COMPETITIVE EXPORT PERFORMANCE IN EU COUNTRIES IN AGRI – FOOD SECTOR

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Abstract

A decisive issue in the EU agri-food market is a competitive performance of each member state. The export competitive performance in agriculture and food industry sector has been influenced by two occasions in past fifteen years, namely the economic crisis in 2008 and the enlargement of EU in 2004 by CEEC’s countries. The export competitiveness in intra-EU trade from 2000-2015 by comparing those sectors, how the export performance have been changed after EU enlargement and how the economic crisis have had an effect on countries export performance. We used EMS indicators were calculated to measure export competitive performance in each member states of EU during three periods. It has been showed that food industry sector and agriculture sector are closed to each other and interconnected, while it has indicated differences in export performance. The main objective of this thesis is to analyse export competitive performance in agricultural sector and food industry of intra-EU trade. We analyse Export Markets Share of selected member state in EU due to data of Eurostat, we have calculated the EMS index, have been split into three periods of time we did for EMS. The Export Market Share index (EMS) describes the export performance in EU area based on its member states. Export market share index could be calculated as the share of export of one sector (agriculture or food industry) with total export of all sectors of all EU countries. According to the results of selected member state we have seen which country has the highest or lowest share on market. The result in EMS agriculture sector of selected countries we may conclude that in the first period France, Spain and Netherland hold the highest market share.

Keywords: food industry sector, agriculture sector, competitive performance, EMS index

JEL Classification: G12, Q02, Q17, M21
1 Introduction

The main objective of this work is to analyse export competitive performance in agricultural sector and food industry of intra-EU trade.

We could distinguished many approaches about competitive performance, but we estimate the export competitive performance on specific sector (agriculture and food industry) on each individual states of EU in the intra-EU trade.

We may say that agriculture sector and food industry sector are closed to each other and interconnected. Of course one sector could influence the other sector and vice-a-versa and therefore we are interested in, if they will show similar tendency in their competitiveness in agriculture and food industry sectors or not. Our analyses are concentrated in three basic periods: first from 2000-2003 with respect of EU-15, second from 2004-2009 with respect of EU-27 and last from 2010-2015 with respect of EU-28. Due to those periods we define which country has been influenced by economic crisis and which country has been profited after EU expansion.

Those data came from Eurostat Database in International Trade. We analysed data over fifteen years ago. Those data came from Eurostat Database in International Trade. The export competitive performance has been measured through EMS Index (Export Market Share).

In each country are as consumption, trade or even their production in the case of agriculture, they are influenced due to their policies and also government programs. EU is the second largest exporter and the largest importer of agriculture products. In that time when prices were higher, the export of some products of EU has also increased. Thus CAP was trying to isolate the part of agriculture of European Union based on the findings of market forces. Thank to this, it grants an exemption to both consumers and producers in EU and consequently increase the regulation on countries which have an open agrarian market. (OECD, 2011)

Change in size is a remarkable feature of the EU. First of all in 1995 were included only 15 countries (EU15, accession of Sweden, Austria and Finland). In 2004 have joined 10 member states in May 2004 (EU10) and another two in 2007 (accession of Romania and Bulgaria). Finally it has brought the total number of 28 member states of EU in 2013. (OECD, 2011)

It is evident that leading position of EU is not stabile. The interdependency of each countries of European Union has brought the globalization of world economy. Production from developed countries to the developing countries is followed by new technologies. Besides that developing countries are better in providing production conditions and moreover cheaper labour force or even in protecting the environment than developed countries. Integration of several countries in the world trade is a result of the growth of competition in that market. (Fojtíková, 2014)
Measuring competitiveness is not easy. Hence we are taking the competitive position of a sector or a firm in the international market and its competitive performance over a time period. According to these measurements, we compared and differentiate countries and time series data. It is possible analyse competitiveness of agriculture and the food industry in 28 EU countries by Export Market Share (EMS) Index. An export specialization is evaluated over time with a cross-country comparison for a sector in the international market. (Atkeson and Burstein, 2010) Decreasing of export has been seen in most EU countries due to some problems. (WTO, 2013a) Nevertheless that economic crisis has had a negative impact in the world trade in a short time there were another factors. Especially shift in production, another new technological innovations and different forms of doing business. Demographic changes are the main components with respect to the future development of international trade. Those could influence trade, investments which encourage the development in technologies, and resources. The same affects transportation and institutions, which are determinant of comparative advantage. (WTO, 2013b) It is evident that there are differences for each individual country of European Union regarding export performance as well as integration into international market. According to Redding and Venables (2004) the important determinant of export performance is an easier access to international market, and this just point out the geography. But it also depends on internal geography and the other domestic factors of each member state.

