

## **Can Member States unlock the national competitiveness through export market share effects?**

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**Abstract.** *The gains or losses of world market shares by individual countries are often considered an index of their trade competitiveness. High trade freeness seems to be an important factor in the EU-27 context for the variation of market shares. In this sense, the present study conducts a structural decomposition analysis applied to export market shares through which the variation of the market share of a country is decomposed into three main effects: the market share effect (MSE), the structural market effect (SME) and the market adaptation effect (MAE). The outcomes of the study highlight four main categories of EU countries based on the results of the decomposition analysis.*

**Keywords:** competitiveness; market share; structural decomposition analysis; European Union.

**JEL Classification:** C1, F14, F15.

**REL Classification:** 8N, 16E.

## 1. Introduction

World economy currently offers a diverse array of competitiveness due to countries' different levels of economic and technological development, or action of some social, demographic, and cultural factors.

At the macroeconomic level, the competitiveness of a nation can be regarded as the country's ability to achieve long-term growth in such a way that economic structure adapts effectively to global economic development, seen as the evolution of world trade. Undoubtedly, economic growth – reflected by an upward trend of the main economic indicators (GNP per capita, production per capita, the export value per capita, etc.) – is a necessary condition.

In an increasingly globalizing world, most countries are integrated into the world economy, voluntarily or by force. National competitiveness has to be in this context both reflected by international and domestic performances. We agree with economists who are stating that a nation to be competitive the double criteria of good internal and external performances have to be accomplished. There are a variety of definitions of competitiveness that lead to different indicators, each with its own particular application.

Countries' competitiveness in the EU context has several components: a structural component (growth due to mix of the products exported), a geographical component (growth due to country's distribution of trade partners) and trade performance.

There is some empirical evidence suggesting that differences in the international competitiveness and growth across countries are determined not only by price factors (cost competitiveness) but also by structural factors such as technological opportunities and production capacities (structural competitiveness). High trade freeness seems to be an important factor in the EU-27 context for the variation of market shares.

In this sense, in our study we will refer to trade performance, more exactly to market share of EU-27 member states, with highlights on Romania, even if the market share performance is not a sufficient statistics for competitiveness. To tackle these issues, we begin by decomposing the market shares by industry group.

The plan of the paper is as follows. The following section reviews the empirical literature on the export performance and export market shares; section 3 presents the decomposition analysis methodology, section 4 reports data and main findings while last section highlights the outcomes.

## 2. Literature review

The gains or losses of world market shares by individual countries are often considered as an index of their trade competitiveness. But given changes in demand, the relative medium-term inertia of geographical and sectorial specializations affects such outcomes. It is therefore interesting to be able to distinguish the impact of a country's initial position in different markets relative to its capacity to adapt and to its competitiveness (Cheptea et al., 2012). In the study "*European Export Performance*" the authors used a quantitative methodology for breaking down the volume growth in trade for each country into three components: a geographic structure effect, a sectorial effect and a performance effect. The same methodology is also applied in the article "*Trade performance and structural competitiveness developments in the Euro Area: are member states equipped to meet the globalization challenges of the 21st century?*", only that the main effect into which the world exports share of countries are decomposed are: the market share effect, the structural market effect and the market adaptation effect (Ilzkovitz et al., 2012). There is also evidence that structural factors related to European integration boosted export growth (Stephan, 2002). Empirical evidence suggests that changes in the world export market shares can be explained by a set of technological variables at the country and sector level (Fagerberg, 1988, Amendola et al., 1993, Greenhalg, 1990), etc.

