

AGRI-FOOD TRADE BALANCE IN THE EUROPEAN UNION

Georgiana-Raluca LĂDARU¹, Bogdan CHIRIPUCI², Vlad-Constantin TURCEA³

¹ PhD Associate Professor, Bucharest University of Economic Studies, Romania

Email: raluca.ladaru@eam.ase.ro

² PhD Assistant Professor, Bucharest University of Economic Studies, Romania

Email: bogdan.chiripuci@eam.ase.ro,

³ PhD Student, Bucharest University of Economic Studies, Romania

Email: vladturcea@gmail.com

Abstract

Current paper focuses on the agri-food trade balance representing an up-to-date piece of research due to both its current applicability and broadness. The EU-28 Member States have been overseen in terms of food trade values and, in most of the identified food categories, trade surplus has been recorded. The paper's preamble points towards the importance of trade in achieving food security, then the specialized literature is quantitatively reviewed highlighting the increasing interest over this topic and, as the last part of the paper, all the 24 food categories are analyzed. The Netherlands, Spain and Germany are some good examples of leading nations in specific food category groups.

Keywords: Trade balance, agri-food products, trade surplus, food security.

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Introduction

In the last decades, international agri-food trade has become more relevant as countries' capability of ensuring their food security relied increasingly on imports of food products. Global food shortages situations have been more frequently as an intrinsic effect of food globalization, also shocks in the supply chain have been felt more acute, altogether with national and regional trade policies that have shaped the current food trade stage. Broadened food demand due to permanent global population uplift pressures the existing used and limited resources required for food growing such as water or land, this causing permanent concerns over food security's sensitivity (Suweis et al., 2015).

The current paper is reviewing all agri-food traded products as described by the international legislation across the European Union-28 (EU-28), searching to point out the top commercial surplus by category and by country.

Food security remains a challenge for today at a global level, agri-food trade is highly dependent on the international scheme, governments could become world's markets distortion agents through local-national policies. One available choice that governments can underpin is self-sufficiency, basically all food requirements within the country could be satisfied from autochthonous farmers and processors but few, if any, nations could naturally be equipped enough to accomplish this goal, not taking into consideration the existing dietary variety, consumers' choices, production limitations and natural boundaries that are barriers towards self-sufficiency achievement. This kind of a policy clearly impairs the founding principles of food security: food accessibility and availability. Trade, especially agri-food trade becomes, by this mean, an essential element in achieving food security because it tackles both, accessibility and availability of food (Gillson & Fouad, 2014).

What makes the current topic one of high importance is the fact that agri-food trade represents a gear box that empowers allocated resources and it is a guidelight for prices, aiding purchases and also, trade gives to the ones in need, enhancing food availability. Trade openness in this sector helps reduce the production costs and acts as a shockwave absorber of internal production disruptions, that is influenced by any limiting policy. Food security for this reason, stabilizes the link between markets (supply and demand). Policy makers need to make sure that trade interconnection is as restriction free as negotiations allow it to be. It is also important to note that trade itself is not an absolute guarantee that automatically generates food security but rather a comprehensive part of a policy package that aims towards achieving it. Associated policies that emphasize trade are key development factors, mentioning in this case, supporting: irrigation, clean nutrition, research & development, agricultural expansion, top quality fertilizers, seeds and access to credit and in collaboration with a sound macroeconomic development strategy (Gillson & Fouad, 2014).

Recent scientific research highlights the importance of the trade balance on one country's economic growth. For any state to perform internationally, it is often mandatory for it to obtain openness at the world economy that boosts income amplification and growth. International trade is also a fuel to the global macroeconomic machine that encourages efficiency in resource usage, enables scalability, shares knowledge, supports technological progress and nurtures healthy competition both internal and internationally. Important attention has been paid on finding the trade balance effects over economic growth, several studies pointing out positive results in this regard (Blavasciunaite et al., 2020).

Present study does not focus on defining complex interlinked statements but rather on observing the generalities of the EU-28 countries in the agri-food commodities exchange and pointing out general remarks evidencing agricultural specialization across the Member States.

