THE ANALYSIS OF THE COMPETITIVENESS OF ROMANIAN EXPORTS USING CONSTANT MARKET SHARE METHOD [*]

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Abstract: *Romanian exports represented, lately, a major engine of economic growth. However, only a deep analysis of these can reveal the factors that contributed to their competitiveness. Indicators that capture the changes in market shares provide the most accurate picture of the concept of competitiveness of exports. They are found in the literature as a method of constant market share analysis, method developed by H. Tyszyinski in 1951.*

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JEL Classification: F14, F15, F16, F40

1. THE CONSTANT MARKET SHARE METHOD

The changes in market shares of exports may be the consequences of two phenomena: competitiveness effect and structural effect: **variation in the relative market share (VRC) = competitiveness effect (CE) + structural effect (SE)**

Where:

VRC - percentage change in the share of exports of a country (or area) in the context of world exports in a given period of time**.** Indicator may take the percentage values between -∞ and + ∞, positive ones indicating a rise in the importance of the economic sector of the country seen in world exports.

CE - gains or loss of market share in global exports, though they would be due, exclusively, variations in the market shares of the exports into their trading partners' imports. Values are expressed in percentage form, and are between -∞ and + ∞. Positive one indicates an increase in the market share due to the increase of competitiveness of the sector concerned.

In turn, the impact of structural effect (SE) consists of:

- **The initial geographical specialization (GS)** - identifies the losses or gains in market share in global exports, given that they would be due exclusively, variations to the dynamics of the target markets for exports. The range of values that can be taken is between -∞ and + ∞. Positive values

indicate a good positioning in the most dynamic export markets at the beginning of the range.

- **Initial product specialization (PS)** - shows the gains or losses in terms of market share occurred due to the specialisation in sectors whose world demand is dynamic. Values are between -∞ and + ∞, corresponding to the positive orientation of the production for export, at the beginning of the interval analyzed, to products whose world demand is dynamic.

- **The effect of adaptation (EA)** – resilience of production for export to changes in global demand. Can take values between -∞ percentage and + ∞.

There are four different situations in which the effect of the adaptation (EA) takes positive or negative values:

EA > 0 – market share of exports increase as part of a growing target markets;

EA > 0 – the market share of exports falls within a target market in decline; EA < 0 – the market share of exports is growing at a declining target markets; EA < 0 – the market share of exports falls within a target market on the rise.

2. THE CASE OF ROMANIA

Market share variation gives us the dynamic image of the competitiveness of exports. This method offers the possibility of identifying the extent to which each component contributes to the change in market share.

Table 1 - Analysis of competitiveness of exports by way of consistent market share

Sectors of activity according to the SITC Rev. 3	2002-2006			2006-2010		
	EC (%)	ES (%)	ET (%)	EC (%)	ES (%)	ET (%)
fresh food	0.1277	-0,0238	0.1039	0.1605	0,091	0.2515
processed foods	0.0853	-0,028	0.0825	0.3228	0,0502	0.3730
Wood products	0.0146	0,0174	0.0320	0.0365	0,0163	0.0528
textiles	0.1457	0,0366	0.1823	0.0230	0,055	0.0078
chemicals	0.0575	0,073	0.1305	0.0786	-0,0128	0.0658
leather	-0,0054	-0,0025	-0,0079	-0,0364	-0,0311	-0.0675
metallurgy	-0.0257	0,0386	0.0129	0.0305	-0,0228	-0.0077
Non-electrical equipment	0.1285	0,028	0.1565	0.0377	-0,0035	0.0342
IT Equipment and Supplies	-0,0391	-0,0122	-0.0513	1,8458	-0,8297	1,0161
electronic Components	0.2238	0,0244	0.2482	0.0618	0,005	0.0668
clothing	-0,0187	-0,0085	-0.0272	-0,0761	-0,0100	-0.0861
Other manufactured	0.0758	-0,0118	0.0640	0.0277	-0,0056	0.0221

minerals	-0.0427	0,0618	0.0191	-0.0686	0,0093	-0.0593
Transport equipment	0,2023	0,0969	0,2992	0,2113	0,0232	0,2345

Source: processing by the International Trade Center, Trade Performance Index 2006-2010, available at http://legacy.intracen.org/appli1/TradeCom/TPIC.aspx?RP=642&YR=2010

* The total (ET) and effect Competitiveness (EC) are processed from data provided by ITC reports and Structural Effect (HE) is obtained from own calculations, the amount of indexes C1.b, C1.c and C1. d, indices taken from the same report.