Export market shares are often considered to be a signal of deterioration of external competitiveness and a hinder to growth in developing countries. The study "*A disaggregated analysis of the export performance of some industrial and emerging countries*" (Finicelli et al., 2008) describes the evolution of export shares between 1985 and 2003 and quantifies the contribution of the geographical and sectorial specialization for some industrial and emerging market economies. On the same topic, the study "*Portuguese export market shares: an analysis by selected geographical and product markets*" (Cabral, Soares, 2006) analyses the evolution of Portuguese export market shares in each of the 96 individual markets that make up total foreign demand and determine the contribution of each one to the effects on export. These are: market share effect, combined structure effect, geographical structure effect, product structure effect, mixed structure effect. The outcome section highlights that countries from Central and Eastern Europe whose shares grew the most, on average, in the same individual markets where Portuguese exports showed higher losses were Turkey, Romania, Slovakia and Bulgaria, between 2000 and 2005.

Krugman (1989) argued that the propensity of fast growing emerging economies to diversify their bundle of exported products allowed them to increase their

volume of exports without resorting to a real exchange rate depreciation. Hummels and Klenow (2005) used a cross-section analysis of detailed trade data to identify the patterns of exports of 110 countries in 1995, and ask whether large exporters ship more goods to more markets, or ship more of each good to each market. The answer is: two-thirds of more goods, one third of more of each good. Regarding the EU-25 export performance against that of other main world exporters from 1994 to 2007, more precisely high-tech and up-market products, the EU slightly increased its world market share. Such better positioning of the EU-25 among developed countries is due not only to a superior relative export performance, but also to a more pronounced specialization in products with highly growing import demand (Cheptea et al., 2012).

### 3. Methodology

This section presents the application of the structural decomposition analysis to export market shares which allows us to determine whether a given EU country is helped or penalized by its initial sector specialization and whether it is increasing its specialization in the sectors with high growth in EU-27 demand.

To this end, the change in the EU-27 export's market share of country  $j$ ,  $\Delta a_j$ , is decomposed into three main effects: the market share effect (MSE), the structural market effect (SME) and the market adaptation effect (MAE).

The export market share of country  $j$  can be defined as:

$$a_j = \frac{\sum_i X_{ij}}{\sum_i \sum_j X_{ij}} \text{ where } X_{ij} \text{ represents the exports of country } j \text{ in sector } i.$$

The change in country  $j$ 's export market share depends on its share of exports in sector  $i$ ,  $b_{ij}$ , as well as on the importance of sector  $i$  in total EU-27 exports,  $c_i$ :

$$b_{ij} = \frac{X_{ij}}{\sum_j X_{ij}} \text{ which is the EU-27 export's market share of sector } i \text{ in country } j \text{ to the total EU27 exports of sector } i;$$

$$c_{ij} = \frac{\sum_j X_{ij}}{\sum_i \sum_j X_{ij}} \text{ which is the EU-27 export's market share of sector } i.$$

Laursen (1999) shows that the change in a country's market share depends on the developments in terms of the export performance of that country in the different sectors and on changes in the share of sector's exports in the EU-27 total.

$$\Delta a_j = a_j^t - a_j^{t-1} = SME_j + MAE_j + MSE_j, \text{ where}$$

$SME = \sum_i b_{ij}^{t-1} \Delta c_i$  is the *structural market effect*, which measures whether country  $j$ 's historical specialization pattern creates an advantage or a disadvantage to its current overall export performance.

$MAE = \sum_i \Delta b_{ij} \Delta c_i$  is the *market adaptation effect*, which measures whether country  $j$  is gaining or losing market shares due to a movement into the sectors providing high market opportunities or exit out of the sectors providing low market opportunities. This last term is further decomposed into the following two terms (Laursen, 1999):

$MAE_j = MGAE_j + MSAE_j$ , where

$$MGAE = \sum_i b_{ij} \frac{\Delta c_j + |c_j|}{2}$$

is the *market growth effect* which is different from zero only if  $\Delta c_{ij} > 0$ , i.e. if sector  $i$  is a fast growing sector. The positive (negative) value of this term indicates that country  $j$  is moving into (out of) fast growing sectors. It measures thus whether country  $j$  is increasing or decreasing its market shares in the sectors characterized by a strong growth in EU-27 demand.