The current paper picks up quantitative data available on the Intracen website and analyses it across all the available food categories for all EU-28 Member States noting top performing countries from 2011 to 2020, the study being structured as follows: literature review, analysis & findings and conclusion.

1. Literature review

Food trade plays a vital role in the modern food systems, especially in the globalized world that we are in now (Suweis et al., 2015; MacDonald et al., 2015; Karakoc & Konar, 2021). Agri-food trade also enables nations with clear competitive advantage and satisfies the demands of specific products that distant inhabitants are clearly in lack of.

In order to highlight the importance of the trade balance topic in the research literature, a number of database interrogations have been performed, in total 2 datasets have been extracted, one from Scopus and one from Web of Science, using the following parameters to identify similar research themes as the present one: (TITLE-ABS-KEY (trade AND balance) AND TITLE-ABS-KEY (European AND union)).

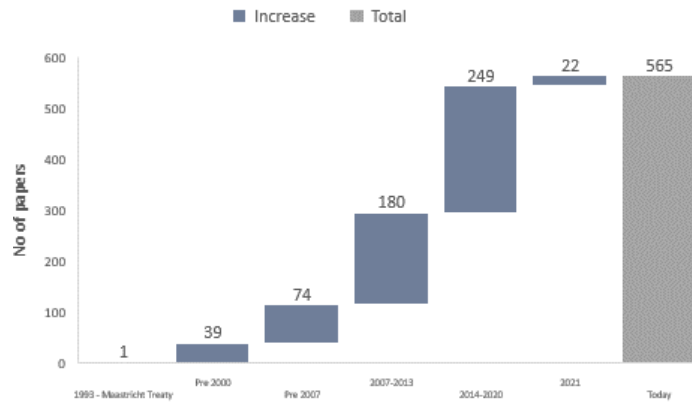


Figure 1. Waterfall - Number of papers by year

Source: Scopus scientific database

The first interrogation generated 565 papers, the yearly split is highlighted in Figure 1. The above figure concatenates the number of papers by multiannual period, the most significant period being 2014-2020 in terms of published papers on this topic, with 38% more papers on this topic compared to the previous period. It can easily be stated that the interest has been growing over the years as it was observed how fragile the agri-food trade system can be in an epidemiologic situation or any global issue. The year with the largest number of papers being 2016 – 43 papers followed by 2012 – 41 papers. The most relevant article in this ranking was published in 2008 in the Journal of the European Economic Association, cited 119 times, entitled “The effects of public spending shocks on trade balances and budget deficits in the European Union”.

In the following schemes, a different database has been interrogated: Web of Science (WoS), with the same parameters selected as above generating in total, a number of 838 papers.

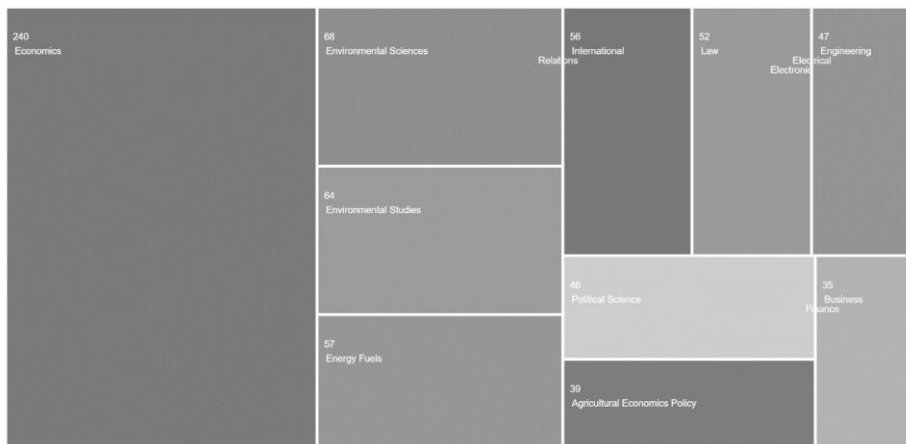


Figure 2. Treemap – Number of papers by Web of Science topic

Source: WOS scientific database

As seen in the second figure, the most relevant research topic that the articles have circled around is Economics, as expected; other interesting topics are International Relations, Law, Political Science. The topic of Agricultural Economics Policy indicates that food and agri-food commodities are of significant relevance even in this highly economic research area.