Based on data from Table 1, in Figure 1 we surprised valued amendments for the intervals 2002-2006 and 2006-2010. Decomposition of variance of market share is achieved at the level of two major components, the effect of competitiveness and structural effect, sectors of activity as defined in the SITC Rev. 3. There were represented 13 of the 14 sectors of activity, except for IT equipment and consumables, its tremendous growth requiring a separate approach.

The purpose of the analysis is to capture the proportions in which those two effects contributed to the overall performance of exports. The figure is based on a calculation of the indicators of competitiveness in Table 1.

For a clearer representation, we will replace the projected market share, with the total effect (TE), the effect of competitiveness will be denoted by the EC, where:

The total effect (TE) = effect of competitiveness (EC) + structural Effect (ES)

Figure 1 - Development of the competitiveness of exports (Method of constant market share)
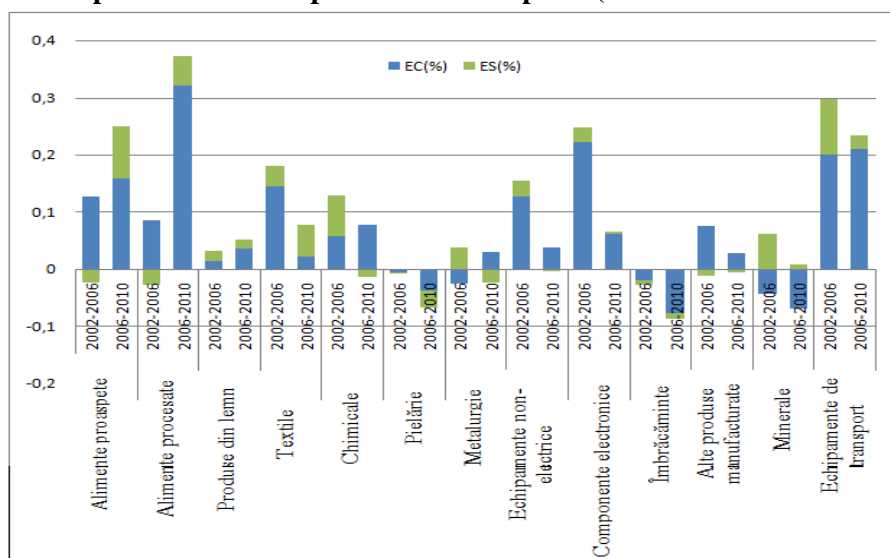
Source: primary data International Trade Center (www.intracen.org), own calculations in accordance with Table 1

Obviously, for both periods taken into account, the effect of competitiveness (EC) is dominant, increasing the relative market shares being due it.

Structural Effect (ES) recorded negative values in the six sectors during the period 2002-

2006, and thereafter the seven sectors in the period 2006-2010. At the level of total exports for the whole period 2002-2010, ES has a marginal influence; its values are low compared to those of the EC.

Therefore, the factors that determine the competitiveness effect and competitiveness through price and non-price, decisively influenced market shares variations in exports within the framework of global exports.

From the point of view of the two types of quantification of competitiveness, price and non-price, level of the former is given by the real effective exchange rate (REER), while non-price competitiveness include qualitative factors contributing to product differentiation (innovations, C&D) (Simonis, 2010).

During the period 2002-2006, 9 out of 14 sectors recorded positive effect of competitiveness in comparison with the period 2006 to 2010, when their number increased to 11. The two sectors that pass from negative to positive values of the EC are *IT equipment and consumables*, and *metallurgy, steel construction.*

To highlight the total effect (ET), we make the analysis in Figure 2, this time including the IT sector, and consumables.

