Assessment of Lithuanian Export Competitiveness in EU Market

The paper focuses on structural analysis of Lithuanian export aiming to assess its competitiveness in EU market. The research follows the CMSA (Constant market share analysis) techniques adopted for analysis of exports of a small economy. The results revealed that the Lithuanian export competitiveness in EU market is low.

**Keywords:** competitiveness, export, structure effect.

The competitiveness of Lithuanian exports may be comparatively low. The development of price and non-price competitiveness factors was not favorable for a long time. But probably because of a sufficient and successful development of actual numbers of exports of goods in Lithuania more detailed analysis is very rare. A big emphasis on exports as a leading sector for recovery from economy recession provoked Lithuanian researchers (Volodkienė, Snieška, 2012; Grebliauskas, Stonys, 2012; Meilienė, Snieška, 2010).

**Introduction**

Exports growth is considered as one of the presumptions for sustainable economy growth in a long-term. Historically Lithuanian exports of goods were growing at a high rate especially after its reorientation that followed Russian crisis. Despite its slowdown during global economic recession of 2008 Lithuanian exports continues to grow at a sufficient rate for economy recovery during recent years. Though, the results of previous analysis (EKT group, 2003; Grebliauskas, Stonys, 2012; Purlys et al., 2005; etc.) of entire economy or separate sectors suggest that

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Despite the increasing number of papers on the topic they are very different and they approach different aspects of export competitiveness. **This paper aims** to assess Lithuanian export competitiveness by analyzing its structure. The existing techniques allow investigating changes in export market share by looking at relative composition of exports. CMSA (Constant market share analysis) technique was applied previously for assessment of Lithuanian export competitiveness before economic recession (Kalendiene, Miliauskas, 2011). So this research would also allow comparing two periods and possibly noting the main differences. A. Grebliauskas and M. Stonys (2012) applied the same technique and they investigated the competitiveness of total Lithuanian export not highlighting the EU. Because more than 60% of Lithuanian export goes to EU countries and this trade is less sensitive to various policies or foreign trade regulations, this paper aims to investigate only Lithuanian export competitiveness in EU. This narrower approach solves one of the main problems of previous research: data compatibility. Different statistical databases provide information nominated in different currencies and unit measures. Also official statistics of Russia, Belorussia or Ukraine which are important Lithuanian export markets is not very reliable. So as this research address only to EU countries, it uses official statistics of Eurostat (Comtrade database).

**The Concept of Competitiveness**

As J. P. Neary (2006) notes, a lot of new agencies were created to monitor the competitiveness of economies. They produced much useful data and helpful commentary. But the concept of competitiveness was left aside from the interest of economic theorists. It is very much on topics of applied economists that are aware of the importance of the competitiveness as a determinant of macroeconomic performance.