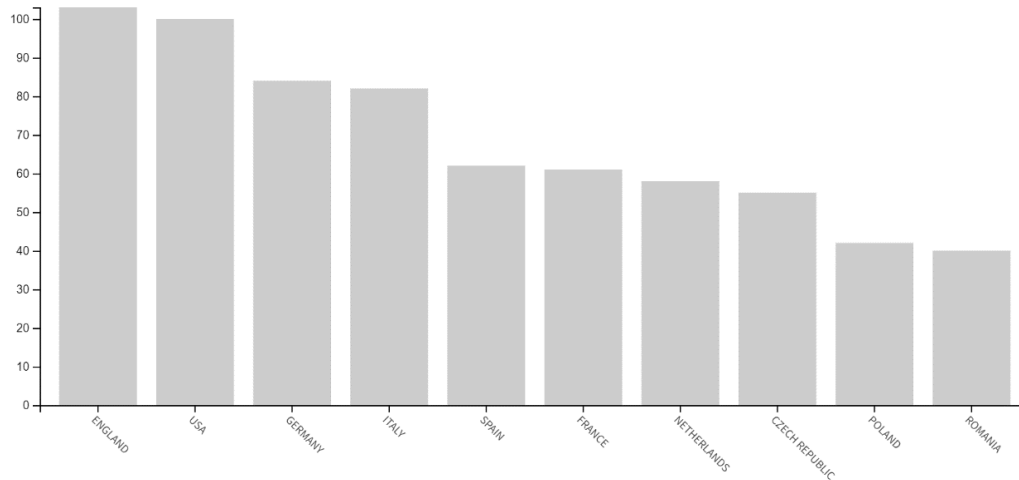


Figure 3. Number of papers by country of publishing
Source: WOS scientific database

As seen in the third figure, England and Germany are the first two countries focusing in their research on the topics of trade balance across the European Union. The number of journals that publish papers on this topic indicate increased importance offered to the R&D sector as a primer sector in terms of innovation and technological advance.

2. Analysis & findings

Trade is a crucial player in the worldwide consumers' life, it delivers food and whatever the global demand requires, providing more choices to the final consumer. Food commodities' trade comes to serve as a food insecurity reduction pilot, even in the everchanging international market. The shelves are becoming more frequently filled with a wider variety of food products, originated from spread-out locations outside of common places. Both emerging and developing countries have been feeling trade increases determining a larger supplier and market base for the agri-food products (Agricultural Trade - OECD, n.d.).

As the effective analysis is started, the following part emphasizes on data interpretation to provide an accurate view over the EU-28's trade balances.

Category "1. Live animals" is registered in the European Union with a total surplus of 24.55 billion euros for the period 2011-2020. It is noted that the trade balance has been moving in the period under analysis, with the surplus trend. Thus, in 2019, the highest excess value of 3.26 billion euros was recorded.

At member states level, it is noted that the United Kingdom is in the top position in the trade balance surplus (29.55 billion euros), followed by Sweden (14.83 billion euros) and Spain (4.93 billion euros).

Category "2. Meat and offal" is registered in the European Union with a total surplus of 77.29 billion euros for the period 2011-2020. It is observed that the trade balance registered an

oscillating dynamic in the analysed period, with an excess tendency. Thus, in 2020, the highest excess value of 13.62 billion euros was recorded.

At member states level it is noted that the Netherlands ranks first in terms of trade balance surplus (42.46 billion euros), followed by Spain (39.44 billion euros) and Poland (24.83 billion euros).

Category "3. Fish and crustaceans, molluscs and other aquatic invertebrates" is recorded in the European Union with a total deficit of 133.48 billion euros for the period 2011-2020. It is noted that the trade balance showed a negative trend over the period analysed, with a weak trend. Thus, the lowest negative value of 10.91 billion euros was recorded in 2012.

