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COMPETITIVENESS AND COMPARATIVE ADVANTAGES IN BEEF CATTLE SECTOR IN VISEGRAD COUNTRIES

KONKURENCYJNOŚCI I PRZEWAGI KOMPARATYWNE W SEKTORZE BYDŁA W KRAJACH GRUPY WYSZEHRADZKIEJ

Key words: export, import, trade balance, competition, live beef cattle trade

Słowa kluczowe: eksport, import, równowaga handlowa, konkurencyjność, handel żywcem wołowym

Abstract. This paper looks at competitiveness and relative advantages and disadvantages of the foreign trade of live beef cattle within EU27 countries in Hungary, Poland, Slovakia and Czech Republic (V4 countries) between 1999 and 2010. An analysis of the competitiveness of these countries (with RSCA-index) shows relative advantages in Poland and in Czech Republic currently, but in Hungary and in Slovakia there are relative disadvantages in the EU27 live beef cattle market. For Hungary and Slovakia the indicators show a reduction of extent of these disadvantages.

The international trade balances were positive at each studied countries in each studied year. The financial crisis which started at 2008 had negative consequences and caused significant decline reflected in all three applied indicators (RSCA, TB, (M)UVD).

According to classification by Gehlhar and Pick [2002] the quality-based competition was changed for a price-based competition in the studied period in Hungary, in Poland and in the Czech Republic. On the contrary, the price-based competition turned into quality-based competition in Slovakia.

Introduction

The theory of comparative advantages by David Ricardo [1821] explains how the inland and international trade could contribute to greater welfare. The traditional trade theory of Fertő [2003] says: terms of free-trade make some countries to specialise for different products and they became net exporter. These products are made comparative advantage.

The phasing-out of trade limits makes more emphatic the distribution of adequated production factors and the built-up of competitive and sustainable economy in the future in the international integration (like European Union). The regional politic is taken the most important intention is competitiveness expansion in the EU. Its most important implements are the development and the cohesion [Lengyel 2000]. According to Weindelmaier [1999] the competitiveness of food industry indicates a permanent and successful internal and external trade.

The measuring of comparative advantages is difficult in the practise. Numerous researchers tried to make abstraction of comparative advantages and disadvantages. Balassa published the RSC-index first in 1965 then a number of persons used to make studies [Vollrath 1991, Laursen 1998, Fertő, Hubbard 2001, Jámbor 2009].

Deardoff [1980] says: to determine the comparative advantage of a country is enough to notice the difference between the self-sufficient prices and free-trade prices. If this difference is positive the examined country has comparative advantage in the production and the export in case of examined product. If the difference is negative the country has a comparative disadvantage. At the same time the making numeric data is difficult because relative prices do not indicate comparative advantages totally.

Examinations have numerous alternatives. It is possible to heed value of export or import, as well as to examine production data or these any combination [Fertő 2003].

Materials and methods

In our study Eurostat database was used for data collection. The examined period was between 1999 and 2010 used five-digit SITC level. The main observed parameter was the live beef cattle trade within the foreign trade. Data contains adequate information about external trade of "pure-bred breeding" and "other than pure-bred breeding" cattle, too.

Three main methods were applied. First is the classical Reveal Comparative Advantage (RCA):

$$RCA_{ij} = \frac{\frac{EX_{ij}}{EX_{nj}}}{\frac{EX_{it}}{EX_{nt}}} \quad (1)$$

where:
EX – export,
i – country i,
j – commodity j,
n – EU27 countries,
t – all commodities.

If the value of RCA index takes a greater value than 1, the country has revealed comparative advantage in that product and vice versa.

The RCA index was criticized because of its asymmetric values [Fertő 2003] so I used its corrected form by Laursen [1998] RSCA (Revealed Symmetric Comparative Advantage).

$$RSCA = \frac{RCA - 1}{RCA + 1} \quad (2)$$

The value of RSCA ranges from -1 to 1. The interpretation of the results is the following: if the value of RSCA is positive, the country has revealed comparative advantage in that product. The higher value of RSCA means greater advantage is – and vice versa.

Finally, the third method has been presented by Gehlhar and Pick [2002] and called Unit Value Difference (UVD):

$$UV_{ij}^{EX} = \frac{EX_{ij}}{Q_{ij}^{EX}} \quad (3)$$

$$UV_{ij}^{IM} = \frac{IM_{ij}}{Q_{ij}^{IM}} \quad (4)$$

$$UVD_{ij} = UV_{ij}^{EX} - UV_{ij}^{IM} \quad (5)$$

where:
UV – unit value,
IM – import,
the other symbols mean the same as in equation 1.

