

# COMPARATIVE ADVANTAGES OF THE UNITED KINGDOM'S AGRI-FOOD TRADE IN RELATION TO THE EU

Katarína Baráthová<sup>1</sup>, Artan Qineti<sup>2</sup>

Slovak University of Agriculture in Nitra<sup>1,2</sup>

Faculty of Economics and Management, Department of Economic Policy

Tr. A. Hlinku 2

949 76 Nitra, Slovak Republic

e-mail<sup>1,2</sup>: xbarathovak@is.uniag.sk, artan.qineti@uniag.sk

## Abstract

*The United Kingdom as a member of the EU can enjoy full access to the Single European Market. In terms of agri-food trade, the EU is UK's most important trading partner. However, in June 2016, the UK opted to leave EU. This decision will significantly influence the whole economy of the UK including agri-food trade. Therefore, the objective of this paper is to examine development and comparative advantages of The United Kingdom's agri-food trade with respect to the EU-27 markets. The analysis is based on Balassa index and its stability over the period. Agri-food trade data used in paper are classified according to the Harmonised System (HS). The data were acquired from Eurostat Comext database and cover the period 2000-2016. An analysis showed that over the period, the UK was able to retain comparative advantages only in three categories – HS 03 Fish, HS 21 Miscellaneous edible preparations, HS 22 Beverages, spirits and vinegar. In the rest of agri-food commodities the declining trend can be observed and in 2016 the UK had comparative disadvantages in 21 agri-food commodities. Based on the results of regression analysis focused on the stability of distribution of Balassa indices over time, we can conclude that the degree of specialization in the agri-food trade between the United Kingdom and the rest of the EU has been decreasing as the number of commodity groups with a comparative advantage has been declining. With respect to Brexit, the agrarian trade of the UK deserves special attention, because the potential increases in trade costs are expected to affect the UK proportionally more than the EU27.*

**Keywords:** *agri-food trade, Balassa index, comparative advantage, the United Kingdom*

**JEL classification:** *F10, F14, Q17*

## 1 Introduction

International trade continues to be of great importance to the United Kingdom's agri-food sector. Because the UK is a relatively small economy, it needs access to both export and import markets to realize an efficient scale of production and to acquire many of the inputs used by UK producers (ONS, 2016). Geographical location as well as economic size make Europe the UK's natural trading partner. The importance of geographic factors, such as the distance between countries is one of the most important empirical facts for international trade flows (Anderson, 2011). In 1993, EU launched the single market – the internal market of the European Union, which enables the free movement of goods, services, capital and persons. The EU's single market also involves three tools to boost trade. First, it eliminates tariffs on goods. Second, it provides companies and people with right to sell their goods, services or labour, or to invest, in other member-states. Third, by creation minimum regulatory standards, it reduces the cost of potential exporters having to comply with different national rules of 28 member states (Springford & Tilford, 2014). These tools have made the trade including trade with agri-food products between EU member states easier. However, in June 2016, The United Kingdom decided to leave EU. Despite the fact that the form of the future trade relationship between the UK and EU is subject of ongoing talks and negotiations, it is clear that Brexit will mean the worse conditions of trading relationship than as in case of being a member of EU, especially if the UK will leave single market. Brexit may negatively influence agri-food trade of UK as well, although agri-food products are less traded than manufactured ones, they will be however subject to the largest increases in trade protection, both in terms of tariffs and non-tariff measures (Bellora et al., 2017). This means, that Brexit may hurt the competitiveness of UK on markets of EU.

## 2 Data and methodology

The economic literature deals with three different levels of competitiveness: at national level, at industry level and at firm level (Bojnec & Fertö, 2006). The competitiveness at national level relates to trade and there are various approaches aimed for its evaluation. One way is to analyze it through a concept of comparative advantages. The theory of comparative advantages assumes that international trade between nations occurs due to differences in the relative opportunity costs. This theory says that countries are competitive in goods and services in which they have a relative cost advantage (Nallari & Griffith, 2011). This paper analyzes the development of agri-food trade of UK and revealed comparative advantages of

the UK's agri-food commodities with respect to the EU-27 countries. To conduct the empirical analysis we gathered trade data from Eurostat Comext database. Analysed time series covers the period 2000-2016. Agri-food commodities are classified according to the Harmonised System (HS) into 24 different 2-digit sections (Table 1).