The concept of competitiveness has many definitions that evolved over time of economic practice. In general, the competitiveness of economy is its “ability to produce goods and services which meet the test of international markets, while at the same time maintaining high and sustainable levels of income or, more generally, the ability of regions to generate, while being exposed to external competition, relatively high income and employment levels…” (European Commission, 1999). This definition looks like the evolution of the concepts proposed earlier by US President’s Council on Industrial Competitiveness (1985) and OECD (1992). The former stated, that “competitiveness for a nation is the degree to which it can, under free and fair market conditions, produce goods and services that meet the test of international markets while simultaneously maintaining and expanding the real incomes of its citizens” and the latter proposed almost identical definition of international competitiveness: “the ability to produce goods and services that meet the test of foreign competition while simultaneously maintaining and expanding domestic real income”. Thus, the definitions of economy’s competitiveness above put an emphasis on real gross domestic product (real GDP) and its growth through the trade, i.e. export, channel. Yet International Institute for Management Development (IMD) suggested that national competitiveness couldn’t be reduced to the mere notions of GDP, because firms must cope with the
political, cultural, and educational dimensions of countries, as well as their economies. According to IMD, it is in providing firms with an environment that has the most efficient structure, institutions and policies that nations compete with each other (Ramanaukas, 2004). Actually in this discussion about the precise definition of economy’s competitiveness arises a conflict between individualistic and holistic approach: the former emphasizes the role of firms, the latter – the role of state. P. Krugman (1996) argues that only firms can be competitive as one firm’s success will often be at the expense of another, and the success of one country creates rather than destroys opportunities for others. So to P. Krugman’s (1996) mind, countries’ battle for market shares has not the same meaning as for the firms. So the countries can only compete by increasing their living standards. As growth of national living standards is essentially determined by the growth rate of productivity, P. Krugman (1996) says that if competitiveness of a country has any meaning it is just another way to say productivity. M. E. Porter (1998) also agrees with Krugman’s position saying that „a nation’s standard of living in the long term depends on its ability to attain a high and rising level of productivity in the industries in which its firms compete“. Moreover, M. E. Porter (1998) stresses, that national productivity is the only meaningful concept of competitiveness at the national level. Thus it is not surprising that the differences of competitiveness at the national level, according to Porter, can be explained by the determinants of productivity and the rate of productivity growth. For this purpose Porter proposed the „Diamond“ theory, which interprets the determinants of national advantage, or determinants of productivity. The theory, in broad terms, puts an emphasis on four cornerstones: 1) factor conditions, 2) demand conditions, 3) related and supporting industries, and 4) firm strategy, structure, and rivalry. Although it is not the purpose of this paper to provide a deeper analysis of the theory, it should be noted, according to the authors of this paper, that M. E. Porter (1998) makes a synthesis of individualistic and holistic approaches, i.e. although Porter states that „firms not nations compete in international markets“, he also recognizes the role of government in forming the right incentives and proper conditions for business.

Although early definitions of international competitiveness emphasized the GDP and its growth and later institutions and scientists criticized this attitude, the authors suppose that early concept of competitiveness and its critics have more common than it is thought. The expression of GDP in expenditure approach is:

\[ Y = C + I + G + EX - IM \]

where, \( C \) – private consumption, \( I \) – private investment, \( G \) – government expenditure, \( EX \) – exports, and \( IM \) – imports.

Thus national competitiveness is associated with growth of real income of citizens (\( Y \)) due to increase in country’s exports (\( EX \)). But as some authors state (Krugman, 1996; Porter, 1998), an increase in productivity means and increase in international competitiveness and ability to meet the needs of foreign markets. Yet, according to the “Diamond” theory, demand conditions, or the nature of home demand, influence the growth of productivity of domestic business entities, i.e. from the macroeconomic point of view, the composition of C has impact on productivity and competitiveness growth. No
doubt that private investment (I) on average increases productivity of business entities. Moreover, government (G) plays an important role in forming the preconditions for successful operation of firms in local and foreign markets: investing in infrastructure, promoting scientific research, financing public education system, etc. Even imports due to the increasing degree of competition in domestic markets help to promote the firms to increase their productivity and, thus, to improve the ability to compete in the long run.

Despite the fact that all GDP components are related with productivity growth and international competitiveness, in this paper we mainly focus on exports and exports’ (international) competitiveness. The latter is “understood as the ability of the country to compete in international markets” (Ca’Zorzi, Schnantz, 2007). Even though the changes in productivity are important, as it is emphasized above, in most of the studies these changes are left aside as an endogenous factor.

Also there are some other approaches to international competitiveness in empirical literature and they put more weight on macro not micro side of competitiveness analysis. The most common view of exports competitiveness is related to price indicators. Price competitiveness can be improved by a decrease in export prices or domestic prices, and increase in foreign prices or a nominal depreciation of the domestic currency (Stahn, 2006). So the main concern here is about changes in nominal and real effective exchange rates that reflect the relative development of domestic prices.

Furthermore, the trend toward globalization and the associated increase in international competition suggests a heightened sensitivity of export performance to costs. A number of studies (e.g. Carlin, Glyn, Van Reenen, 1999) have used variables reflecting labor costs and technology to explain export performance. Technological improvement helps to increase productivity and to keep labor costs relatively lower. On the other hand, already Ricardian theory suggests that countries will specialize in industries in which they have a comparative advantage. So in that case labor costs should be initially lower than in other countries in the industries that contribute the most to export development. But this comparative advantage may shift over time, as M. E. Porter (1998) observes, “today’s low labor cost country is rapidly displaced by tomorrow’s”. Thus, changes in relative labor costs could be a good predictor for this transformation.

