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## V4 countries' agricultural sector evaluation in terms of competitive advantage

### Abstract

A market economy is a competitive economy, and therefore, competition is considered as an important part of economic activity. A simple economic analysis and economic experiences show that the development of national economies is historically dependent on the success of domestic producers and their skills to effectively compete in international markets. The issue of business efficiency in the countries of the Visegrad Group (V4) arose in the period of their economic transformation and preparation for their accession to the European Union. After these countries' entering the European Union, the benefits associated with the liberalization of their mutual trade exchange were introduced. The aim of this paper is to evaluate competitiveness of the agricultural sector in the V4 countries in terms of their competitive advantage in foreign trade. To evaluate competitiveness depending on the defined objective, we have chosen the revealed Comparative Advantage Index (RCA), which is a widely used indicator with good interpretation ability. The undertaken research for the 2004-2013 period has shown that Hungary, followed by Poland, is the most competitive of the V4 countries in relation to international agri-trade.

**Keywords:** Competitiveness; Competitive Advantage; Agricultural Sector; V4 countries; RCA Index

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### Оцінка сільськогосподарського сектору країн Вишеградської групи з точки зору конкурентних переваг

#### Анотація.

Ринкова економіка – це конкурентоздатна економіка, отже, конкуренція є важливою частиною економічної діяльності. Економічний аналіз і досвід економічного життя показують, що розвиток національних економік історично залежить від успіху вітчизняних виробників та їхньої здатності ефективно конкурувати на міжнародних ринках. Питання ефективності господарювання в країнах Вишеградської четвірки (V4) було порушено в період трансформації економік цих країн та підготовки до їхнього входження до Європейського Союзу. Однією з переваг вступу цих країн до ЄС стала лібералізація торгівлі. Метою цієї статті є оцінка конкурентоспроможності сільськогосподарського сектору в країнах V4 з точки зору їх конкурентних переваг у зовнішній торгівлі. Аналіз показав, що найбільш конкурентоздатною країною з усіх країн Вишеградської групи є Угорщина, а друге місце займає Польща.

**Ключові слова:** конкурентоспроможність; конкурентна перевага; сільськогосподарський сектор; Вишеградська група; індекс ВПП.

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**Оценка сельскохозяйственного сектора стран Вышеградской группы с точки зрения конкурентных преимуществ**

**Аннотация.** Рыночная экономика – это конкурентоспособная экономика, следовательно, конкуренция является важной частью экономической деятельности. Экономический анализ и опыт экономической деятельности показывают, что развитие национальных экономик исторически зависит от успеха отечественных производителей и их способности эффективно конкурировать на международных рынках. Вопрос об эффективности хозяйствования в странах Вышеградской четверки (V4) был поднят в период трансформации их экономик и подготовки для вступления в Европейский Союз. Одним из преимуществ вступления этих стран в ЕС стала либерализация торговли. Целью данной работы является оценка конкурентоспособности сельскохозяйственного сектора в странах V4 с точки зрения их конкурентных преимуществ во внешней торговле. Анализ показал, что наиболее конкурентоспособной страной из всех стран Вышеградской группы является Венгрия, а второе место занимает Польша.

**Ключевые слова:** конкурентоспособность; конкурентное преимущество; сельскохозяйственный сектор; Вышеградская группа; индекс ВСП.

**Introduction**

The concept of competitiveness has always been a subject of high interest for both researchers and people involved in the pursuit of practical activities. A market economy is a competitive economy and therefore the different types of theories consider competition as an important part of economic activity. The importance of competitiveness can be explained by ongoing processes of integration and globalization and therefore its growth is necessary (Reinjal, 2000) [1]. The concept of free competition is one of the pillars of the liberal economic model, which demonstrated acceptable results for the economies of some developed capitalist countries in the industrial age (Cherleniak, 2014) [2]. A simple economic analysis and economic experiences show that the development of national economies is historically dependent on the success of domestic producers and their skills to effectively compete in international markets. Due to the development of international business environment and the increasing pressure of globalization, the phenomenon of competitiveness has achieved the increasing importance (Balaz, Hamara, 2012) [3].