At member states level it is noted that the Netherlands ranks first in the trade balance surplus (6.56 billion euros), followed by Denmark (5.88 billion euros) and Ireland (3.27 billion euros).

Category "4. Dairy products; poultry eggs; natural honey; edible animal products not specified or included elsewhere" is registered in the European Union with a total surplus of 92.85 billion euros for the period 2011-2020. It is noted that the trade balance showed an upward trend over the period analysed, with the surplus trend. Thus, the highest positive value of 11.29 billion euros was recorded in 2020.

At member states level it is noted that the Netherlands ranks first in the trade balance surplus (41.13 billion euros), followed by France (27.17 billion euros) and Germany (16.54 billion euros).

Category "5. Products of animal origin not specified or included elsewhere" is registered in the European Union with a total deficit of 3.76 billion euros for the period 2011-2020. It is noted that the trade balance registered an almost constant trend over the period analysed, with a weak trend. Thus, the highest positive value of 0,07 billion euros was recorded in 2020.

At member states level it is noted that the Netherlands ranks first in the trade balance surplus (1.08 billion euros), followed by Spain (0.55 billion euros) and Poland (0.36 billion euros).

Category "6. Live trees and other plants; bulbs, roots and the like; cut flowers and ornamental foliage" place the European Union with a total surplus of 22.62 billion euros for the period 2011-2020. It is noted that the trade balance has been moving in the period under analysis, with the surplus trend. Thus, the highest positive value of 2.69 billion euros was recorded in 2020.

At member states level it is noted that the Netherlands ranks first in the trade balance surplus (68.08 billion euros), followed by Italy (2.84 billion euros) and Denmark (1.67 billion euros).

Category "7. Edible vegetables and certain roots and tubers" is registered in the European Union with a total deficit of 21.87 billion euros for the period 2011-2020. It is noted that the trade balance showed a negative oscillating dynamic over the period analysed, with a weak trend. Thus, the lowest deficit of only 1.65 billion euros was recorded in 2013.

At member states level it is noted that Spain is the first in terms of the trade balance surplus (43.72 billion euros), followed by the Netherlands (40.57 billion euros) and Belgium (3.33 billion euros).

Category "8. Edible fruit and nuts; citrus peel or melons" is recorded in the European Union with a total deficit of 146.13 billion euros for the period 2011-2020. It is noted that the trade balance has shown a constant negative trend over the period analysed, with a weak trend. Thus, the lowest deficit of only 10.04 billion euros was recorded in 2012.

At member states level it is noted that Spain is the first in terms of the trade balance surplus (53.50 billion euros), followed by Greece (5.47 billion euros) and Italy (4.20 billion euros).

Category "9. Coffee, tea, matte and spices" is recorded in the European Union with a total deficit of 78.3 billion euros for the period 2011-2020. It is noted that the trade balance has

been steadily dynamic over the period analysed, with a weak trend. Thus, in 2015, the highest deficit of 8.7 billion euros was recorded.

At member states level it is noted that France is the first in terms of the trade balance deficit (16.4 billion euros), followed by Germany (13.5 billion euros) and the United Kingdom (9.3 billion euros).

The “10 – Cereals” category is registered in the European Union with a total surplus of 18.65 billion euros for the period 2011-2020. It is observed that the trade balance registered an oscillating dynamic in the period under review, with the trend of increasing surplus. Thus, in 2015, the maximum surplus was recorded, amounting to 4 billion euros, and the maximum deficit, which is the only one in this group, was recorded in 2018, amounting to 1.38 billion euros.

At member states level it is noted that France is the first in terms of the trade balance surplus (58 billion euros), followed by Romania (14.9 billion euros) and Hungary (11.5 billion euros). At the opposite side is Spain, which recorded a deficit of 23.2 billion euros, followed by Italy (21.6 billion euros) and the Netherlands (20.8 billion euros).

