

ASSESSMENTS AND DYNAMICS OF TRADE SPECIALIZATION OF AGRI-FOOD PRODUCTS EMPIRIC EVIDENCES FROM ROMANIA

Mirela-Adriana Rusali

Institute of Agricultural Economics, Romanian Academy, Bucharest, Romania

E-mail: m.rusali@yahoo.com

Abstract

Research has focused on the analysis of the Romania's agri-food comparative advantages based on the indices of trade specialization assessed pre- and post-accession to the EU. The method of calculation of the specialization degree index used the original Lafay index adapted on the agricultural sector. The index allows the assessment of the contribution of each product in relation to the corresponding importance in trade, which provides the ranking of products by their level of competitiveness on the international markets. The index measures the contribution of each Romanian agricultural product, aggregated by the chapters of the Combined Nomenclature at 2 digit aggregation level, to the total agri-food trade, within the period 2004-2010. The research results indicate, for the analyzed period, a decrease of the specialization level and a loss in trade diversification of the Romanian products. The detailed results provide a hierarchy of the agri-food products in relation to the highest specialization level demonstrated in Romania's foreign trade relations.

Key words: agri-food trade, competitiveness, specialization index.

Introduction

Several methods frequently used in the analysis of foreign trade models are based upon the calculation of the trade comparative advantage indices, relevant for the assessment of competitiveness of certain products or economic sectors, in relation to the structure and evolution of commercial flows, or of the specialization level of traded products. A wide literature in the domain has been developed (Banse et al, 1999; Brasili, 2008; Gorton and Davidova, 2001). Competitiveness is a relative concept, for the reason that being determined by endogenous and exogenous factors, to whom depends how well the economic sectors/entities/products perform comparing to international competitors, will have any influence on it. On one hand, improving competitiveness relates to the use of own resources to amplify the value of output, on the other hand, factors such as policies and financial mechanisms, for instance, the exchange rate, belong to the broader macroeconomic context. As no country could be a net exporter in all the products (Porter, 1990), the benefits of international trade reside in providing the needed goods. Product specialization should take place where the country is relatively more productive, while imports, in less productive than foreign trade partners.

Within this framework of ideas, research objective was to identify the advantages, or disadvantages, of the Romanian agri-food products on international markets, based upon the method of evaluation the specialization level of traded products. The appraisal of the level of specialization is a commonly used method in the foreign trade studies, as the indices are relevant for the assessment of competitiveness of certain products, or economic sectors, in

relation to the structure and evolution of commercial flows. Thus, the empirical results reside in assessments of Romania's competitiveness in external agri-food trade experienced in the period pre-and post-EU accession. The investigations highlight the opportunities of products with expressed export potential, respectively, the sensitive areas affected by net imports of product groups, aiming to contribute to the improvements in the national sector performance in the context of growing competition of foreign producers.

Methodology of Research

The present research was based upon the calculation of the Lafay index that measures the specialization degree of a certain country in a certain sector. According to previous authors (Zaghini, 2003; Latruffe, 2010), the method of appraisal the commercial advantages of a country or sector in the foreign trade can be used to analysis its external competitiveness. The revealed comparative advantage is the most frequently used indicator in the domain literature as being the methodological support for the assessment of the comparative commercial advantage of a country, or of the specialization level of products from a certain country in its commercial relations. The index was proposed by Balassa (Balassa, 1965), based upon the analysis of trade patterns from different countries and measures the exports of a country for a certain product, in relation to its total exports and to the corresponding export performance of the countries with which it has trade relations. This index offers the possibility to identify whether a certain country has a comparative advantage for certain products however without determining the sources of the comparative advantage. The main constraint in using this index stems from the fact that this has a partial relevance because it does not take into consideration the imports, mainly in the case when these have a significant share in the trade of the respective country (Greenaway and Milner, 1993).

The Lafay index has a larger coverage area, as in its original form it takes into consideration the trade shares in each sector in relation to GDP, but it can assess the contribution of each product in relation to the corresponding importance in trade: the comparative advantage of a country i in producing a product j is measured by the share of trade balance of product j in total trade, multiplied by the share of total trade of product j in total country trade.

The specialization index gives the possibility to thoroughly assess the comparative advantages, taking into consideration both the export and import flows and the differences between the trade balances of each product compared to the total trade balance. The positive values of Lafay index reveal the existence of comparative advantage for a certain product j . The higher the value of the index, the higher is its specialization level or the comparative advantage. The negative values reveal a comparative disadvantage (without meaning that the sector is not important for the national economy). The index representativeness and the distortions of the analysis depend upon the data aggregation level. The method has been used to evaluate the level of specialization of Romanian agri-food products in the international trade relations. In such purpose, the index has been adapted to measure the contribution of each Romanian agricultural product, at 2 digit aggregation level corresponding to the Combined Nomenclature (CN), to the total agri-food trade. The study-case material was based on empirical evidences of Romania's agri-food trade flows within the period 2004-2010, using the EUROSTAT trade statistics database retrieved from <http://ec.europa.eu/trade>.

