & Trends, EU Food and Drink Industry 2020*, Brussels.

FoodDrinkEurope, 2021, *Data & Trends, EU Food and Drink Industry 2021*, Brussels.

Friesenbichler, K., Glocker, Ch., 2019, *Tradability and Productivity Growth Differentials Across EU Member States*, Structural Change and Economic Dynamics, vol. 50, pp. 1–13.

Garmann, S., 2014, *Does Globalization Influence Protectionism? Empirical Evidence from Agricultural Support*, Food Policy, vol. 49, pp. 281–293.

Jambor, A., 2014, *Country-Specific Determinants of Horizontal and Vertical Intra-industry Agri-food Trade: The Case of the EU New Member States*, Journal of Agricultural Economics, vol. 65, no. 3, pp. 663–682.

Jehlička, P., Grivins, M., Visser, O., Balázs, B., 2020, *Thinking food like an East European: A Critical Reflection on the Framing of Food Systems*, Journal of Rural Studies, vol. 76, pp. 286–295.

Kocsis, J., Major, K., 2018, *A General Overview of Agriculture and Profitability in Agricultural Enterprises in Central Europe*, [in:] Bryła, P. (ed.), *Managing Agricultural Enterprises*, Palgrave Macmillan, Cham, pp. 243–265.

Kovács, K., 2018, *Profitability in Hungarian Agricultural Enterprises*, [in:] Bryła, P. (ed.), *Managing Agricultural Enterprises*, Palgrave Macmillan, Cham, pp. 209–223.

Kropp, J.P., Walker, G., Menoni, S., Kallache, M., Deeming, H., De Roo, A., Atun, F., Kundak, S., 2011, *Risk Futures in Europe*, [in:] Menoni, S., Margottini, C. (eds.), *Inside Risk: A Strategy for Sustainable Risk Mitigation*, Springer, Milano, pp. 187–244.

Martínez-Zarzoso, I, Voicu, A.M., Vidovic, M., 2020, *Production Networks in Europe: A Natural Experiment of the European Union Enlargement to the East*, Review of International Economics, vol. 28, pp. 1143–1163.

Monsalve, F., Zafrilla, J., Cadarso, M., 2016, *Where Have All the Funds Gone? Multiregional Input-output Analysis of the European Agricultural Fund for Rural Development*, Ecological Economics, vol. 129, pp. 62–71.

Morschett, D., Schramm-Klein, H., Zentes, J., 2015, *Market Barriers, Global and Regional Integration*, [in:] Morschett, D., Schramm-Klein, H., Zentes, J. (eds.), *Strategic International Management*, Springer Gabler, Wiesbaden, pp. 151–173.

Olper, A., Raimondi, V., 2008, *Agricultural Market Integration in the OECD: A Gravity-Border Effect Approach*, Food Policy, vol. 33, pp. 165–175.

Pe'er, G., Lakner, S., 2020, *The EU's Common Agricultural Policy Could Be Spent Much More Efficiently to Address Challenges for Farmers, Climate, and Biodiversity*, One Earth, vol. 3, pp. 173–175.

Rusali, M.-A., 2014, *Agrifood Competitive Performances within Romania's Foreign Trade Pattern: Evaluation and Alerts*, Procedia Economics and Finance, vol. 8, pp. 632–639.

Szajkowska, A., 2009, *From Mutual Recognition to Mutual Scientific Opinion? Constitutional Framework for Risk Analysis in EU Food Safety Law*, Food Policy, vol. 34, pp. 529–538.

Tibco, 2021, *TIBCO Statistica® User's Guide*, Tibco, Polo Alto, (28.10.2021). https://docs.tibco.com/pub/stat/14.0.0/doc/html/UsersGuide/GUID-C8D0B7E9-1689-4B04-A63C-DBCFD1B65377.html

UN (United Nations), 2006, *Standard International Trade Classification. Revision 4*, United Nations Publications, New York.

Urban, K., Jensen, H.G., Brockmeier, M., 2016, *How Decoupled is the Single Farm Payment and Does it Matter for International Trade?* Food Policy, vol. 59, pp. 126–138.

Zolin, M.B., Uprasen, U., 2018, *Trade Creation and Diversion: Effects of EU Enlargement on Agricultural and Food Products and Selected Asian Countries*, Asia Europe Journal, vol. 16, pp. 351–373.