The term *competitiveness* has been defined by many researchers as a multi-dimensional and relative concept. It comes from the Latin word «competer», which implies participation in commercial rivalry in the market. This term has never been rigorously defined in the economic literature, thus it has several different meanings (Ambasatha, Momaya, 2004) [4]. The definition given by the European Commission, which describes competitiveness as «*the ability of companies, industries, regions, states and transnational areas exposed to international competition to create a relatively high level of income and employment*» is considered to be generally accepted (European Commission, 1999) [5].

According to Grancay (2014) [6], the principle of comparative advantage is an unbelievably simple, yet counter-intuitive law with strikingly profound implications for trade theory and policy. In its most basic form, it shows that even if a country has an absolute advantage in producing all goods, it will still be better off if it participates in international trade and imports some of the goods. It produces comparatively less efficiently in exchange for the goods it produces most efficiently.

The V4 countries (the Czech Republic, Hungary, Poland and Slovakia) represent a particular group of countries located in the center of Europe. These countries have very intense historical, economic and political relations. In recent years, they have undergone a dramatic transformation that has significantly affected the structure of their economies, including agriculture and trade in agricultural products (Svatos & Smutka, 2014) [7]. The issue of efficiency in the Slovak Republic as well as in the other countries of the Visegrad Four arose in the period of transformation of their economies and preparation for their accession to the European Union. With the accession of these countries to the European Union, there appeared benefits associated with the liberalization of their mutual trade exchange and the estab-

lishment of support systems provided by the Common Agricultural Policy. The new member states have tried and are still trying to maintain stable positions in the agri-food markets of the EU, with a result of increased competitive pressure (Matoskova, 2007; Bujnakova, 2010) [8,9].

According to Matoskova and Galik (2013) [10], the issue of competitiveness of the agricultural and food sector for preservation of its viability is key and highly topical issue. A necessary step is therefore to identify the actual degree of competitiveness of agro-food commodities in the V4 countries, including an analysis of the factors and causes that lead to a given status.

**Materials and Methods**

The aim of this paper is to evaluate the competitiveness of the agricultural sector in the V4 countries in terms of their competitive advantage in foreign trade.

There are several approaches to the expression of competitiveness, which proves the existence of a number of methods for its evaluation. The selection of the appropriate assessment method of competitiveness in international trade depends on the availability of input data and mainly on the objective, which we observe in the analysis (Matoskova, Galik, 2013) [10].

To evaluate competitiveness which depends on the defined objective, we have chosen the Revealed Comparative Advantage Index (RCA), the most widely used indicator with good interpretability. By Matoskova and Galik (2013) [10], it is especially useful in the assessment of competitiveness of the agro-food trade of one country compared to the assessment of the agro-food trade of the other. The competitiveness based on an indicator of revealed comparative advantages (RCA) has also been evaluated by many authors, such as Bobakova and Heckova (2007) [11]; Bujnakova (2010) [9]; Kravcakova Vozarova (2013) [12] and others.

The Revealed Comparative Advantage Index (RCA) has the following form:

$$RCA = \ln \left( \frac{\left( \frac{x_{ij}}{m_{ij}} \right)}{\left( \frac{X_j}{M_j} \right)} \right),$$

where

$x_{ij}$  – export of the country  $j$  in the commodity group  $i$ ;

$m_{ij}$  – import of the country  $j$  in the commodity group  $i$ ;

$X_j$  – overall export of the country  $j$ ;

$M_j$  – overall import of the country  $j$ .

If the value is greater than 0, the relevant commodity group will achieve the competitive advantage. If the value is less than 0, the relevant commodity group will be in the comparative disadvantage. If the value is equal to 0, this is neither the comparative advantage nor the comparative disadvantage (Matoskova & Galik, 2013) [10].

In the analysis, we compared the following countries: the Czech Republic (CZ), Hungary (HU), Poland (PL) and Slovakia (SK). The analysis was conducted for the 2004-2013 period. The year 2004 was chosen deliberately. It is the year of the accession of these countries to the European Union and the year when their agricultural sector began to be regulated according to Single Regulatory Framework of the common agricultural policy. The year 2013 is the last year in terms of published data.