Results of Research

During the previous two decades, the performance of the Romanian agri-food sector has been influenced by changes in the sector brought about by the internal reforms of political transition to market economy, restructuring and institutional adjustments needed for the CAP adoption and integration into the common market arising from EU membership. In the period 1999-2006, Romania was on the way of intense preparation of its accession to the EU. Under the influence of the developments in the domestic economy subsequent to the accession, the period 2007-2009 was reflected in the country's foreign trade by an intensification of both import and export flows, yet Romania remaining a net agri-food importer since 1990. The total agricultural trade experienced a 44% growth compared to 2007, i.e. from 4.4 to 6.4 billion Euro in 2008 and 6 billion Euro in 2009.

In the pre-accession period, the agri-food trade between Romania and the Member States developed under the influence of the European Agreement on agriculture and EU became Romania's main trade partner. In 2007 Romania obtained the membership status, while the agri-food exports on the intra-Community market contributed to the increase of 9.7% in the gross value added in Romania's agriculture.

Results of research provide evaluations and dynamics of the trade specialization of Romanian agricultural and food products. The calculation of the Lafay index, adapted on the agricultural sector, allows ranking the products with most comparable advantages on the foreign markets. Table 1 presents the indices calculated on products aggregated by chapters of NC, in the period 2004-2010.

Table 1. Values of the trade specialization index of Romania's agri-food products (2004-2010).

| CN Code - Denomination | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|--|-------|-------|-------|-------|-------|-------|-------|
| 01 - Live Animals | 8.62 | 7.36 | 6.39 | 5.60 | 2.35 | 2.45 | -3.96 |
| 02 - Meat and edible meat offal | -5.30 | -8.69 | -7.86 | -5.54 | -7.12 | -4.75 | 0.78 |
| 04 - Dairy produce | 1.35 | 0.76 | 0.62 | -0.66 | -1.74 | -1.51 | -0.42 |
| 05 - Products of animal origin | 0.09 | -0.17 | -0.17 | -0.19 | -0.26 | -0.30 | -0.09 |
| 06 - Live trees and other plants | -0.23 | -0.39 | -0.54 | -0.58 | -0.94 | -1.00 | -0.03 |
| 07 - Edible vegetables, roots, tubers | 1.62 | 1.58 | 0.36 | -0.24 | -0.63 | -0.91 | -0.67 |
| 08 - Edible fruits & nuts | 0.39 | -0.41 | -0.92 | -1.54 | -1.47 | -1.36 | -0.90 |
| 09 - Coffee, tea, mate & spices | -1.32 | -1.45 | -1.41 | -1.03 | -1.28 | -1.37 | -0.07 |
| 10 - Cereals | -2.03 | 4.69 | 5.92 | 2.00 | 10.59 | 10.11 | 3.91 |
| 11 - Products of the milling industry | -0.86 | -0.49 | -0.71 | -0.95 | -0.98 | -0.73 | 0.15 |
| 12 - Oil seeds & oleaginous fruits | 3.88 | 3.69 | 7.05 | 5.27 | 8.11 | 4.96 | -0.68 |
| 13 - Lacs, gums, resins, o. veg. saps | -0.11 | -0.13 | -0.15 | -0.13 | -0.17 | -0.17 | -0.01 |
| 14 - Vegetable products n.e.s. | 0.10 | 0.09 | 0.11 | 0.06 | 0.02 | 0.01 | -0.09 |
| 15 - Animal or vegetable fats & oils | 2.88 | 2.40 | 1.38 | 0.63 | 0.27 | -0.82 | -0.47 |
| 16 - Preparations of meat | 0.66 | 0.48 | 0.53 | 0.34 | 0.12 | 0.02 | -0.31 |
| 17 - Sugars & sugar confectionery | -2.14 | -2.12 | -2.27 | -1.49 | -2.54 | -2.47 | 0.30 |
| 18 - Cocoa & cocoa preparations | -0.49 | -0.63 | -0.50 | -0.66 | -0.79 | -1.06 | -0.04 |
| 19 - Preps. of cereals, flour, starch etc. | 0.51 | 0.09 | -0.12 | -0.40 | -1.05 | -1.13 | -0.50 |
| 20 - Preps. of vegetables, fruits, plants | -0.18 | -0.35 | -1.20 | -0.94 | -1.38 | -1.16 | -0.23 |
| 21 - Miscellaneous edible prep. | -1.72 | -1.74 | -1.64 | -1.81 | -2.20 | -1.97 | -0.09 |
| 22 - Beverages, spirits & vinegar | 0.92 | 0.44 | 0.02 | 0.05 | -0.24 | -0.57 | -0.51 |
| 23 - Residues & food industry waste | -0.34 | -0.41 | -1.04 | -0.71 | -2.01 | -2.03 | 0.14 |
| 24 - Tobacco & tobacco products | -3.94 | -4.60 | -3.88 | 2.92 | 3.35 | 5.77 | 3.80 |