Category “11 - Products from the milling industry; malt; starch; inulin; wheat gluten” is recorded in the European Union with a total surplus of 34 billion euros for the period 2011-2020. It is noted that the trade balance showed a positive trend over the period under analysis, with a trend toward an increase in the surplus. Thus, a surplus of 1.89 billion euros was recorded in 2020, 38% higher than in 2011, with a peak in 2019.

At member states level, it is noted that Germany is the first in terms of the trade balance surplus (8.5 billion euros), followed by Belgium (4.7 billion euros) and France (4.6 billion euros). At the opposite side is Netherlands, which recorded a deficit of 2.6 billion euros, followed by Ireland (0.84 billion euros) and Romania (0.83 billion euros).

Category “12 - Oil seeds and oil fruits; cereals, seeds and miscellaneous fruits; industrial or medicinal plants; straw and fodder” is registered in the European Union with a total deficit of 75 billion euros for the period 2011-2020. It is noted that the trade balance has shown a negative trend with a trend toward an increase in the surplus. Thus, the maximum surplus of 8.7 billion euros was recorded in 2020 and the minimum deficit of 6.5 billion euros was recorded in 2011.

At member states level, it is noted that Romania ranks first in terms of the trade balance surplus (6 billion euros), followed by Bulgaria (4.3 billion euros) and Hungary (3.2 billion euros). At the opposite side is Germany, which recorded a deficit of 36 billion euros, followed by Spain (15 billion euros) and Belgium (10.7 billion euros).

Category “13 - Lacquer; gums, resins and other vegetable saps and extracts” is registered in the European Union with a total deficit of 3.4 billion euros for the period 2011-2020. It is observed that the trade balance registered an approximately constant dynamics during the period under review, with a downward trend in the deficit. Thus, a maximum deficit of 0.53 billion euros was registered in 2015.

At member states level it is noted that Spain is the first in terms of the trade balance surplus (1.5 billion euros), followed by Denmark (0.4 billion euros) and the Czech Republic (0.1 billion euros). At the opposite side is France, which recorded a deficit of 0.83 billion euros, followed by Britain (0.81 billion euros) and Poland (0.75 billion euros).

Category “14 – Vegetable plaiting materials; vegetable products not specified or included elsewhere” is recorded in the European Union with a total deficit of 2.1 billion euros for the period 2011-2020. It is noted that the trade balance showed a negative trend over the period under review, with a trend toward an increase in the deficit. Thus, in 2019, a deficit of 245 million euros was registered, more than 40% higher than in 2011.

At member states level it is noted that most of the Member States are in deficit and Denmark is in the top position in terms of the trade balance surplus (44 million euros), followed by Hungary (39 million euros) and Bulgaria (1 million euros). The opposite is Poland, which had a deficit of 554 million euros, followed by Germany (263 million euros) and the Netherlands (259 million euros). Romania recorded a surplus of 439 thousand euros.

Category “15 – Animal or vegetable fats and oils and their take-off products; prepared edible fats; animal or vegetable waxes” is registered in the European Union with a total deficit of 43.1 billion euros for the period 2011-2020. It is observed that the trade balance registered an oscillating dynamic, with a tendency to increase the deficit. Thus, in 2020, a deficit of 5.5 billion euros was registered, 28% higher than the average of the period analysed.

At member states level it is noted that Spain is the first in terms of the trade balance surplus (16 billion euros), followed by Hungary (2.74 billion euros) and Greece (2.71 billion euros). At the opposite side, is Italy, which recorded a deficit of 15 billion euros, followed by Britain (10 billion euros) and Germany (9 billion euros). Romania recorded a surplus of 189 million euros.

Category “16 – Preparations of meat, fish or crustaceans, molluscs or other aquatic invertebrates” is recorded in the European Union with a total deficit of 34.5 billion euros for the period 2011-2020. It is noted that the trade balance has been steadily negative. Thus, in 2015, a deficit of 3.76 billion euros was registered, more than 10% of the deficit in the period.

