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## EVALUATION OF THE ROMANIAN AGRICULTURAL PRODUCTS SPECIALIZATION IN THE INTRA-SECTORAL FOREIGN TRADE

### ABSTRACT

The research focused on the investigation of the comparative advantages of agri-food products in Romania estimated for the pre- and post-EU accession period. The method of calculating the degree of trade specialization applied to the agricultural sector was used. The index enables to evaluate the contribution of each product corresponding to the scale of trade, providing for the classification of products according to their level of specialization on international markets. The empirical results indicate a downward trend in the level of specialization in international trade for most Romanian products in the investigated period, except for cereals and tobacco in the post-accession period, as well as sharp annual fluctuations in cereals, oilseeds and tobacco evolution.

**Key words:** agri-food trade, specialization index, EU accession.

**JEL Classification:** Q17, F14, F15.

### 1. INTRODUCTION

In the agricultural sector, competitiveness gets more intensive as the world economy reaches high integration levels, and the trade liberalization trends are increasingly high, in the context of the conclusion of WTO negotiations under Doha Round and of the bilateral and regional agreements under negotiation. The recent evolutions of multilateral negotiations reveal that the world agri-food trade system has a progressive movement trend towards an open market system, which is desirable both from the trade point of view and in the wide context of sustainable development.

In spite of this, taking into consideration the commercial disequilibria of the economies of the EU new member states in order to face the liberalization process, it is still necessary to establish adequate mechanisms to increase farmers' competitiveness, mainly in the case of farmers who are less-favoured by the income and welfare conditions. The countries that recently joined the European Union, among which Romania, are confronted with complex and difficult problems related to the economic growth performance disparities, which got worse in the conditions of the European market competition pressure in the agriculture and overall rural economy sectors (Oțiman, 2012).

These aspects represent great challenges for farmers, as well as opportunities for the agri-food exporters. As a result, it is important to continue to increase the competitiveness and productivity of the agricultural sector on long term, having in view that the future of agricultural markets will feature a high level of uncertainty and instability (volatility).

## 2. STATE OF KNOWLEDGE

The measurement of the specialization level is often used in the foreign trade studies, as the indices are relevant for the evaluation of the competitiveness of certain products or economic sectors, with regard to the structure and evolution of commercial flows. A vast literature developed in this field (Banse *et al.*, 1999; Brasili, 2008; Gorton and Davidova, 2001). Different methods frequently applied in the analysis of foreign trade patterns are based on the calculation of comparative advantage indices, used for the competitiveness assessment of different products or economic sectors, in relation to the structure and evolution of commercial flows, or of the specialization of traded products.

Competitiveness is a relatively new concept, as the endogenous and exogenous factors determine/influence the way in which the economic sectors, economic entities or products evolve on a comparative basis with the international competitors. On one hand, domestic competitiveness improvement depends on the use of own resources to increase the production value; on the other hand, factors such as financial policies and mechanisms, the foreign exchange rate, for instance, belong to the large macro-economic context. However, as no country can be a net exporter for all products (Porter, 1990), the benefits of the international trade reside in the procurement of necessary commodities. The specialization of products theoretically takes place in the segments where the country is relatively more productive, while the imports will be absorbed for less-productive products compared to the trade partners.

In this context, the objective of the research is to identify the advantages or disadvantages of Romania's agri-food products on the international market, in relation to the specialization level of traded products.

## 3. MATERIAL AND METHOD

The research was based on Balassa index calculation, which measures the specialization level of a given country in the export of certain products and reveals commercial advantages or disadvantages in the foreign relations (Rusali, 2006).

According to certain authors (e.g. Zaghini, 2003; Latruffe, 2010), the evaluation method of the commercial advantages of a given country, sector or product in the foreign trade sector can be used for the analysis of its external competitiveness.

The revealed comparative advantage is the most quoted indicator as methodological support for the evaluation of a country's comparative advantage in trade, or of the specialization level of the products from a given country, in its trade relations. The index was proposed by Balassa (Balassa, 1965) and it has the following formula (1):

$$B = (X_{ij} / X_{tj}) / (X_{is} / X_{ts}) \quad (1)$$

where:  $X$  = exports;  $i, t$  = product or group of products;  $j, s$  = country or group of countries.