Source: author's calculations, using EUROSTAT agricultural trade statistics database.

Discussion

As Table 1 presents, Romania's agri-food foreign trade describe a specialization pattern on cereals, live animals, oil seeds, as well pre-accession some produces as fats & oils, vegetables and beverages, corresponding to the products evidenced with highest level of the indices.

The evolution of the indices estimated for the analyzed period shows a decreasing trend of the specialization level and a loss of commercial diversification of the Romanian agri-food products groups for almost all products aggregated by chapters, except for tobacco following the year 2007; as well, positive changes in 2010 on meat, products of the milling industry, sugar and residues of food industry.

Products that have been obtained positive values higher than one in 2004, indicating the rank revealed by the indices, are those belonging to chapters: 01 - live animals (8.6), 12 - oilseeds (3.8), 15 - fats and oils (2.8), 07 - vegetables (1.6), 04 - dairy products, eggs, honey (1.3), 22 - drinks and alcohols (0.92). At the same time, products that maintained their position in the hierarchy, within the period 2006-2009, although with decreasing values of the indices, were those included in chapters 01 - live animals, 14 - other vegetable products, 10 - cereals, 12 - oil seeds and 16 - meat, while 15 - fats and oils, only until 2007.

Figure 1 illustrates the evolution of the indices, useful in designing a dynamic perspective chart, which reflects the main recent changes in Romania's agri-food foreign trade model.

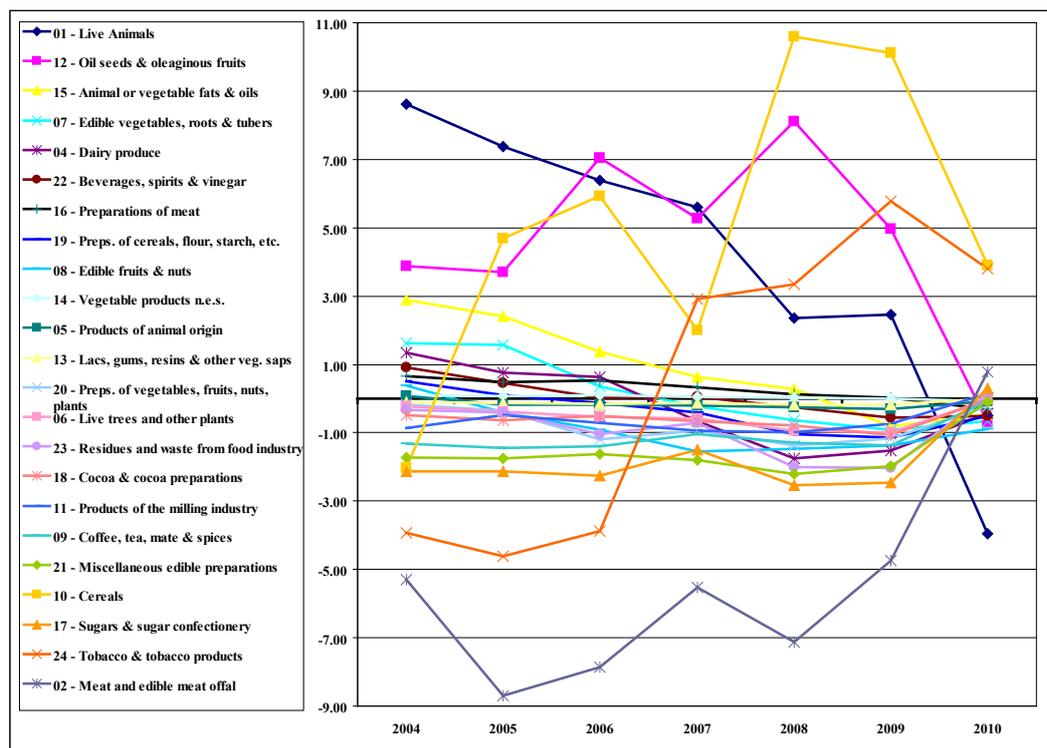


Figure 1: Evolution of trade specialization index of Romania's agri-food products, by chapters of the CN.