At member states level, it is noted that Poland ranks first in terms of the trade balance surplus (10 billion euros), followed by Denmark (3.58 billion euros) and Ireland (2.99 billion euros). At the opposite side is the United Kingdom, which recorded a deficit of 34.5 billion euros, followed by France (9.34 billion euros) and Italy (4.39 billion euros). Romania registered a deficit of 287 million euros.

The category “17 - Sugar and sugar products” is registered in the European Union with a total deficit of 10 billion euros for the period 2011-2020. It is noted that the trade balance has been moving in the period under review, with a downward trend in the deficit. Thus, a surplus of 266 million euros was recorded in 2018 and the maximum deficit was recorded in 2013 amounting to 2.1 billion euros.

At member states level, it is noted that Germany is the first in terms of the trade balance surplus (4.8 billion euros), followed by the Netherlands (3 billion euros) and France (5.2 billion euros). At the opposite side is Britain, which recorded a deficit of 9.069.704 thousand euros, followed by Italy (7.1 billion euros) Ireland (2 billion euros) and Romania (2.1 billion euros).

Category “18 - Cocoa and cocoa products” is registered in the European Union with a total deficit of 12.1 billion euros for the period 2011-2020. It is observed that the trade balance registered an oscillating dynamic in the analysed period, with a tendency to accentuate the deficit. Thus, a surplus of 148 million euros was recorded in 2013 and the maximum deficit was recorded in 2016 amounting to 2.2 billion euros.

At member states level, it is noted that Germany is the first in terms of the trade balance surplus (7.3 billion euros), followed by Belgium (6.7 billion euros) and the Netherlands (6.2 billion euros). At the opposite side is the United Kingdom, which recorded a deficit of 13.6 billion euros, followed by France (9.2 billion euros) and Spain (3.4 billion euros). Romania registered a deficit of 1.6 billion euros.

Category “19 – Preparations based on cereals, flour, starch or milk; pastries” is recorded in the European Union with a total surplus of 90.8 billion euros for the period 2011-2020. It is noted that the trade balance showed a positive trend over the period under analysis, with a trend toward an increase in the surplus. Thus, a surplus of 11.5 billion euros was recorded in 2020, 2,08 times higher than in 2011.

At member states level, it is noted that Italy is the first in terms of the trade balance surplus (EUR 31.1 billion), followed by the Netherlands (21.4 billion euros) and Germany (21.1 billion euros). At the opposite side is Britain, which recorded a deficit of 16 billion euros, followed by Finland (2.9 billion euros) and Romania (2.3 billion euros).

Category “20 – Preparations of vegetables, fruit or other parts of plants” is registered in the European Union with a total deficit of 1.5 billion euros for the period 2011-2020. It is noted that the trade balance has been moving with a trend toward an increase in the surplus. Thus, the maximum surplus of 802 million euros was recorded in 2019 and the maximum deficit of 1.3 billion euros was recorded in 2011.

At member states level, it is noted that Italy is the first in terms of the trade balance surplus (20.3 billion euros), followed by the Netherlands (18 billion euros) and Spain (16.2 billion euros). At the opposite side is the United Kingdom, which recorded a deficit of 25.1 billion euros, followed by Germany (18.9 billion euros) and France (18.5 billion euros). Romania registered a deficit of 2 billion euros.

Category “21 – Miscellaneous food preparations” is recorded in the European Union with a total surplus of 48.4 billion euros for the period 2011-2020. It is noted that the trade balance showed a positive trend over the period under analysis, with a trend toward an increase in the surplus. Thus, a surplus of 6.4 billion euros was recorded in 2020, 1,97 times higher than in 2011.

At member states level, it is noted that Germany is the first in terms of the trade balance surplus (EUR 22.1 billion), followed by the Netherlands (20.7 billion euros) and Italy (9.7 billion euros). At the opposite side is Britain, which recorded a deficit of 10.3 billion euros, followed by Finland (2.9 billion euros) and Romania (2.4 billion euros).

Category “22 – Beverages, alcoholic liquids and vinegar” is registered in the European Union with a total surplus of 223 billion euros for the period 2011-2020. It is noted that the trade balance showed a positive trend over the period under analysis, with a trend toward an increase in the surplus. Thus, a surplus of 23 billion euros was recorded in 2020, 1,38 times higher than in 2011.