$MSAE = \sum_i b_{ij} \frac{\Delta c_j - |c_j|}{2}$  is the *market stagnation effect* which is different from zero only if  $\Delta c_{ij} < 0$ , i.e. if sector  $i$  is a slow growing sector. The positive (negative) value of this term suggests that country  $j$  is moving out of (into) the stagnating sectors. This effect shows whether country  $j$  is decreasing or increasing its market shares in the sectors with weak demand at the EU-27 level.

$MSE = \sum_i \Delta b_{ij} \Delta c_i^{t-1}$  is the *market share effect* which shows the change in the world export market share of country  $j$ , assuming that the sectorial distribution of EU-27 exports remains constant over time. It therefore represents the change in country  $j$ 's export market shares assuming out changes in the structure of EU-27 exports. The gain or loss in export market share for country  $j$  is due to a number of factors that determine its export competitiveness such as price and cost competitiveness (measured by exchange rate indicators or unit labor costs) as well as the institutional and political framework and other factors that strengthen competition and raise productivity thereby allowing the country's firms to better compete internationally.

#### 4. Data and empirical findings

The Structural Decomposition Analysis (SDA) is a widely spread technique for decomposing indicator changes at the sector level. For example, SDA have been used to analyze changes in indicators such as energy use, CO2-emissions, labor

demand, value added and export market shares. Structural decomposition analysis has become a popular methodology for several reasons. First, SDA it overcomes many of the static features of input-output models and is able to examine changes over time in technical coefficients and sectorial mix. Thus far, it has only been used for historical analysis, but some recent work indicates how it might be used as a forecasting tool. Another reason for the increasingly widespread use of structural decomposition analysis is that it is a pragmatic alternative to econometric estimation. Analysis of similar topics using econometrics requires a time series covering 15 years or more. In contrast, structural decomposition analysis applied to export market shares requires only two export tables: one for the base year and one for the comparator year in the analysis. In this sense, in the present study I analyze the market share effects of the EU-27 member states, considering the export volume (millions of ECU/EURO) by product group:

SITC0\_1 Food, drinks and tobacco

SITC2\_4 Raw materials

SITC3 Mineral fuels, lubricants and related materials

SITC5 Chemicals and related products, n.e.s.

SITC6\_8 Other manufactured goods

SITC7 Machinery and transport equipment

SITC9 Commodities and transactions not classified elsewhere in the SITC.

**Table 1.** *Export performance of the EU 27 countries (2007-2011)*

GEO/TIME	Export market share 2007	Export market share 2011	Structural Market Effect	Market Growth Adaptation Effect	Market Stagnation Adaptation Effect	Marker Share Effect
Belgium	8.99	8.80	22.58	6.16	2.73	3.43
Bulgaria	0.31	0.45	0.31	-0.02	0.63	-0.64
Czech Republic	2.87	3.45	-12.13	-4.49	1.41	-5.90
Denmark	1.98	1.91	11.28	-3.17	-3.32	0.15
Germany	23.44	22.37	-55.43	-0.35	-3.43	3.09
Estonia	0.21	0.00	-0.01	0.07	0.48	-0.41
Ireland	2.12	1.89	6.53	3.65	0.70	2.95
Greece	0.42	0.41	1.78	0.27	0.13	0.15
Spain	4.92	5.22	-4.71	-0.20	1.19	-1.39
France	10.06	9.32	0.88	-2.38	-5.60	3.22
Italy	8.35	7.51	-17.20	1.22	-3.16	4.38
Cyprus	0.03	0.03	0.19	0.05	0.02	0.03
Latvia	0.17	0.22	0.64	0.03	0.31	-0.28
Lithuania	0.30	0.44	2.10	2.29	2.36	-0.07
Luxembourg	0.55	0.45	-2.58	0.96	0.10	0.86
Hungary	2.07	2.18	-9.18	0.26	1.39	-1.13
Malta	0.04	0.05	-0.19	0.34	0.28	0.07
Netherlands	11.79	13.13	56.60	-3.05	1.85	-4.90
Austria	3.26	3.22	-6.04	-0.27	-0.32	0.05