A positive UVD means that the export unit value exceeds the import unit value. According to the result of UVD and the effect of the product on Trade Balance (TB) the following classification could be made:
1st category: UVD < 0 and TB > 0   success in price competition,
2nd category: UVD > 0 and TB < 0   fail in price competition,
3rd category: UVD > 0 and TB > 0   success in quality competition,
4th category: UVD < 0 and TB < 0   fail in quality competition.

The disadvantage of UVD is that only two countries can be compared with two-way. In order to dissolve this assumption, the original UVD was modified as shown below:

$$UV_{ij}^{EX} = \frac{\sum (UV_{ij}^{EX} \cdot Q_{ij}^{EX})}{\sum Q_{nj}^{EX}} - \frac{\sum (UV_{ij}^{IM} \cdot Q_{ij}^{IM})}{\sum Q_{nj}^{IM}} \quad (6)$$

The MUVD demonstrate the trade balance within the studied countries (EU). It shows the average export and import prices. Prices were weighed by the trade unit. However, it should be noted that the interpretation is slightly differ from UVD due to the greater number of trade partners. The Modified Unit Value Difference (MUVD) reflects the gap between average export unit value and average import unit value of one selected commodity among several countries (EU27 in this case). The symbols in equation 6 are the same as in previous equations.

Results and discussion

Figure 1 shows how live cattle intended for slaughter comparative advantages were changed (RSCA index). Hungary and Slovakia have a comparative disadvantage in production but this disadvantage has decreased significantly during the years – in 2001 and 2008 there was comparative advantage in Hungary. Contrary, Poland has a decreasing trend in RSCA value since 2006, but still has a positive value. Czech Republic had comparative disadvantage until 2004 and it have advantage since 2005.

The connecting to the EU has improved the international competitiveness of beef cattle farms in Hungary, Slovakia and Czech Republic. The subsidies are clearly reflected in improving RSCA-index between 2004 and 2008. However, this improvement has not compensated the negative effects of the financial crisis started in 2008.

The RSCA index did not provide enough information about the competitiveness of the selected countries so MUVDs were also calculated for live cattle sector (Fig. 2). MUVD shows (Fig. 2) the gap between the average export price/unit and the average import price/unit. The figure 2 shows the MUVD values of V4 countries represented a negative trend from 1999 to 2007 expect Poland. Poland shows negative trend in the analyzed period. This means that these countries tended to import outsell than to export in this period. After 2007 Hungary and Slovakia has managed to reverse this trend and the price gap between export and import of bovine has approached zero again. There was a touch bottom in Czech Republic in 2008 because an expensive import from Slovakia.
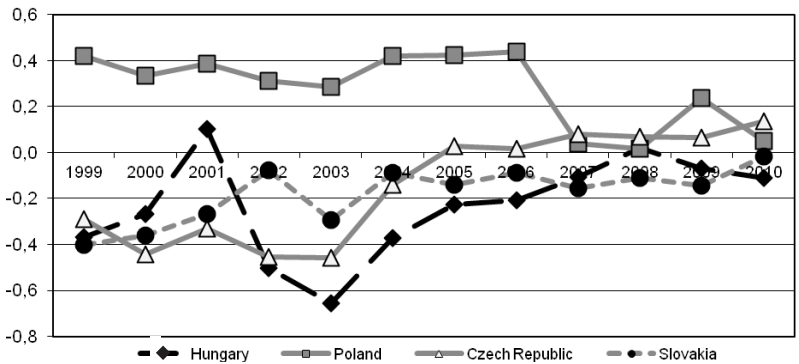

Figure 1. The RSCA index in the V4 countries from 1999 to 2010
Rysunek 1. Indeks RSCA dla krajów 4V w latach 1990-2010
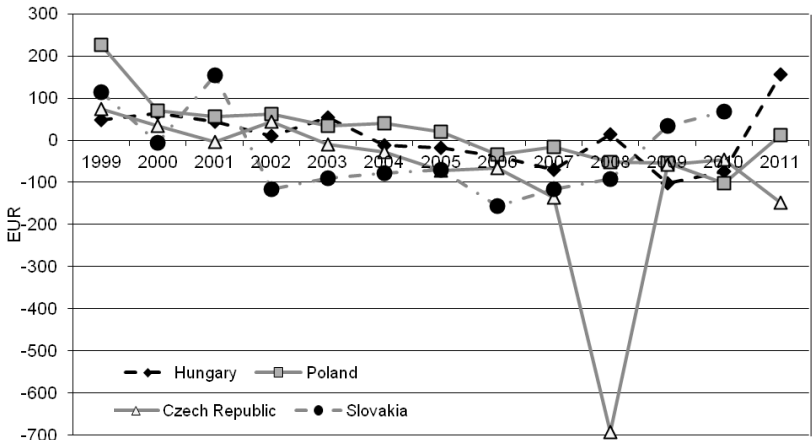Source: own study
Źródło: opracowanie własne