At member states level it is noted that France is the first in terms of the trade balance surplus (113.7 billion euros), followed by Italy (62.4 billion euros) and Spain (EUR 21.4 billion euros). At the opposite side is Germany, which recorded a deficit of 11.9 billion euros, followed by Sweden (4.9 billion euros) and Finland (2.7 billion euros).

Category “23 – Food industry residues and wastes; prepared animal foods” is recorded in the European Union with a total deficit of 63.4 billion euros for the period 2011-2020. It is observed that the trade balance registered an oscillating dynamic, with a tendency to reduce the deficit. Thus, in 2020, a deficit of 3.9 billion euros was registered, 0,54 times lower than in 2011.

At member states level it is noted that the Netherlands ranks first in the trade balance surplus (12.8 billion euros), followed by Hungary (3.3 billion euros) and Germany (3.1 billion euros). At the opposite side is Britain, which recorded a deficit of 12.7 billion euros, followed by Latvia (12 billion euros) and Italy (11.8 billion euros).

The category “24 – Tobacco and tobacco substitutes” is registered in the European Union with a total deficit of 7.2 billion euros for the period 2011-2020. It is noted that the trade balance has been moving with a downward trend in the deficit. Thus, in 2011 alone, there was a deficit of 128 million euros. Trade balance surpluses were recorded in 2012-2020, with a peak of 1.3 billion euros in 2014.

At member states level, it is noted that Poland ranks first in terms of the trade balance surplus (17.7 billion euros), followed by Germany (16.7 billion euros) and the Netherlands (11.1 billion euros). At the opposite side is Italy, which recorded a deficit of 13.5 billion euros,

followed by France (13.2 billion euros) and Spain (12.1 billion euros). Romania recorded a surplus of 4.4 billion euros.

Conclusions

Among the countries that have recorded the most significant surpluses, it can be noted: United Kingdom (Cat. 1), The Netherlands (Cat. 2,3,4,5,6,23), Spain (Cat. 7,8,13,15), France (Cat. 10,22), Germany (Cat. 11,17,18,21), Romania (Cat. 12), Poland (Cat. 16,24) and Italy (Cat. 19,20).

Among the countries that have recorded the highest deficits, it can be noted: France (Cat. 9) and Denmark (Cat. 14).

Throughout the study, the importance of trade and especially agri-food trade has been proved to be of a real importance, a mechanism that enhances food security. Global trade being, predominantly, an economic activity, that is exactly the side that the current study examined, not necessarily seeking the interface between food security and trade but rather on explaining the materiality of food commodities' trade across the EU-28.

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References

1. Agricultural trade OECD. (n.d.). Retrieved October 30, 2021, from <https://www.oecd.org/agriculture/topics/agricultural-trade/>
2. Blavasciunaite, D., Garsviene, L., & Matuzeviciute, K. (2020). Trade balance effects on economic growth: Evidence from European Union Countries. *Economies*, 8(3), 54. <https://doi.org/10.3390/economies8030054>
3. Gillson, I., & Fouad, A. (2014). Trade policy and food security: improving access to food in developing countries in the wake of high world prices. *World Bank Publications*.
4. Karakoc, D. B., & Konar, M. (2021). A complex network framework for the efficiency and resilience trade-off in global food trade. 16(10), 105003. <https://doi.org/10.1088/1748-9326/ac1a9b>.
5. MacDonald, G. K., Brauman, K. A., Sun, S., Carlson, K. M., Cassidy, E. S., Gerber, J. S., & West, P. C. (2015). Rethinking agricultural trade relationships in an era of globalization. *BioScience*, 65(3), 275–289. <https://doi.org/10.1093/biosci/biu225>
6. Suweis, S., Carr, J. A., Maritan, A., Rinaldo, A., & D'Odorico, P. (2015). Resilience and reactivity of global food security. *Proceedings of the National Academy of Sciences*, 112(22), 6902–6907. <https://doi.org/10.1073/pnas.150736611>.