2 Data and Methods

We use diverse information resources as the literature overview and data taken from Eurostat Database. We will compare and differentiate countries and time series data. It is possible to analyse competitiveness of agriculture and the food industry in 28 EU countries by Export Market Share (EMS) Index. These indicators don’t analyse the determinant of export performance, in our task we are going to provide an overview for countries as a whole. According to these indicators over time we could analyse the gain or loss of competitive performance. Also we are able to calculate competitiveness from different angles.

The Export Market Share index (EMS) describes the export performance in EU area based on its member states. Export market share index could be calculated as the share of export of one sector (agriculture or food industry) with total export of all sectors of all EU countries. Due to this index we have considered which country has the highest share on EU market.

The EMS index describes the export performance in European Union area based on its member states. Due to this index we have considered which country
has the highest share on European Union market. EMS index could be calculated by the following equation:

\[
\text{EMS} = \frac{\text{export of one sector (agriculture or food industry)}}{\text{total export of all sectors of all European Union countries}}
\]

Our data came from Eurostat database of international trade which have been necessary to EMS. Exporting in the intra-EU market from 2000 to 2015 was used for the categories related to agriculture and food industry. The data consist from 2-digits codes (HS-2) from 01 to 24 (except of animal feeding, tobacco, fisheries and agricultural non-foodstuffs) and were summarized into two sectors: agriculture and food industry, which are explained in Table 1.

Table 1 Division of goods into two sectors: agriculture and food industry following by Eurostat

| Agriculture                                      | Food Industry                          |
|-------------------------------------------------|----------------------------------------|
| 01-Live animals                                 | 02-Meat and edible meat offal          |
| 07-Edible vegetables and certain roots and tubers| 04-Dairy products                      |
| 08-Edible fruits and nuts; peel of citrus fruits or melons | 09-Coffee, tea, mate, spices          |
| 10-Cereals                                      | 11-Products of milling industry, malt, starches |
| 12-Oil seeds and oleaginous                     | 15-Animal or vegetable fats and oils   |
|                                                | 16-Preparations of meats, fish         |
|                                                | 17-Sugar and sugar confectionery       |
|                                                | 18-Cocoa and cocoa preparations        |
|                                                | 19-Preparations of cereals, flour, starch or milk |
|                                                | 21-Miscellaneous edible preparations   |
|                                                | 22-Beverages, spirits and vinegar      |

3 Results and Discussion

Our analysis indicates that in the intra-EU trade, the highest EMS we consider in big countries, which possess exactly 90.14% of agriculture sector in EMS and 77.23% of food industry in EMS. In this case of agriculture sector the largest share belongs to France (22%) in the first period, whereas in the second period Netherland is the largest exporter (19.35%). On the other hand in food industry
sector, France still has the largest share on the market in first period (17.77%) but Germany (18.43%) has overtaken and has hold higher shares.

Our particular conclusion is that the countries with highest EMS don't have to be specialized in both sectors, and it is due to the fact of total exports. Moreover EMS in agriculture sector among big countries doesn't show increase in the second period and thus were critical tendency in third period. On the other side growth of EMS in food industry sector in second period has belonged only to Germany, and a little bit growth of EMS has been seen in the third period for other countries (Netherland, Germany, Italy and Spain).

For the CEEC’s countries after entry into EU we may say that in EMS they have an expansion in both sectors, also during the economic crisis but regardless of Cyprus and Malta. In fact there is a strong competitiveness between each other. In several countries of CEEC’s the export competitive performance has increased during economic crisis in agriculture sector (Bulgaria, Slovenia, Slovakia, Lithuania, Latvia, Czech Republic and also Estonia). On the other side of food industry sector the growth in export competitiveness during the economic crisis and countries which suffered belongs to Poland, Malta, Hungary and Cyprus. According to data Croatia after the entry in EU is more export competitive in agriculture sector rather than in food industry sector.

3.1 Education

The analysis of the EMS we have chosen to divide our data, which came from Eurostat Database, into three time periods: the first period is from 2000-2003 for EU-15 member states, the second period is from 2004-2009 for EU-27 member states, because of the fact that in 2004 came into EU another ten member states and the last two member states came in the year 2006. We also examine how the economic crisis may have an effect on export performance in 2008. The last period is from 2010-2015 where in 2013 have joined the last member state Croatia. Finally, we point out in the graphs the development tendency for each period of selected states of EU. We have divided mainly those periods because of the fact that it is possible to better analysed their export competitive performance and we also give to the fore the economic crisis.