Table 1 **Commodity structure of agri-food trade**

HS	Commodity
01	Live animals
02	Meat and edible meat offal
03	Fish and crustaceans, molluscs and other aquatic invertebrates
04	Dairy produce; birds' eggs; natural honey
05	Products of animal origin, not elsewhere specified or included
06	Live trees and other plants
07	Edible vegetables and certain roots and tubers
08	Edible fruit and nuts
09	Coffee, tea, mate and spices
10	Cereals
11	Products of the milling industry; malt; starches; inulin; wheat gluten
12	Oil seeds and oleaginous fruits
13	Lac; gums, resins and other vegetable saps and extracts
14	Vegetable plaiting materials
15	Animal or vegetable fats and oils and their cleavage products
16	Preparations of meat, of fish or of crustaceans and others.
17	Sugars and sugar confectionery
18	Cocoa and cocoa preparations
19	Preparations of cereals
20	Preparations of vegetables, fruit, etc.
21	Miscellaneous edible preparations
22	Beverages, spirits and vinegar
23	Residues and waste, prepared animal fodder
24	Tobacco and manufactured tobacco substitutes

Source: Eurostat Comtrade database.

The concept of comparative advantage is the main methodological approach applied for investigation of agri-food trade data. The idea to determine a country's strong sectors by analyzing the actual export flows was pioneered by Liesner (1958), who first introduced the concept of revealed comparative advantage. Later Balassa (1965) modified this method and therefore it is also known as Balassa index. He defined it as follows:

$$B = (X_{ij} / X_{it}) / (X_{nj} / X_{nt}) \quad (1)$$

where  $X$  represents exports,  $i$  is a country,  $j$  is a commodity,  $t$  is a set of commodities, and  $n$  is a set of countries. The  $B$  index is based on observed trade patterns. It measures a country's exports of a commodity relative to its total exports and to the corresponding export performance of a set of countries (Utkulu & Seymen, 2004).

In our case  $X_{ij}$  describes British exports for a particular agri-food product group to the EU-27 countries, while  $X_{it}$  is total agri-food exports of UK to EU-27.  $X_{nj}$  denotes the EU-27's exports for a given agri-food product group and  $X_{nt}$  total merchandise exports by EU-27 countries, which are used as the benchmark of comparison. We considered only intra-EU trade flows as the analysis is focused on evaluation of relative competitive performance of the UK in the EU market, no consideration was given to the position of extra European countries in the EU market or to extra-EU trade.

If  $B > 1$ , then a comparative advantage is revealed, i.e. a sector in which the country is relatively more specialized in terms of exports. So it reveals higher competitiveness. Values between zero and one indicate comparative disadvantages (Bojnec & Fertő, 2007).

Balassa index is often criticized because it is seen to neglect different effects of agricultural policies and exhibits asymmetric values. Trade structure is distorted by different state interventions and trade limitations, while the asymmetric value of the  $B$  index reveals that it extends from one to infinity if a country enjoys comparative advantage from a product, but in case of comparative disadvantage, it varies between zero and one, which overestimates a sector's relative weight (Jambor, 2013). Moreover, Balassa index does not account for import trade flows. Despite these drawbacks, it still stands as the most widely used revealed comparative advantage index. The main benefit of this index against its alternative trade indices is its theoretical foundation that changes in the  $B$  index are consistent with changes in countries' relative factor-endowments (Hinloopen & van Marrewijk, 2008; Bojnec & Fertő, 2008). The  $B$  index can provide useful evidence on the country's agri-food export competitiveness on global markets.

In literature numerous studies have used the Balassa index or its modifications with aim to identify a country's strong sectors. For example, by evaluating three

indices - export market share (EMS), revealed comparative advantage (RCA) and net export index (NEI), Banterle (2005) analysed the competitive performance of the EU countries for food trade in the European market during the period 1990-2003. Bojnec & Fertő (2015) investigated the competitiveness of agri-food exports of the EU-27 countries on global markets, using the Balassa index over the period 2000-2011. They found that a majority of agri-food products in the EU-27 countries show a comparative disadvantage on global markets. Carraresi & Banterle (2008) measured competitiveness of food industry and agriculture in the EU market over the 1991-2006 period, using trade index RCA (Balassa index) as well as other indices (EMS, RXA, RMA, NEI). The results were concluded by cluster analysis dividing countries with similar trends into three groups. The United Kingdom was included in third group which represented countries with worst performance, meaning that these countries had decreasing indices and showed loss of competitiveness.