Figure 2 - Distribution of Total Effect within sectors of the national economy
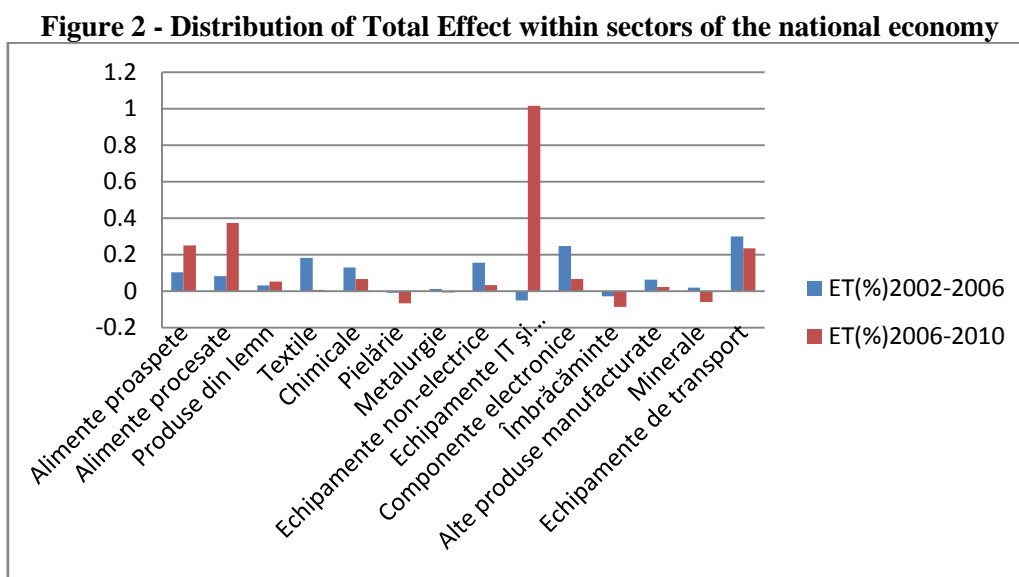
Source: own estimate by ITC (www.intracen.org) and Table 1

Between 2002 and 2006, 11 of the 14 sectors recorded positive values of ET, while in 2006-2010 recorded a fall in the number of sectors with positive evolution, at 10. The only sector where the relative market variation share becomes negative in the second period analysed is the ore sector.

Its negative evolution is caused by declines in both the EC and ES.

By far the most spectacular evolution of ET are recorded for sector of IT equipment and consumables, which is a change from a negative value (-0,0513) for the period 2002-2006, to the highest value recorded (1,1061) between 2006 and 2010, compared to other sectors.

In view of the dynamics of the IT equipment and supplies industry, we will refine its analysis in order to track the evolution and how the EC and ES have contributed to high values for ET in period 2006.

Table 2 - The Decomposing the variation percentage market share of exports of IT equipment and Consumables for the period 2002-2010 (%)

	2002-2006	2003-2007	2004-2008	2005-2009	2006-2010
Market share in global exports for end of range	0,06	0,08	0,18	0,32	0,39
Total effect (ET)	**-0,0513**	**-0,0120**	**0,2911**	**0,9179**	**1,0161**
Competitiveness effect EC	**-0,0391**	**-0,0197**	**0,4301**	**1,3523**	**1,8458**
Structural effect (ES)	**-0,0122**	**0,0077**	**-0,139**	**0,4344**	**-0,8297**
Geographical specialization	0,0321	-0,0069	-0,0246	-0,0108	0,0033
Specialization on products	0,1597	0,1292	0,1374	0,1398	-0,0109
The effect of adaptation	-0,2041	-0,1146	-0,2517	-0,5634	-0,8221

Source: processing on International Trade Center Trade Performance Index 2006-2010 (www.intracen.org)

Survey of the influence of FDI on the indicators of competitiveness requires a peek at subsection. Thus, the meaning of SITC Rev. 3, IT equipment and consumables consists of:

1. Office machinery;

2. Automatic data processing equipment;

3. Parts for office machines;

4. Television receivers;

5. Radio frequency receivers;

6. Audio equipment;

7. Equipment and telecommunications equipment components.

Of the seven subsections, the one that concerns us is the ultimate explicitly, that of *equipment and telecommunications equipment components.* The importance is given first, of the largest share in total exports sector (average over 90% according CRCI), and secondly, that these exports were made almost entirely of MNCs, namely Nokia.