Figure 2. MUVD index in V4 countries (1999-2010)
Rysunek 2. Indeks MUVD dla krajów 4V w latach 1990-2010
Source: own study
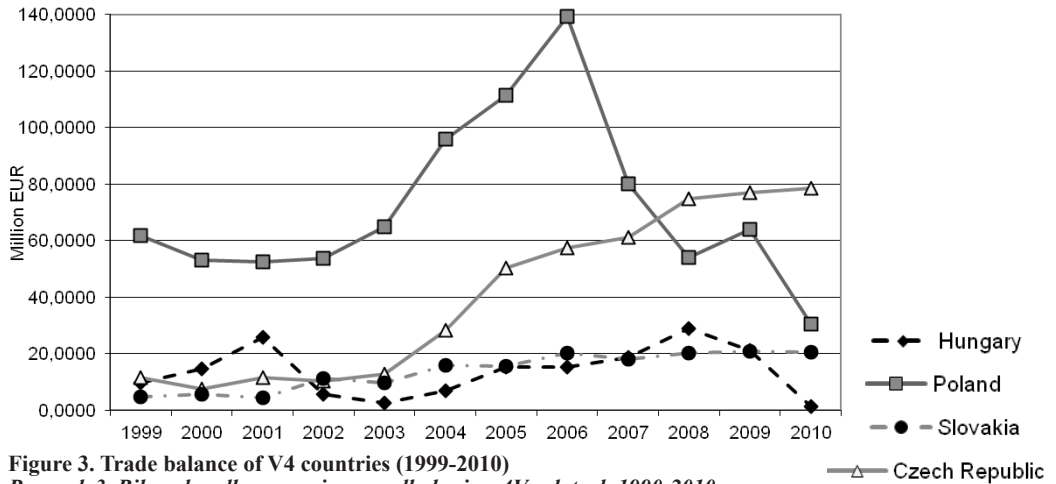*Źródło: opracowanie własne*

Figure 3. Trade balance of V4 countries (1999-2010)
Rysunek 3. Bilans handlu zagranicznego dla krajow 4V w latach 1990-2010
Source: own study
Źródło: opracowanie własne

As figure 3 shows above trade balances of V4 countries were positive during the examined period. The greater positive trade balance is observable in case of Poland between 2003 and 2009. This peak was caused by a price increasing of bovines in that period. As well, the increased trend of trade balance of bovine trade for Czech Republic was caused by both the increasing export price and the increasing quantity.

According to the categorization provided by Gehlhar and Pick [2002] which helps to classify the competitiveness of Bovine production, it could be said that the formerly successful quality competition has turned into successful price competition in V4 countries during the examined period.

Conclusion

Only Poland had comparative advantage of the foreign trade in live cattle intended for slaughter during the examined period (from 1999 to 2010). Slovakia and Hungary had mostly comparative disadvantage, while in Czech Republic the comparative advantage has appeared from 2005 in the examined period.

The adaptation of CAP has improved the international competitiveness of beef cattle farms. However, this improvement has not compensated the negative effects of the financial crisis in Hungary and in Poland. The subsidies are clearly reflected in improving RSCA-index between 2004 and 2008 as it can be seen in the case of Hungary, Slovakia and Czech Republic. The adaptation and the continuous decreasing of subsidies and the open up of international market (toward EU) could make distortion effect so the results have to manage with reservation. The policy of subsidies makes the differences between the EU member states which will be equalized in time and then the differences will be shown in the distinction of production.

The (M)UVD analysis has demonstrated that the unit value between export and import has decreased in time. In the examined period the average export price/unit is lower than the average import price/unit in the most cases. However this tendency turned round in Slovakia in 2009 and 2010.

According to the categorization by Gehlar and Pick (2002) it can be said that the formerly quality-based competition is gradually substituted by price-based competition during the examined period as for Hungary, Poland and Czech Republic. Slovakia became effective quality-based competition in the years of 2009 and 2010.

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Streszczenie

W artykule podjęto tematykę konkurencyjności oraz względnych przewag w handlu zagranicznym żywca wołowego w krajach Grupy Wyszehradzkiej (Węgry, Polska, Słowacja i Czechy) w latach 1999-2010. Analiza konkurencyjności tych krajów (z RSCA-index) pokazuje obecnie względne korzyści w Polsce i w Czechach. Na Węgrzech i na Słowacji wykazano względne pozycje niekorzystne, jednak z trendem malejącym.

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