Indices of RCA are arguably useful as one of the few formal ways of measuring the sector identity and intensity of a country's comparative advantage and disadvantage (Richardson & Zhang, 2001). However, when using the RCA index, there is often question about the stability of this index and perseverance of agri-food trade composition across time. According to Hinloopen & van Marrewijk (2001) there are distinguished at least two types of stability. One is the stability of distribution of the indices from one period to the next, second is the stability of the value of the indices for particular product groups from one period to the next. We decided to examine first type of stability. According to the approach applied by Dalum et al. (1998) we run the regression analysis, where we used Balassa index:

$$B_{ij}^{t2} = \alpha_i + \beta_i B_{ij}^{t1} + \varepsilon_{ij} \quad (2)$$

$t1$  and  $t2$  describe the start year and the end year, respectively. The value of Balassa index  $B$  in year  $t2$  for sector  $i$  in country  $j$ , represents the dependent variable. The independent variable is represented by value of Balassa index  $B$  in start year  $t1$ .  $\alpha$  and  $\beta$  are parameters of linear regression,  $\varepsilon$  is a residual error. If  $\beta = 1$ , then it means an unchanged pattern of  $B$  between periods  $t1$  and  $t2$ . In case that  $\beta > 1$ , the existing specialization of the country is strengthened. If  $0 < \beta < 1$ , then initial patterns have changed. Sectors with initially low  $B$  indices grow over time, while sectors with initially high  $B$  indices declined. In situation when  $\beta < 0$ , it is indication of a change in the sign of the index. But Dalum et al. (1998) argues that when  $\beta > 1$ , it is not a necessary condition for growth in the overall specialization pattern. The degree of change also depends on  $R^2$ . According to Cantwell (1989) it is expressed as follows:

$$\frac{\sigma_j^{t2}}{\sigma_j^{t1}} = \frac{|\beta_j|}{|R_j|} \quad (3)$$

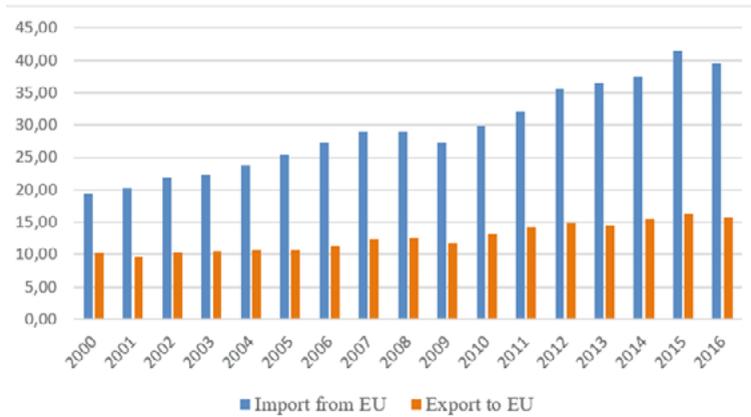
where  $\sigma$  refers to standard deviation of dependent variable and  $R$  is the coefficient of correlation from the regression. In case  $\beta > R$  (or  $\beta/R > 1$ ), the standard deviation has increased over time, thus the degree of specialization has increased, while if  $\beta < R$  (or  $\beta/R < 1$ ), the degree of specialization has decreased.