Some researchers (e.g. Cheptea, Gaulier, Zignago, 2005; Simonis, 2000) follow the Ricardian idea of comparative advantage. They analyze the exports structure and its changes in different countries in order to assess their export competitiveness. Due to changes in demand, a country’s initial geographical and sectorial specialization is an important factor shaping the development of exports competitiveness. So it is not only costs advantage that matters, but also the development in global structure of foreign trade and a country’s ability to grab these changes.

**Methodological Background**

The research on competitiveness of Lithuanian exports with some exceptions is based on the methodology used in ECB occasional paper (2005). The general idea lying behind the concept of exports competitiveness is that competitive countries are able to sell their production easily in
international markets. Gains or losses of exports market shares are often considered as an indicator of trade competitiveness of an individual country. So the change of market share under development of exports is the main subject of competitiveness analysis.

In this study we analyze market shares. The market share can be computed as a total or as a weighted indicator. For large economies (such as Euro Zone, USA, Japan, Germany etc.) usually a share of a country’s exports in the total market for exports is calculated. But for small economies, that have a smaller number of export markets and their shares in the world exports are poor, weighted indicator should be much better. We use weights for geographical exports markets according to their importance in Lithuanian exports.

There are different factors analyzed when making studies about exports competitiveness: price indicators and geographical and product structure of export. Price competitiveness is commonly understood as a manufacturer’s capacity to compete at current prices in international markets. In macro level it is typically measured using relative exports prices (RXP) and real effective exchange rates (REERs). In line with them, price competitiveness is often examined on the basis of indicators, which use cost measures and reflect more a country’s “underlying competitiveness” which is defined as the relative cost position of the country. Intuitively relative export prices should explain quite well the developments in exports of the country, as they tend to be a combination of both: mark-up on costs as well as pricing-to-market strategies. As a result, export prices of goods are likely to change in line with domestic costs and competitors’ exports price. But it has some limitations as well as the other measures available (see Ca’Zorzi, Schnatz, 2007).

Exports development and changes in its market shares does not only depend on price competitiveness. A change in composition of exports across countries and products may have an impact on relative exports price index without implying a change in competitiveness conditions. So product and geographical structure of a country’s exports can also make an affect. Constant market share analysis (CMSA) is a traditional tool to deal with such structure effects. The underlying feature of this method is that countries with strong initial position on the most dynamic markets and products benefit from the higher exports growth. So if Lithuania is more specialized in export products and destination markets where demand is strong in comparison to other products and markets, then its aggregate exports market share will tend to increase. The technique of CMSA provides a breakdown of a country’s exports performance into the separate components. Some of them are due to exports product and destination market composition, and some – due to other factors, defined as competitiveness. There is a detailed explanation about CMSA technique and its application to assess exports growth at country level provided in A. Chaptea, G. Gaulier and S. Zignago (2005) working paper.

The total effect in CMSA measures the variation in the aggregate exports market share and it can be divided into two main parts: structure effect and competitiveness effect. A structure effect measures hypothetical change in the aggregate exports market share because of the geographical breakdown and sectorial composition of country’s exports. In general it is further decomposed into three terms. Product effect reflects the changes due to adaptation
of the sectorial breakdown of exports. Market effect shows the exports market share growth from changes in geographical structure of exports. And the residual corresponds to the market share growth because of initial market and product structure of exports. Competitiveness effect reveals the capacity of a country to increase its market share independently of structural development. Sometimes it is called “pure” market effect as it summarizes the changes in price competitiveness as well as change in non-price competitiveness, expressed by qualitative factors reflecting product differentiation.