GEO/TIME	Export market share 2007	Export market share 2011	Structural Market Effect	Market Growth Adaptation Effect	Market Stagnation Adaptation Effect	Marker Share Effect
Poland	3.03	3.74	-5.44	-2.61	2.02	-4.63
Portugal	1.11	1.12	-1.27	0.09	0.35	-0.26
Romania	0.80	1.14	-2.38	-2.29	0.65	-2.93
Slovenia	0.57	0.63	-2.19	0.27	0.66	-0.39
Slovakia	1.39	1.72	-4.36	-1.55	1.28	-2.83
Finland	1.40	1.13	-0.90	2.56	0.22	2.34
Sweden	2.83	2.69	-1.12	0.61	-0.47	1.08
United Kingdom	7.01	6.51	21.91	2.91	-1.08	4.00

## 5. Conclusions

When comparing the large European Union Member States among themselves we notice that Germany has by far the highest market share at EU-27 level and is followed at large distance by Netherlands and France. Germany's position remained relatively unaffected during 2007-2010 with a slight decrease of 1 percentage point. France suffered almost the same variation, while Netherlands increased its market share between 2007-2010. Romania is among the countries with a low market share in European Union, even though its market shares increased during this period, confirming the pattern of catching-up economies that are gaining market shares. By far the lowest value of market shares belongs to Cyprus in both 2007 and 2010. It appears from the table that, in general, the countries that have a positive MSE effect are actively moving into the most dynamic sectors, but are also consolidating their positions in the industries with a more stagnant EU-27 demand. Contrary, the countries with a negative MSE effect are also losing market shares in the dynamic sectors while actively moving out of stagnating sectors. For Romania, as well as for the newcomers of EU-27 which goal in the present is to access the Euro Area, there are areas with a low weight to potential, such as textiles, clothing and leather (1.4%), decreasing their attractiveness due to price convergence of the non-tradable goods towards Euro Area prices, according to the Balassa-Samuelson effect. This evolution is associated with the convergence of the emerging economies towards the developed ones.

Based on these results, countries are classified into four main categories. The low market opportunities category are the ones that are moving into sectors with stagnating world demand and are losing market shares in the industries with dynamic world demand (negative market growth and stagnation effects).

The countries classified into the low-medium market opportunities category are moving out of stagnating sectors, but are also losing market share in dynamic sectors (negative market growth and positive market stagnation effects).

The countries in the high-medium market opportunities category are moving into dynamic sectors while also consolidating their position in stagnating industries (positive market adaptation and negative market stagnation effects). A country that is situated in this last category is in a relatively better position than a country that has a positive stagnation effect and a negative adaptation effect (low-medium market opportunities), as it is in fact gaining market shares in both expanding and stagnating sectors, whereas a country in the low-medium market opportunity category is losing market shares in both types of sectors.

Finally, a country is considered to display high market opportunities, if it is moving into dynamic sectors and out of stagnating industries. The countries with high market opportunities (i.e. positive market adaptation and stagnation effects) are in a better position than countries with high-medium market opportunities (i.e. positive growth and negative stagnation effects) because a country with high market opportunities is shifting its entire production structure towards sectors that are benefiting from a strong growth in world demand, whereas in the case of countries having high-medium market opportunities, the shift of the production structure towards sectors with strong growth in world demand is only partial.

**Table 2.** *Classification of EU Member States based on market opportunities*

<b>Low market opportunities category</b>	<b>Low-medium market opportunities category</b>	<b>High-medium market opportunities category</b>	<b>High market opportunities category</b>
Denmark France Austria Germany	Bulgaria Czech Republic Spain Netherlands Romania Slovakia Poland	Italy Sweden United Kingdom	Belgium Estonia Ireland Greece Cyprus Latvia Lithuania Luxembourg Hungary Malta Finland Portugal Slovenia



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