The Balassa index is based on the analysis of trade patterns of different countries and measures the exports of a country for a certain product, relative to the respective country's total exports and the corresponding export performance of the countries with which it has trade relations.

A country reveals comparative advantages in products for which this indicator is higher than 1. However, this index features an asymmetry of values, and it can range from 1 to infinite for the products for which a country has comparative advantage in export, but only from 0 to 1 for the products with comparative disadvantage.

At the same time, the index makes it possible to identify if a country has comparative advantage for certain products, yet without determining the comparative advantage sources.

The main index utilization restriction resides in the index having a partial relevance due to the omission of imports, mainly in the case when these have a significant share in the trade of the respective country (Greenaway and Milner, 1993). The index representativeness and the analysis distortions depend on the aggregation level to which the calculation is applied.

The method was used to evaluate the specialization level of Romania's agri-food products in the foreign trade, by measuring the contribution of each group of products according to the two-digit numerical code of the Combined Nomenclature (CN) to the total country's export, relative to the contribution of each group of products to the total trade at world level.

The material of the case study consisted in empirical evidences of Romania's export flows in the period 2006–2010, using the foreign trade statistics of the United Nations' Organization.

#### 4. RESULTS AND DISCUSSIONS

The evaluation of the trade specialization indices in relation to the world market share at export makes it possible to draw a hierarchy of products according to the performance on the international market. The indices reveal the contribution of each product to the intra-sectoral agri-food trade in relation to the corresponding importance in the world trade.

Table 1 presents the specialization indices of the Romanian agri-food products in the international trade calculated for the period 2006–2010, at aggregate level per total agri-food products and by CN sections.

*Table 1*  
Aggregated export specialization indices at intra-sectoral level and by CN sections, 2006–2010

<b>Item (CN Code)</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
Total agri-food products	0.58	0.60	0.90	0.91	1.08
Animal products (I)	0.77	0.61	0.48	0.51	0.57
Vegetable products (II)	0.87	0.78	1.57	1.51	1.91
Fats and oils (III)	0.62	0.54	0.57	0.59	0.80
Food products, beverages, tobacco (IV)	0.28	0.47	0.67	0.76	0.83

*Source:* Own calculations based on the United Nations trade statistics by products.

It can be noticed that the indices had values less than 1 until the year 2010, in spite of their increasing trend. In the investigated period, only the vegetable products from section I proved comparative advantages, in the period 2008–2010 respectively, while for the products from the other sections the indices were less than one, with yearly increasing trends.

As it can be seen from Table 2, the value and evolution of indices in the investigated period reveal a low trade diversification level for the total Romanian agri-food products aggregated by CN chapters.

According to estimations, the indices reveal specialization in the export of products from the chapters: live animals, oilseeds, cereals and tobacco.

The empirical results reveal a decreasing trend of the specialization level in the international trade for most Romanian products in the first part of the investigated period, except for the cereals and tobacco in the post-accession period, as well annual fluctuations in cereals, oilseeds and tobacco.

The critical aspect revealed by the analysis resides in the fact that certain products that previously proved export potential, in the first post-accession years experienced a significant decline of their comparative advantage. This is the case of meat products, while in the chapter live animals the net export experienced a significant decline, although the trade balance was maintained positive.

It can be noticed that for the products under the chapter vegetable fats and oils and milk and dairy products, losses and fluctuations of the comparative advantages in the international trade were identified until the year 2008.

At the same time, recent recovery tendencies are indicated by the increasing trends of indices in the year 2010, in meat, cereals, fats, sugar, for the products under the chapters meat preparations, as well as under the chapters beverages and residues from food industry.

An increasing evolution tendency was experienced by the products under the chapter products of animal origin for which the specialization indices in the year 2010 obtained values close to 1 and those under the chapter sugar also featured an increasing evolution trend close to 1.