### 3 Results and discussion

Before analysing the magnitude of Balassa index (RCA), it is good to gain the broad picture of agri-food trade. Therefore we take a look at real development of trade flows of the United Kingdom with EU (in nominal terms). Looking more closely at agri-food trade data of the UK, we can see that the value of total UK agri-food imports from EU and from the rest of the world in 2016 across the 24 chapters of HS2 was 55,7 billion EUR, while the value of UK total agri-food exports reached 25,4 billion Eur. Overall, this suggests that the UK is a net importer of agri-food products, which is also reflected in a total agri-food trade deficit of 30,3 billion EUR in 2016. Both British agri-food imports as well as exports are dominated by trade with the EU. The relationship between the UK and the EU-27 is characterized by a strong dissymmetry. The EU-27, as a whole, is a large market (population more than 445 million people and a GDP of USD 13,8 thousand billion in 2016), while the UK is relatively smaller (a population of 65,6 million people and a GDP of USD 2,6 thousand billion). Thus, the EU-27 represents a large market and outlet for UK exporters. The UK is, in comparison, a small market for EU-27 (even if it represents the main export destination of some agri-food sectors in given EU-27 countries). Despite this, the UK is currently the second largest EU country and in terms of trade is closely integrated with the EU-27.

Figure 1 presents the development of UK's exports and imports in the EU-27 markets during the period 2000-2016. In 2016 British imports of agri-food products from EU member states were 39,5 billion EUR which is almost 71 % of the whole British agri-food imports. The value of UK's agri-food exports to EU in that year reached 15,85 billion EUR (62,4 % of the whole UK's export). Compared to level of exports and imports of UK with EU sixteen years ago (2000), the value of both exports and imports with EU has significantly increased. Agri-food imports from EU in 2000 represented 19,37 billion EUR, in 2016 this value was by 103,86 % higher. Agri-food exports of UK to EU over same period increased as well, although less than import. Compared to value 10,3 billion EUR in 2000, exports in 2016 were higher by 53,87 %.

Figure 1 Agri-food trade of the UK with EU (in billion EUR)



Source: Own calculation, based on data from Eurostat Comext.

If we look more closely at commodity structure of UK's trade with the rest of EU (according to the international tariff nomenclature for the classification of product HS2), we can see that over the monitored years the category HS 22 Beverages, spirits and vinegar represents the largest component of both UK agri-food exports and imports. In last 10 years, beverages and spirits comprised around 14 % of the total agri-food import from EU-27 and around 20 % of export to EU-27. The second major exported agri-food commodity in 2016 was represented by category HS 21 Miscellaneous edible preparations with export value 1,66 billion EUR. HS 02 Meat and edible meat offal with export value 1,35 billion EUR was the third most exported agri-food commodity in 2016 and the category HS 03 Fish with export value 1,31 billion EUR has the fourth position in exports to EU.

The import side of commodity structure in 2016 is very similar to that of export. The value of import of beverages in 2016 reached 5,54 billion EUR and makes it the most imported commodity. During the sixteen years the second most imported agri-food commodity has not changed and this position belongs to meat. In 2016 the value of meat imports reached 4,21 billion EUR. The other major imported agri-food commodities have been changing over the years. In 2016, preparations of cereals held the third position with imports value 3,31 billion EUR and dairy produce holds the fourth position with imports value 3,04 billion EUR.

Table 1 presents the results of RCA index for 24 categories of agri-food commodities of the United Kingdom in period 2000-2016. Results reveal there are

only three categories in which the UK was able to retain a comparative advantage during the whole sixteen years period. It is category HS 03 Fish, HS 21 Miscellaneous edible preparations and HS 22 Beverages. As seen earlier in this paper, the category of beverages is the major exported agri-food commodity of the UK accounting for 21 % of the whole agri-food export to EU-27 in 2016. The category HS 21 Miscellaneous edible preparations was the second and category HS 03 Fish was fourth most exported agri-food commodity accounting for 10 % and 8 % of the whole agri-food export to EU-27 in 2016, respectively. For this reason, the UK seems to be trading in the right way, since it is exploiting these comparative advantages well with regards to EU. However, the RCA index in category of fish is deteriorating. Categories miscellaneous edible preparations and beverages showed gradual decline from 2000, but from 2009 the RCA index started increasing until 2015. In 2016 we can observe decline in both categories. Other agri-food categories which used to have a comparative advantage experienced the decrease and in many cases the UK lost comparative advantage on EU-27 market. It means that revealed comparative advantage was not persistent. We can see that from 2000 to 2012, the UK had a comparative advantage in category HS 19 Preparations of cereals, but from 2012 this RCA index has significantly decreased and the UK lost comparative advantage in this category. The UK used to have a comparative advantage in EU-27 markets in two more categories – HS 09 Coffee, tea, mate and spices and HS 24 Tobacco and manufactured tobacco substitutes, however over time it lost comparative advantage in these categories as well. Especially the category of tobacco experienced a sharp decline. In 2000, the RCA index reached value 1,94 indicating comparative advantage and in 2016 the value of RCA was at very low level 0,24, which means that UK has a comparative disadvantage in this category. In most agri-food categories, the RCA index reaches values lower than 1. The low values imply comparative disadvantage and therefore these commodities comprise very low share on the export of UK to EU-27. Over the monitored period the UK reaches lowest RCA index in category Live trees and other plants (0,09-0,12) as well as in category Edible fruits and nuts (0,11-0,20).