Chapter 24 - tobacco and tobacco products, shows a significant start over since 2007, together with the products of chapter 02 - meat, in 2010, although to a lesser extent.

In 2010, the indices obtained the lowest values on the great majority of products, indicating

a loss of commercial advantage compared to some valuable segments of Romania's agri-food sector that previously have proved performances. Thus, as indicated by the assessments, products of chapters 01 - live animals and 12 - oilseeds suffered, in 2010, a dramatic deterioration in their external performance.

As well, concerning the products of chapter 04 - milk, dairy products, whose decline has occurred since 2007, their trends indicate a continued loss of external competitiveness.

Conclusions

The topic discussed help expand scientific approaches to the identification of potential, needs and prospects for increasing competitiveness of food products. Romania's foreign food trade had suffered in the past two decades inflections and periods of decline under the pressure of integration and adaptation to agricultural and trade policies and market competition of more advanced economies. Some of main featuring points were as follows:

- Expansion of imports during the transition and massive decline in exports, in 1990 Romania became deficient in food products, a net importer situation continuing to date, increasing food flows, both on imports and exports, after the first stage trade liberalization since 1997, but widening trade imbalance since 2004, emphasizing the proximity of accession;
Change in annual pre-accession trade has increased more imports than exports, increasing European competition because of the first enlargement to Central and Eastern European countries, but trade creation effect on internal Common Market of EU;
- Low degree of diversification of export products with low prevalence and processing;
- The trend of decreasing imports of food products with a high degree of processing (food, beverages, tobacco), shows that Romania has become deficient as well in agricultural raw materials;
- External competitiveness resulted in decreasing performance of Romanian products, with a strong impact both on the food industry, which requires remodeling market strategies, as well as in agriculture, the changes required by the adoption of the CAP have been increasing the pressure on farmers in facing market developments;

The assessments revealed that certain products with previously expressed export potential, in the post-accession period have suffered an important decline in their commercial specialization, such is the case of live animals and animal products, which, although still have positive trade balance, the net export amounts registered significant declines; the results identified similar loss for oilseeds, milk and dairy products.

References

- Balassa, B. (1965). Trade Liberalization and Revealed Comparative Advantage. *The Manchester School of Economic and Social Studies*, 33, 99-123.
- Banse, M., Gorton, M., Hartel, J., Hughes, G., Köckler, J., Möllman, T., Münch, W. (1999). *The Evolution of Competitiveness in Hungarian Agriculture: From Transition to Accession*. MOCT-MOST Economic Policy in Transitional Economies, 9, 307-318.
- Brasili, C., Fanfani, R., Rastoin, J. L. (2008). *Knowledge, Sustainability and Bioresources in the further Development of the Agri-food System*, Bologna: Ed. BUP.
- Gorton, M., Davidova, S. (2001). The International Competitiveness of CEEC Agriculture. *The World Economy*, 24, 185-200.

- Greenaway, D., Milner, C. (1993). *Trade and Industrial Policy in Developing Countries: A Manual of Policy Analysis*. The Macmillan Press, esp. Part IV Evaluating Comparative Advantage, 181-208.
- Guido van Hofwegen, Gertjan Becx, Joep van den Broek (2005, September). *Drivers for competitiveness in agri-food chains: A comparative analysis of 10 EU food product chains*, (WP4 EUMercoPol) Wageningen.
- Latruffe, L. (2010). *Competitiveness, Productivity and Efficiency in the Agricultural and Agri-Food Sectors*, (Working Paper Number 30) Paris: OECD Publishing.
- Porter, M. (1990). *The Competitive Advantage of Nations*: 20, New York: The Free Press.
- Rusali, M. (2011). *Modelul de comert exterior agroalimentar al Romaniei in perioada 1990-2010. Dinamici si inflexiuni ale competitivitatii sub impactul etapelor de liberalizare* (Working paper, Programul fundamental al Academiei Romane: Eco-economia si dezvoltarea durabila a Romaniei) Institute of Agricultural Economics.
- Zaghini, A. (2003). *Trade Advantages and Specialisation Dynamics in Acceding countries*, (Working Paper Number 249) Frankfurt am Main: European Central Bank.

Advised by Judita Stankutė, SMC "Scientia Educologica", Lithuania

Received: May 07, 2012

Accepted: July 16, 2012

Mirela-Adriana Rusali

PhD, Senior Researcher, Institute of Agricultural Economics, Romanian Academy, Calea 13 Septembrie no 13 sector 5, 050711, Bucharest, Romania.
E-mail: m.rusali@yahoo.com