3.2 EMS Big Countries

The EMS in agriculture sector and food industry sector of big countries includes seven countries. Based on the calculation of Eurostat Database and unifications of values we make a table (Table 2 and Table 3) of big countries and split them into three periods.
Table 2 **EMS of Big Countries in agriculture sector**

| Big Countries | 2000 - 2003 | 2004 - 2009 | 2010 - 2015 |
|---------------|-------------|-------------|-------------|
| France        | 22,00%      | 17,33%      | 14,81%      |
| Spain         | 21,17%      | 17,52%      | 17,14%      |
| Netherland    | 19,86%      | 19,35%      | 19,33%      |
| Belgium       | 10,71%      | 9,36%       | 7,85%       |
| Italy         | 8,15%       | 7,30%       | 6,61%       |
| Germany       | 8,03%       | 9,36%       | 8,14%       |
| Luxembourg    | 0,22%       | 0,20%       | 0,14%       |

**Source:** Author’s own calculations based on Eurostat Database in International Trade.

The result in EMS agriculture sector of big countries (Table 2) we may conclude that in the first period France, Spain and Netherland hold the highest market share. Consequently Belgium, Italy and Germany have lower market share in agriculture sector. Despite of those countries only Luxembourg has in the agriculture sector the lowest export market. If we compare it with the second period, in France and Spain EMS decrease about few % and thus Netherland became the biggest holder in agriculture sector as well as in third period. We may contribute (in Table 2) that during the economic crisis the EMS of several big countries have fallen and only Netherland was trying to keep their EMS in agriculture sector in the last period. The progress of big countries in agriculture sector of EMS we conclude in the Figure 1.

**Figure 1 Progress in agriculture sector of Big Countries**

**Source:** Own Processing based on Eurostat Database in International Trade.
We may contribute (Table 3) neither the result in EMS food industry sector of France, Belgium and Italy didn't change excessively nor their position. The most serious change belongs to Germany for which the change became in food industry sector and increase during all three periods. The second change belongs to Spain for which it is an opposite, while that country holds the second largest EMS in agriculture sector. The progress of EMS in food industry sector of big countries is shown in Figure 2.

Table 3 EMS of Big countries in food industry sector

| Big Countries | EMS Food Industry |
|---------------|------------------|
|               | 2000 - 2003 | 2004 - 2009 | 2010 - 2015 |
| France        | 17,77%      | 14,47%      | 12,46%      |
| Netherland    | 17,09%      | 15,29%      | 15,40%      |
| Germany       | 16,77%      | 18,43%      | 18,73%      |
| Belgium       | 11,23%      | 9,59%       | 9,01%       |
| Italy         | 7,55%       | 7,42%       | 7,55%       |
| Spain         | 6,46%       | 6,26%       | 6,41%       |
| Luxembourg    | 0,36%       | 0,31%       | 0,34%       |

Source: Author´s own calculations based on Eurostat Database in International Trade.

Figure 2 Progress in food industry sector of Big Countries

Source: Own Processing based on Eurostat Database in International Trade.

Our analysis indicates that in the intra-EU trade, the highest EMS we consider in big countries, which possess exactly 90.14% of agriculture sector in EMS and 77.23% of food industry in EMS. In this case of agriculture sector the largest share belongs to France (22%) in the first period, whereas in the second period
Netherland is the largest exporter (19.35%). On the other hand in food industry sector, France still has the largest share on the market in first period (17.77%) but Germany (18.43%) has overtaken and has hold higher shares.

France has lost its competitive performance after second and third period in both sectors. Our particular conclusion is that the countries with highest EMS don’t have to be specialized in both sectors, and it is due to the fact of total exports. Moreover EMS in agriculture sector among big countries doesn’t show increase in the second period and thus were critical tendency in third period. On the other side growth of EMS in food industry sector in second period has belonged only to Germany, and a little bit growth of EMS has been seen in the third period for other countries (Netherland, Germany, Italy and Spain).

### 3.3 EMS CEEC’s countries

The EMS in agriculture and food industry sector of CEEC’s countries includes thirteen countries. It was composed from twelve member states of EU till the year 2012. However Croatia has joined in 2013 as the last member state. Based on our calculations of Eurostat Database and unification of values we make tables (Table 4 and Table 5) of CEEC’s countries and split them into two periods.