In the analytical part, we used secondary data available on the Statistical Office of the European Community (Eurostat).

When measuring of competitiveness, we used standard international trade classification of goods (SITC), which was compiled by the Statistical Office of the United Nations. The competitiveness was measured separately for commodity groups SITC 0 + 1 and commodity groups SITC 2 + 4. The commodity groups were deliberately selected as they represent the commodities covered by the farming sector. The interpretation of commodity groups are as follows: SITC 0 represents Food and live animals, SITC 1 represent Beverages and tobacco, SITC 2 represents Mineral fuels, lubricants and related materials and SITC 4 represents Animal and vegetable oils, fats and waxes.

**Results and Discussion**

Agricultural products meet one of the primary human needs – food. From this perspective, the agriculture cannot be considered as a competitor neither can it be replaced by other industrial branch (Vasile, Grabara, 2014) [13].

According to Milovic (2012) [14], agricultural businesses are facing the question of how to increase sales. The competitive environment in which agricultural organizations are operating forces them to lower the prices of their products or add new services to retain their customers.

Figure 1 shows foreign trade in commodity groups SITC 0 + 1 in the V4 countries. In the first place in trading with these commodities is by a wide margin Poland, followed by Hungary. The third place belongs to the Czech Republic, which reached a negative trade balance in 2011. The Slovak Republic was placed the last/ As a last was placed the Slovak Republic, because the foreign trade in those commodity groups achieved the smallest values. Throughout the whole monitored period, all the four countries achieved a positive balance of foreign trade in the given commodity groups, except the Czech Republic in 2011.

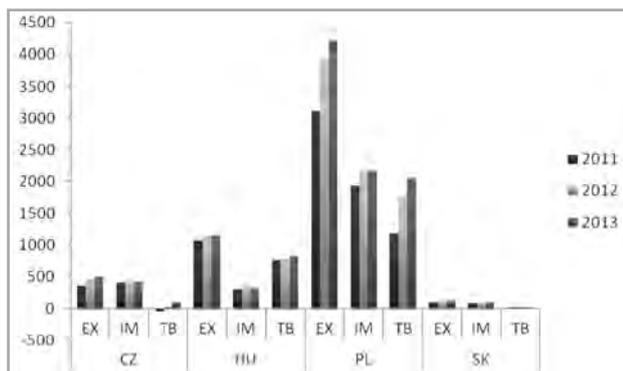


Fig. 1: Foreign trade in V4 countries in commodity groups SITC 0+ 1 (in million EUR)  
Source: Own processing (Eurostat, 2015)

Figure 2 illustrates the competitiveness of the countries of Visegrad Four in commodity groups SITC 0 and SITC 1 for the 2004-2013 period. It indicates that the most competitive country among the four countries is Hungary, followed by Poland. As regards the other two countries, namely the Czech Republic and Slovakia, the results show the negative values. The results of the analysis confirmed that Hungary and Poland reached the comparative advantage in the case of commodity groups «Food and live animals « and «Beverages and tobacco»

throughout the entire period. On the other hand, the Czech Republic and Slovakia reached a longterm comparative disadvantage in the case of these commodity groups. Turning point came in 2011, when they converted the comparative disadvantage to the comparative advantage, with a better result for the Slovak Republic.

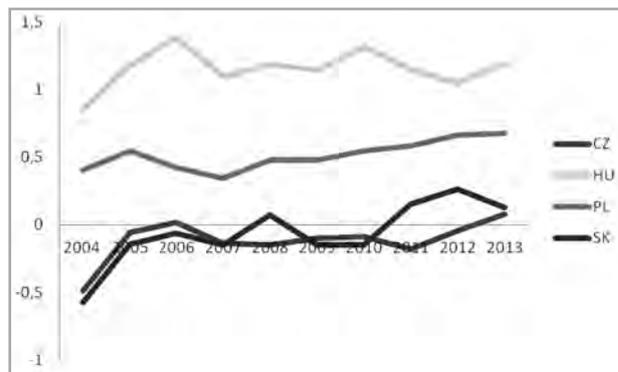


Fig. 2: The competitiveness of the V4 countries in the commodity group SITC 0 + 1 for the period 2004-2013  
Source: Own processing (Eurostat, 2015)