Table 1 Development of the Balassa index for agri-food commodities: The UK - EU-27

HS/year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
01	0,97	1,09	0,80	1,05	0,87	0,81	0,77	1,01	0,76	0,65	0,61	0,62	0,51	0,53	0,63	0,82	0,75
02	0,71	0,40	0,54	0,55	0,55	0,54	0,53	0,59	0,60	0,67	0,71	0,66	0,66	0,66	0,66	0,64	0,60
03	1,66	1,68	1,70	1,75	1,70	1,66	1,50	1,44	1,30	1,34	1,38	1,29	1,25	1,13	1,15	1,07	1,07
04	0,65	0,57	0,62	0,64	0,65	0,57	0,61	0,57	0,47	0,49	0,52	0,58	0,56	0,56	0,60	0,60	0,55
05	0,75	0,68	0,72	0,76	0,84	0,84	0,72	0,70	0,68	0,70	0,77	0,83	1,03	0,84	0,91	0,90	0,70
06	0,11	0,11	0,11	0,11	0,11	0,12	0,12	0,12	0,11	0,11	0,09	0,11	0,09	0,11	0,10	0,11	0,10
07	0,30	0,27	0,30	0,30	0,30	0,28	0,27	0,24	0,23	0,25	0,24	0,24	0,22	0,21	0,20	0,22	0,22
08	0,13	0,12	0,12	0,11	0,15	0,16	0,20	0,16	0,14	0,15	0,17	0,17	0,15	0,17	0,14	0,15	0,15
09	1,05	1,41	1,38	1,17	1,01	0,69	0,75	0,66	0,59	0,69	0,74	0,55	0,52	0,69	0,67	0,65	0,66
10	1,37	0,70	0,81	1,38	1,05	0,96	0,88	0,78	0,81	0,77	0,97	0,76	0,49	0,31	0,48	0,68	0,83
11	1,08	1,05	1,01	0,81	0,82	0,80	0,72	0,64	0,73	0,78	0,83	0,79	0,85	0,82	0,73	0,76	0,75
12	0,35	0,28	0,52	0,51	0,36	0,43	0,47	0,52	0,43	0,28	0,45	0,83	1,14	0,63	0,63	0,53	0,47
13	0,64	0,57	0,82	0,82	0,90	0,96	1,14	0,96	1,60	1,03	0,98	0,95	1,06	0,88	0,77	0,94	0,87
14	0,19	0,13	0,23	0,25	0,27	0,26	0,34	0,49	0,39	0,29	0,34	0,50	1,37	0,85	0,38	0,37	0,63
15	0,62	0,61	0,83	0,96	0,71	0,66	0,69	0,68	0,49	0,60	0,62	0,46	0,51	0,50	0,55	0,52	0,43
16	0,67	0,60	0,58	0,57	0,60	0,58	0,54	0,72	0,62	0,55	0,54	0,54	0,54	0,46	0,50	0,46	0,38
17	0,96	1,00	0,91	0,82	0,86	0,74	0,79	1,09	1,03	0,90	0,70	0,53	0,56	0,54	0,69	0,72	0,63
18	1,11	0,95	0,97	0,80	0,73	0,75	0,70	0,67	0,60	0,58	0,55	0,54	0,65	0,65	0,60	0,61	0,58
19	1,84	1,73	1,66	1,46	1,42	1,38	1,35	1,30	1,11	1,08	1,05	1,03	1,04	0,99	0,98	0,99	0,84
20	0,35	0,33	0,34	0,31	0,35	0,33	0,33	0,32	0,30	0,29	0,29	0,28	0,30	0,31	0,33	0,37	0,37
21	1,66	1,53	1,43	1,27	1,26	1,19	1,20	1,17	1,07	1,06	1,12	1,18	1,24	1,24	1,39	1,51	1,45
22	2,49	2,39	2,32	2,20	2,11	1,96	1,93	1,95	1,85	1,92	2,07	2,13	2,00	1,85	1,88	1,86	1,76
23	0,97	0,79	0,82	0,82	0,72	0,67	0,72	0,74	0,69	0,71	0,74	0,71	0,81	0,77	0,78	0,76	0,76
24	1,94	1,49	1,57	1,57	1,51	1,13	0,83	0,63	0,85	0,64	0,54	0,36	0,36	0,35	0,37	0,35	0,24