The aggregate export market share in value terms is calculated as a weighted sum of market shares of Lithuanian exports in the export markets analyzed. Lithuanian export market share for each geographical destination is calculated by using statistics of imports of every country. This helps to increase the compatibility of the data analyzed. The share of each destination country in total Lithuanian exports is used as its weight. In this way we address to the changes of market shares in different markets by their importance for Lithuanian exports. So the indicator could be a better predictor for export development in the nearest future. The weights are adjusted for every year accordingly to the development of exports. Lithuanian export market share during the period \( t \) is calculated:

\[
XMS_t = \sum_i \alpha_i \frac{I_{ij}^{LT}}{I_{ij}}
\]  

(2)

Where, \( \alpha_i \) is a weight for country \( j \) at time \( t \) (its share in Lithuanian exports), \( I_{ij}^{LT} \) – imports from Lithuania in country \( j \) at time \( t \), and \( I_{ij} \) – total country’s \( j \) imports at time \( t \).

For the CMSA assessment we adopt the calculation technique used in ECB (2005) working paper. The change in export market shares between any two periods (total effect) is measured by the difference between Lithuanian export growth and a weighted sum of import growth in trading partners. Total effect is decomposed as follows:

\[
g_t^{LT} - g_t = \left[ \sum_i \sum_j \left( \frac{I_{ij}^{LT}}{I_{i,t-1}} - \frac{I_{ij}}{I_{i,t-1}} \right) g_{ji} \right] + \left[ \sum_i \sum_j \frac{I_{ij}^{LT}}{I_{i,t}} (g_{ij}^{LT} - g_{ij}) \right]
\]

(3)

Where, \( g_t^{LT} \) (\( g_{ij}^{LT} \)) stands for y-o-y growth rate of total (product \( i \)) imports from Lithuania in all partner countries (country \( j \)) at time \( t \). Whereas \( g_{ji} \) is y-o-y growth rate of product \( i \) imports in a country \( j \) at time \( t \). Growth of total imports in all export markets of Lithuania analyzed (\( g_i^{LT} \)) is computed as a weighted sum of total imports growth rates in every market.

Respectively \( I_{ij}^{LT} \) (\( I_{ij} \)) is total (product \( i \)) imports from Lithuania in all its export markets analyzed (market \( j \)) and sum of total (product \( i \)) imports in the same markets (market \( j \)).

The first term in square brackets is the structure effect as it sums the gains and losses of market share caused by relative export specialization in particular products and markets. Accordingly to the calculation method, it should be positive if Lithuanian export structure is more concentrated on high-growth products and/or markets than its competitors in the main export markets. Traditional studies used the export structure of the initial year; therefore the structure effect was affected.
by the changes in structure that occurred during the time analyzed. In CMSA technique of ECB (2005) that is also applied in this paper, the structure of imports and exports is calculated continuously. So that the structure effect can be decomposed into product (Formula 4) and market (Formula 5) effects and a mixed structure effect which is a residual.

\[
\text{product\_effect} = \sum_i \left( \frac{I_{t-1}^{LT}}{I_{t-1}} - \frac{I_{t-1}}{I_{t-1}} \right) \times g_{jt} \quad (4)
\]

\[
\text{market\_effect} = \sum_j \left( \frac{I_{t-1}^{LT}}{I_{t-1}} - \frac{I_{t-1}}{I_{t-1}} \right) \times g_{jt} \quad (5)
\]

Product effect reflects the changes in exports due to its product structure. If Lithuanian exporters are more specialized in products that foreign demand grows faster, the product effect should be positive. Market effect is related with exports orientation towards particular geographical markets. The market effect should be bigger if the bigger share of Lithuanian exports is orientated towards faster growing markets. Mixed structure effect in this case comprises the interaction between product and market effects, as it is not possible to completely isolate product and geographical structures. Depending on the calculation sequence in traditional studies either the product or market effect should include this interaction. ECB (2005) proposes the solution to calculate and present “mixed structure effect” which is applied in this paper too.

**Results of Empirical Research**

The development of Lithuanian export during 2009 - 2012 suggests about the rapid recovery from economic downturn. On average export growth was about 12 % per year and the export to EU-28 was growing at a similar rate. Despite that Lithuanian export market share didn’t change much (Fig. 1). Only in 2012 the results of Lithuanian export are twofold: the growth rate of exports slowed down but the market share increased. Such situation may suggest about increasing competitiveness or favorable structure of Lithuanian exports. This highlights the importance of export structural analysis which was conducted with the help of CMSA.