The value of total effect (TE) show a sharp transition from -0.0120% in 2003-2007, to + .291% in 2004-2008. Therefore the decisive year for the change is 2008. Without any coincidence, in 2008 the company Nokia launches production and export of mobile devices and components from Romania.

The values of the effect of competitiveness are changing radically for the better (-0,0197 to + 0, 4301), since the Nokia starts exports of manufactured products in Romania, 2008 and continuing until 2010. At the same time, the effect of structural evolution continues to record a negative, from 0, 0077% in the period 2003-2007 to 0, 8297% in the period 2006-2010.

Figure 3 - The evolution of the relative market share of IT equipment and Consumables section
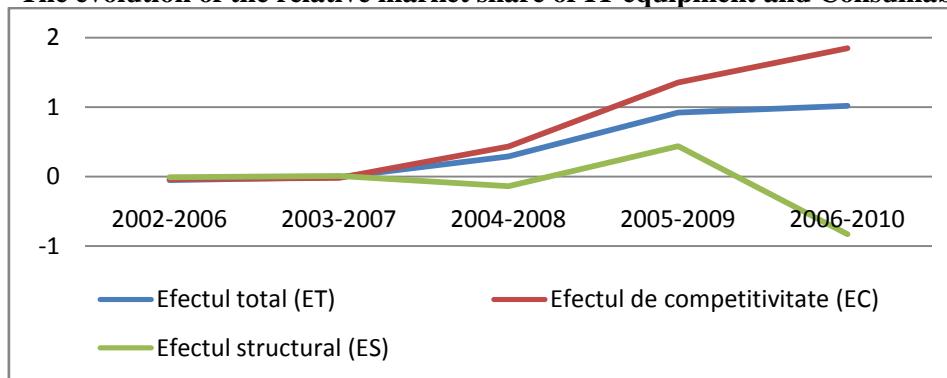
Source: own estimate by processing the data offered by the International Trade Centre, Trade Performance Index 2006-2010 (www.intracen.org)

In this section, increasing of the total effect is carried out exclusively on the basis of the effect of competitiveness, higher net values of it (even when compared to TE) out by negative structural evolution of the effect. Since 2009, ES becomes strongly negative, ET ceiling increase, even with a further increase in EC.

Figure 4 - ES for IT equipment and Consumables section
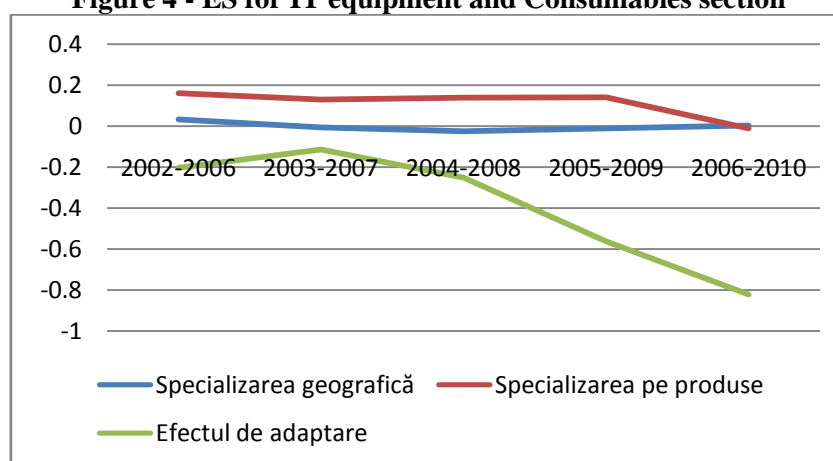
Source: own estimation after data processed in Trade Performance Index 2006-2010 (www.intracen.org)

The negative evolution of ES is the main cause of low values recorded in the adaptation

effect. Figures provide a response to the decision of Nokia to relocate production in Romania, strictly in terms of competitiveness.

Thus, by establishing production facilities in Romania, in early 2008, Nokia relies on price-competitiveness, hoping that reduced costs of labour to achieve significant savings reflected in product prices. In Figure 3, we see increased ET, based, for the most part, on the EC. However, with time, salary adjustments in their upside, affect the EC, since 2009 its slope decreasing.