Source: Own calculation, based on data from Eurostat Comext database.

Table 2 contains the results of the regression analysis of the agri-food trade between the United Kingdom and EU-27 countries. We can see that the value of  $\beta$  is between 0 and 1, and this suggests that agri-food commodity groups with initially high B indices have been declining, revealing declining comparative advantages in agri-food trade with EU-27. As it was mentioned, the degree of change also depends on  $R^2$ . Looking at the ratio  $\beta/R$  with value 0,3319 which is lower than 1, we can say, that the degree of specialization of the UK has decreased, which means that the competitiveness of UK in the agri-food trade with EU-27 countries is falling.

Table 2 Stability of the B index between the years 2000 and 2016: SR, the UK with EU-27

	Beta ( $\beta$ )	R <sup>2</sup>	R	$\beta/R$
The United Kingdom	0,2405	0,5253	0,7248	0,3319

Source: Own calculation, based on data from Eurostat Comext.

## 4 Conclusion

In terms of agri-food trade, the EU27 (EU28-UK) is the UK's major trading partner. Approximately 71 % of all agri-food commodities are imported from EU, which means that the United Kingdom is dependent on agri-food imports from EU. On the other hand, EU is important for UK also because of exports, since the UK exports to EU market around 62 % of its agri-food production. An analysis of competitiveness of the United Kingdom with respect to EU-27 markets based on Balassa index shows that there are only three agri-food categories in which UK was able to retain comparative advantage over the whole 2000-2016 period – HS 03 Fish, HS 21 Miscellaneous edible preparations, HS 22 Beverages, spirits and vinegar. In 2016, the UK had comparative advantages only in these three categories, whereas at the beginning of monitored period, in 2000 it had comparative advantages in nine categories. This implies that the competitiveness of UK's agri-food commodities on EU-27 market has been falling over time. Based on regression analysis of the Balassa index which was focused on stability of distribution of Balassa indices over time, we can also conclude that the degree of specialization in the agri-food trade between the United Kingdom and the rest of the EU has been decreasing as the number of commodity groups with a comparative advantage has been declining. In 2016, the UK reached comparative disadvantages in 21 categories. With respect to Brexit, the agrarian trade of the UK deserves special attention, since the United Kingdom is net importer of agri-food commodities and the EU is its major trading partner. Moreover, currently when it comes to agri-food trade the UK is losing its competitiveness on EU-27 market. And although the future trading relationship is still not known, in case that the UK leaves the single market of the EU, it may mean worse trading conditions and it is highly possible that agri-food products will face largest increases in trade protection which may lead to decline in both exports as well as imports.

## References

1. ANDERSON, J. (2011). The Gravity Model. *Annual Review of Economics*, 3(1), p. 133-160. <http://dx.doi.org/10.1146/annurev-economics-111809-125114>
2. BALASSA, B. (1965). Trade liberalization and revealed comparative advantage. *The Manchester School of Economics and Social Studies*, 33(1): p. 99-123.
3. BANTERLE, A. (2005). Competitiveness and agri-food trade: an empirical analysis in the European Union. 11<sup>th</sup> Congress of the EAAE. *The Future of Rural Europe in the Global Agri-Food System*. Copenhagen, 24-27 August