*Table 2*  
Trade specialization indices, by CN chapters, 2006–2010

NC Code	Item	2006	2007	2008	2009	2010
01	Live animals	5.04	5.43	4.8	4.31	4.25
02	Meat and edible meat offal	0.12	0.18	0.2	0.34	0.53
03	Fish and crustaceans, molluscs	0.00	0.04	0.0	0.03	0.03
04	Milk and dairy products, eggs, honey	0.35	0.25	0.3	0.44	0.43
05	Products of animal origin	0.69	0.64	0.6	0.69	1.09
06	Live trees and other plants	0.04	0.04	0.0	0.03	0.09
07	Edible vegetables, roots and tubers	0.46	0.46	0.4	0.34	0.48
08	Edible fruits and nuts	0.35	0.32	0.2	0.22	0.32
09	Coffee, tea	0.12	0.07	0.1	0.13	0.13
10	Cereals	1.38	1.00	2.9	3.47	4.43
11	Products of the milling industry	0.08	0.21	0.2	0.25	0.59
12	Oilseeds	2.69	2.18	3.5	2.84	3.46
13	Gums, resins	0.00	0.00	0.0	0.00	0.00
14	Vegetable products not elsewhere included, vegetable plaiting materials	2.31	1.50	1.0	0.97	0.00
15	Animal and vegetable fats and oils	0.62	0.54	0.6	0.59	0.80
16	Meat preparations	0.38	0.39	0.5	0.47	0.57
17	Sugar and sugar confectionery	0.35	0.18	0.3	0.50	0.96
18	Cocoa and cocoa preparations	0.19	0.14	0.2	0.25	0.27
19	Preparations of cereals	0.38	0.43	0.5	0.44	0.45
20	Preparations of vegetables, fruits	0.19	0.29	0.2	0.19	0.27
21	Miscellaneous edible preparations	0.31	0.29	0.4	0.53	0.63
22	Beverages, spirits and vinegar	0.27	0.32	0.5	0.31	0.40
23	Residues and waste from food industry	0.23	0.39	0.5	0.50	0.53
24	Tobacco and tobacco products	0.19	2.25	3.8	4.69	4.63

*Source:* Own calculations based on the United Nations trade statistics by products.

On the other hand, the products grouped under the chapter “*Vegetable products not elsewhere included*” experienced a loss of comparative advantages, as they reached the last position in the year 2010, from the 3rd position, with specialization index values larger than 2 in the year 2006.

The products under chapter 24 – tobacco have had a start experience since 2007, as they became, according to estimates, the product with the highest trade specialization level.

## 5. CONCLUSIONS

The empirical results reveal the level and evolution of external competitiveness of Romania’s agri-food products in the pre- and post- EU accession period. The investigations highlight the opportunities of products with export potential, as

well as the sensitive zones affected by the net imports at the level of the investigated groups of products, in order to contribute to the national sectoral performance improvement in the context of foreign competition increase.

EU membership was reflected in the country's foreign trade by an expansion of both export and import flows; however, in the international trade, Romania has a comparative trade disadvantage in most products grouped by CN sections, except for the vegetable products (Rusali, 2012). The dependence on imports of animal origin and processed food products and the low competitiveness of the processing industry are the main constraints to obtaining higher revenues from exports.

In certain products with export potential expressed before the accession to the EU, a significant decline took place in the first post-accession years, as in the case of live animals, in which, although the balance of trade is positive, the value of net exports significantly declined. In the products under the chapters vegetable fats and oils, milk and dairy products, comparative trade advantage losses and fluctuations were identified until the year 2008, as well as in the case of oilseeds. The products with the higher deficit of the balance of trade are those from the chapters: meat, beverages and spirits and vinegar, preparations of vegetables, fruits, preparations of meat and fish, milk and dairy products.

A decreasing tendency of the specialization level in the first period was experienced by the foreign trade with most Romanian products, except for the cereals and tobacco in the post-accession period, as well as annual fluctuations in cereals, oilseeds and tobacco.

However, the trade specialization evaluations also reveal a performance improvement tendency under the chapters containing food preparations, beverages and residues from food industry. The indices reveal specialization for the products from the chapters: live animals, oilseeds, cereals and tobacco.

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