#### Table 4 EMS in agriculture sector of CEEC’s countries

| EMS Agriculture | CEEC’s | 2004 - 2009 | 2010 - 2015 |
|-----------------|--------|-------------|-------------|
| Poland          | 2.83%  | 3.16%       |
| Hungary         | 2.64%  | 3.30%       |
| Czech Reup.     | 1.31%  | 1.83%       |
| Romania         | 0.88%  | 2.06%       |
| Slovakia        | 0.78%  | 1.27%       |
| Bulgaria        | 0.57%  | 1.78%       |
| Lithuana        | 0.48%  | 0.72%       |
| Latvia          | 0.18%  | 0.51%       |
| Slovenia        | 0.17%  | 0.45%       |
| Cyprus          | 0.15%  | 0.10%       |
| Estonia         | 0.09%  | 0.19%       |
| Malta           | 0.01%  | 0.00%       |
| Croatia         | ------ | 0.22%       |

*Source: Author’s own calculations based on Eurostat Database in International Trade.*
The result in EMS agriculture sector of CEEC’s countries (Table 4) we may say that those countries have hold the lowest EMS compare with either big countries. Only first three countries such as Poland, Hungary and Czech Republic have EMS greater than 1%. During all periods their EMS have increased. In Romania the export market share rapidly increased in third period and thus gained the third position of CEEC’s countries in agriculture sector. The lowest holder of EMS in agriculture sector is Malta (almost closed to 0%). For Croatia the data were not available because it was not yet a part of EU. In third quartile when Croatia became a part of EU has hold just 0.22% of EMS. The progress of EMS in agriculture sector is shown in Figure 3.

Figure 3 Progress in agriculture sector of CEEC’s countries

Source: Own Processing based on Eurostat Database in International Trade.

Table 5 EMS in food industry sector of CEEC’s countries

| EMS Food Industry | CEEC’s | 2004 - 2009 | 2010 - 2015 |
|-------------------|--------|-------------|-------------|
| Poland            | 2,94%  | 4,69%       |
| Hungary           | 1,27%  | 1,66%       |
| Czech Reup.       | 1,10%  | 1,59%       |
| Romania           | 0,69%  | 0,94%       |
| Slovakia          | 0,43%  | 0,60%       |
| Bulgaria          | 0,24%  | 0,48%       |
| Lithuanua         | 0,22%  | 0,28%       |
| Latvia            | 0,20%  | 0,28%       |
| Slovenia          | 0,17%  | 0,52%       |
We may conclude (Table 5) that the results in agriculture sector and the results in food industry sector approximately did not change. Poland, as a part of CEEC’s countries, has the highest export market share in both sectors and it seems rapidly increasing in food industry sector. A little bit increase in food industry rather than in agriculture sector is characterized for each countries. The data are not available for Croatia in second period because of the fact that it wasn’t a part of EU yet. After they have joined in 2013 their EMS is a little bit lower than in agriculture sector. Despite of economic crisis which started in 2009, EMS in food industry sector of each CEEC’s countries has increased. If we compare CEEC’s countries with big countries in both sectors, our opinion is that they have been at least influenced by economic crisis. The progress in food industry sector of CEEC’s we consider in Figure 4.

Figure 4 Progress in food industry sector of CEEC’s countries

Source: Author’s own calculations based on Eurostat Database in International Trade.
4 Conclusion

The aim of work was to evaluate the export competitive performance at a sector level in intra-EU trade within the period of last fifteen years, which have been divided into three basic periods. Also we assessed an effect of EU expansion and economic crisis.

We could say that there is a relationship between agriculture and food industry sector concentrate in intra-EU market. Several countries play a key role in exporting. France and Netherland are holders of the highest export market share in agriculture sector, while according to our calculations in food industry sector Germany has hold higher export market share. Countries such as Spain, France, Netherland and Italy have the largest comparative advantage in agriculture. However in food industry sector Germany, Luxembourg and Belgium have higher comparative advantage. It seems that there is a relationship between agriculture sector and food industry sector, which are interconnected. However they don’t have a similar tendency in export performance and thus we couldn’t examine which one is pushing or pulling to the other one.

Our analysis showed that the CEEC´s countries after an entrance into the European Union, were competitive and have had high comparative advantage in agriculture sector. It is clear that during the economic crisis might be a decline in their values, but in several cases we observed a positive effect.

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