On the other hand, the strategy of targeting the production of mobile phones in Romania was uninspired, addressing only the medium without stakes and high-tech segment, the smartphones. Contrary to the effects of the financial crisis, the market reacted irrationally; high-tech sector is more dynamic than the medium. Without insight this trend, Nokia lost on the effect of adaptation values and its slope is negative.

Under these conditions, for the competitive effect to counteract the negative effect of adaptation, adjustment is required in the sense of increase it. The decision to relocate production to Asia comes on that line, lowering production costs, thus increasing the amount of the effect of competitiveness.

Nokia has relocated to Romania from Germany, therefore, the transfer of production capacity in Romania (2007-2008) should produce simultaneous effects, but opposite in the two economies. Effects should appear on the line of evolution of relative market share in global exports of corresponding sector business activity of MNC.

Figure 5 - Developments of ET appropriate to *IT equipment and supplies sector* for Romania and Germany (2002-2010)
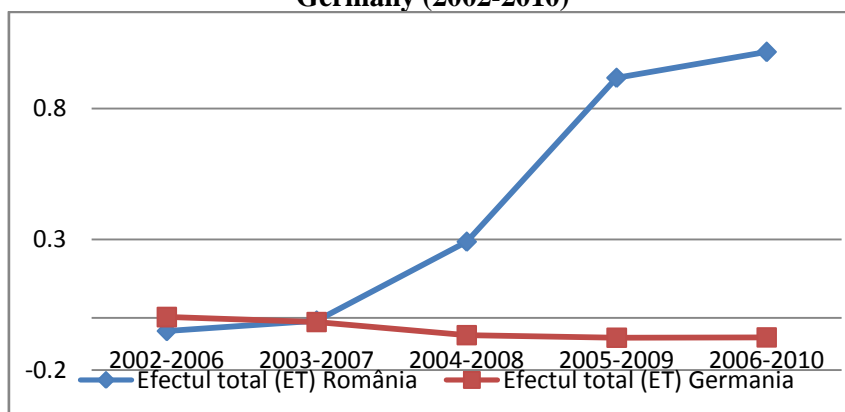
Source: Trade Performance Index for 2006-2010 (www.intracen.org)

ET values for Romania registered a significant jump from -0.012 to 0.2911 in the decisive period 2007-2008. The same interval corresponds to the most significant reduction, relative to the

entire period, for the ET value for IT Equipment and Supplies industry in Germany (from -0.016 to -0.0665).

Of course, the amplitudes of ET values in the two economies are very different; the impact (in terms of competitiveness of the whole sector) of the entry of Nokia in Romania is much higher than for its departure from Germany. The difference is given by the competitiveness of other industries that make up the IT equipment and consumables.

In Romania, the entrance Nokia has made a clear difference between section *equipment and components of telecommunications equipment* and other parts of the sector. This is not the case in Germany where the share of industry activity corresponding with the Nokia sector in total exports is offset by exports of other industries, his departure affecting in a much lower the overall competitiveness of the sector.

In conclusion, while retaining the general trend of exports, increasing the total effect, appropriate to sector of equipment and components of telecommunications, is carried out, for the most part, on account of the effect of competitiveness. The main determinant comes of FDI line, by relocating the production of mobile phones and accessories by Nokia.

A more complete picture of the competitiveness of Romanian exports may be obtained by comparison with its main competitors. In this regard, we emphasize the development of the market share of global exports and effects (ET - the total effect and EC - the effect of competition) in which these market shares have evolved, at the main competitors level. According to NBR, on the side of exports, they are: Bulgaria (BG), Czech (CZ), Hungary (HU), Poland (PL), and Slovakia (SK).