2005. Available at: <http://ageconsearch.umn.edu/bitstream/24692/1/pp-05ba01.pdf>
4. BELLORA, C., EMLINGER, C., FOURÉ, J., GUIMBARD, H. (2017), Research for AGRI Committee, EU – UK agricultural trade: state of play and possible impacts of Brexit, European Parliament, Policy Department for Structural and Cohesion Policies, Brussels.
  5. BOJNEC, Š., FERTÖ, I. (2006): Comparative Advantages and Competitiveness of Hungarian and Slovenian Agri-Food Trade in the EU Markets. Paper presented at the 98th EAAE Seminar Marketing Dynamics within the Global Trading System: New Perspectives. Chania, Crete, Greece, 29 June – 2 July.
  6. BOJNEC, Š., FERTÖ, I. (2007). Hungarian and Slovenian Agro-Food Trade with Three Main European Union Partners. In *Ekonomický časopis*, 55, 2007, Vol. 4, p. 345-358.
  7. BOJNEC, Š., FERTÖ, I. (2008). European Enlargement and Agro-Food Trade. In *Canadian Journal of Agricultural Economics*, vol. 56, 2008, no. 4, p. 563-579.
  8. BOJNEC, Š., FERTÖ, I. (2015). Agri-Food Export Competitiveness in European Union Countries. *J Common Mark Stud*, 53: p. 476-492. doi: 10.1111/jcms.12215.
  9. CANTWELL, J. (1989). *Technological innovation and multinational corporations*. Oxford: Blackwell Publisher.
  10. CARRARESI, L., BANTERLE, A. (2008). Measuring Competitiveness in the EU Market: A Comparison between Food Industry and Agriculture. Paper presented at the 12th EAAE Congress, Gent, Belgium, 27-30 August.
  11. DALUM, B., LAURSEN, K., VILLUMSEN G. (1998). Structural change in OECD export specialisation patterns: despecialisation and 'stickiness'. *International Review of Applied Economics*, 12 (3): p. 423-443.
  12. EUROSTAT EASY COMEXT. (2017). Available at: <http://epp.eurostat.ec.europa.eu/newxtweb/>.
  13. HINLOOPEN, J., van MARREWIJK, C. (2001). On the empirical distribution of the Balassa index. *Weltwirtschaftliches Archiv*, 137 (1): p. 1-35.
  14. HINLOOPEN, J., van MARREWIJK, C. (2008). Empirical relevance of the Hillman condition and the comparative advantage: 10 stylized facts. *Applied Economics*, Vol. 40 No. 18, pp. 2313-2328.
  15. JAMBOR, A. (2013). Comparative advantages and specialisation of the Visegrad countries agri-food trade. In *Acta Oeconomica et Informatica*. XVI (Number 1, 2013): p. 22-34.

16. LIESNER, H. H. (1958). The European common market and British industry. *Economic Journal*, 68: p. 302-316.
17. NALLARI, R., GRIFFITH, B. (2011). *Understanding Growth and Poverty*. The World Bank, Washington D. C. 498 p. ISBN 978-0-8213-6953-1.
18. Office of National Statistics (ONS). (2016). Inward foreign direct investment (FDI) involving UK companies. Available at: <https://www.ons.gov.uk/economy/nationalaccounts/balanceofpayments/bulletins/foreigndirectinvestmentinvolvingukcompanies/2016>.
19. RICHARDSON, D. J., ZHANG, C. (2001). Revealing Comparative Advantage Chaotic or Coherent Patterns across Time and Sector and U.S. Trading Partner? In *Topics in Empirical International Economics: A Festschrift in Honor of Robert E. Lipsey*, ed. Magnus Blomstrom, and Linda, S. Goldber, p. 195-232, Chicago: University of Chicago Press.
20. SPRINGFORD, J., TILFORD, S. (2014). The Great British trade-off: The impact of leaving the EU on the UK's trade and investment. Centre for European Reform. Available at: [http://www.cer.eu/sites/default/files/publications/attachments/pdf/2014/pb\\_britishtrade\\_16jan14-8285.pdf](http://www.cer.eu/sites/default/files/publications/attachments/pdf/2014/pb_britishtrade_16jan14-8285.pdf).
21. UTKULU, U., SEYMEN, D. (2004). Revealed Comparative Advantage and Competitiveness. Evidence for Turkey vis-à-vis the EU/15. European Trade Study Group 6th Annual Conference ETSG, Nottingham.