Figure 3 shows the development of foreign trade of commodity groups SITC 2 + 4 in the V4 countries. Poland achieves the largest value in foreign trade. However, it has the long-term negative trade balance because import of these commodities is much larger than export. In the second place is the Czech Republic, with a similar situation as in Poland. The Czech Republic has also negative trade balance due to exceeding imports over exports. Hungary exports more commodities within this group than Slovakia. It also has a better balance of trade compared with the Slovak Republic, but the trade balance is also in the negative zone.

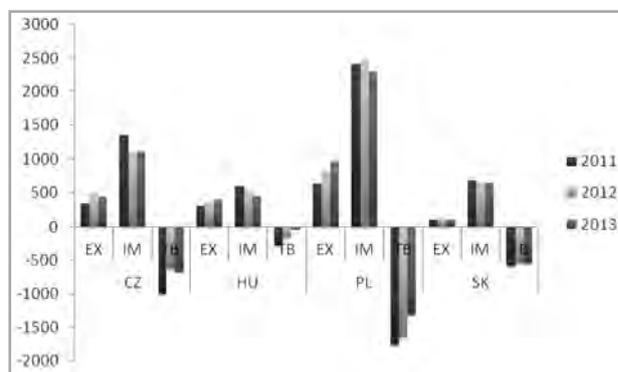


Fig. 3: Foreign trade in the V4 countries in commodity groups SITC 2+ 4 (in million EUR)  
Source: Own processing (Eurostat, 2015)

Figure 4 illustrates the competitiveness of the countries of the Visegrad Four in commodity groups SITC 2 and SITC 4 for the 2004-2013 period. It shows that all the four countries achieved the comparative disadvantage in the commodity groups «Mineral fuels, lubricants and related materials» and «Animal and vegetable oils, fats and waxes». Followed by the Czech Republic and Poland, Hungary has the best position among the four countries. The worst position, which reflects the biggest comparative disadvantage among the four countries, is taken by the Slovak Republic. It means that the Slovak Republic is least competitive in the given field.

**Conclusion**

The analysis showed that Hungary, followed by Poland, is the most competitive country among all the countries of the Visegrad Four. These two countries have achieved the best

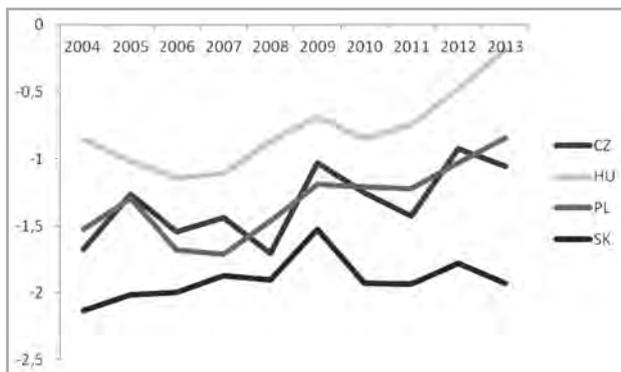


Fig. 4: The competitiveness of the V4 countries in the commodity group SITC 2 + 4 for the 2004-2013 period

Source: Own processing (Eurostat, 2015)

results in the commodity groups «Food and live animals» and «Beverages and tobacco» as well as in the commodity groups «Mineral fuels, lubricants and related materials» and «Animal and vegetable oils, fats and waxes». The Slovak Republic and the Czech Republic lag far behind these countries. In the case of commodity groups «Food and live animals» and «Beverages and tobacco», Slovakia achieved greater comparative advantage, while in the case of commodity groups «Mineral fuels, lubricants and related materials» and «Animal and vegetable oils, fats and waxes» the Czech Republic achieved a relatively better position during the entire period.

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