Figure 6 - The evolution of ET and EC in the period 2002-2010: a comparison between Romania and key competitors
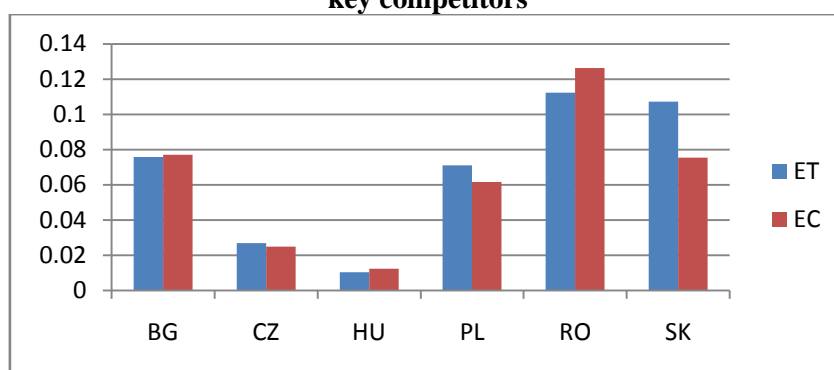

Source: primary data processing as offered by the International Trade Centre (www.intracen.org)

All six economies have a similar structure of the total effect within its competitive effect is the main determinant of the evolution of market shares.

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However, in the case of the Czech Republic, Poland and Slovakia, the effect of competitiveness is less than the total effect, which means that the other component of the overall effect, the structural effect is positive. Therefore, increasing the market share of exports is carried out on the basis of their orientation to products whose world demand is growing or to markets whose capacity for absorption is also on the rise.

Regarding Bulgaria, Hungary and Romania, the competitiveness effect is superior to total effect. In this case, the structural effect is negative, resulting in an increase in export market shares, strictly on competitive effect. This can be achieved in two ways: either by price competitiveness or by non-price competitiveness.

Figure 7 - The evolution of the market shares of exports in total world trade
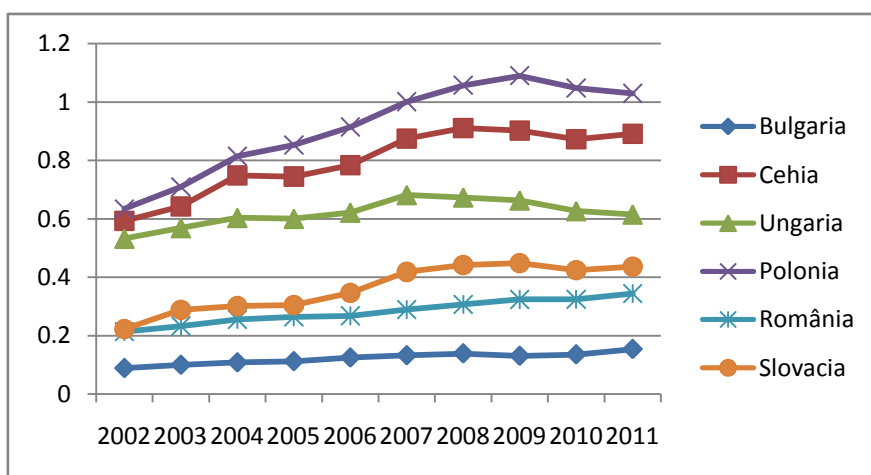
Source: World Trade Organization (www.wits.worldbank.org), own calculations.

Of the six countries studied, Romania has one of the lowest levels of the market share, surpassing only Bulgaria. But the appearance is given by the positive trend, which is one up for the whole period considered, reaching almost 0, 4% for the year 2011. This percentage represents almost a doubling of market share compared with 2002, when its average was of about 0, 2%.

CONCLUSIONS

In general, the degree of competitiveness of exports is set by market share. In the case of Romania, this is among the lowest in the EU and globally. However, the trend is recorded a slight increase.

Market share shows us the level of competitiveness, but equally important are the changes and its determinants. It is essential to know the nature and proportion in certain factors contributed to movements recorded in export market shares.

In this sense, the use of constant market share analysis has given us the opportunity to discover the essence of the ability to compete in exports. The results have spotlighted the following aspects:

- **Export growth rates were achieved in an overwhelming proportion on the basis of competitiveness effect;**
- **The contribution of structural effect is minimal.**

In turn, the impact of competitiveness is broken down into competitiveness through price and non-price competitiveness. Of the two components, the first may as the main determinants of low cost labour or higher productivity. FDI can affect productivity, but the labour cost is a specific element of the Romanian economy.

Given that the productivity of companies in the Romanian economy is half the average of the European, price competitiveness had the support of low labour cost. In this case, MNC merit is to harness the comparative advantages of local labour. Unfortunately, this is the most fragile of the competitive advantage of a country.

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