As the market share of Lithuanian exports was increasing over time, this means that in general Lithuanian export was growing faster than total imports in the main Lithuanian export markets. The calculations for CMSA supports this idea and indicates that only in 2009 the growth of Lithuanian export was slower than the growth rate of total import in the main export markets. As year 2009 was the lowest point in recent economic crisis, the negative total CMSA result indicates that imports from Lithuania in EU-28 decreased more than total imports. The detailed analysis suggests that decrease in market share in 2009 was due to all the possible reasons: losses in competitiveness and unfavorable export structure (both: product effect and market effect).

If we go more into details we will find that the biggest loss of Lithuanian export market share was in Latvia and Estonia (the biggest negative market effect). These two Baltic countries are of the main importance for Lithuanian exporters and the economic recession was the biggest there in 2009. The positive thing is that even under severe economic recession and decrease of international trade Lithuanian exporters were able to increase their market share in Belgium, Czech Republic, Germany,
Spain, France, United Kingdom, Italy and the Netherlands. The Netherlands was the only country where imports from Lithuania grew by 9%. This was mainly caused by one-off increase in exports of cereals, coffee and tea and seeds and fruits.

Therefore despite this successful reaction of Lithuanian exporters, the total product effect in 2009 is still negative. And we can hardly find any group of products with strongly positive effect. Works of art is an exception but the positive Lithuanian export product effect in this case is because this group of product is of a very small importance in Lithuanian exports compared with total imports of EU-28.

Further development of Lithuanian export and its market share suggests about the increasing competitiveness of the exporters. But one should mention that the rate of incensement diminishes in 2012. This may be a signal for slower export growth rates in the nearest future. On the other hand the enormously high export growth rates in 2010 and 2011 may be caused by statistical effect as the amount of export had to come up to its initial level that was observed before economic recession.

![Graph](image)

**Fig. 1. Growth rate of Lithuanian export to EU-28 and its export market share (XMS)**

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOTAL</strong></td>
<td>-0.076</td>
<td>0.128</td>
<td>0.195</td>
<td>0.096</td>
</tr>
<tr>
<td>Competitiveness</td>
<td>-0.023</td>
<td>0.092</td>
<td>0.121</td>
<td>0.065</td>
</tr>
<tr>
<td>Structure effect</td>
<td>-0.053</td>
<td>0.036</td>
<td>0.073</td>
<td>0.030</td>
</tr>
<tr>
<td><strong>Product</strong></td>
<td>-0.043</td>
<td>0.035</td>
<td>0.037</td>
<td>0.014</td>
</tr>
<tr>
<td><strong>Market</strong></td>
<td>-0.049</td>
<td>0.023</td>
<td>0.056</td>
<td>0.031</td>
</tr>
<tr>
<td><strong>Mixed</strong></td>
<td>0.038</td>
<td>-0.021</td>
<td>-0.020</td>
<td>-0.015</td>
</tr>
</tbody>
</table>
Looking at the more detailed results of CMSA (Table 1) we can see that competitiveness effect had a bigger impact on export growth than structure effect. This is a positive trend for Lithuanian export development in the future as it suggests about better positions of exporters. The structure effect was at least twice smaller than the competitiveness effect but all the time positive. That indicates that Lithuanian export was more orientated towards faster growing markets and products with increasing foreign demand.

Bigger market effect compared with the product effect suggests that market orientation of Lithuanian export is more favorable. But going into more detailed analysis we can mention that increase in market effect was mainly due to fast growth of Latvian and Estonian economies as a recovery from severe economic crisis. Relatively lower Lithuanian export orientation towards these big and faster growing EU markets caused negative market structure indicators with most of bigger EU-28 economies. This suggests about export growth possibilities if Lithuanian exporters could gain bigger market shares there.

However Lithuanian export product orientation indicates some downside risks. The results of sectorial analysis indicate that all the gains of product affect was due to fertilizers (chemicals industry). Fast growth of global demand and Lithuanian export orientations towards fertilizers (they make about 5% of total export) are the factors of Lithuanian export growth. Some problems in fertilizers import markets in 2012 determined the slowdown of exports and lower product effect as well. Such a big dependence of export success on a single product creates risks for the nearest future. On the other hand a positive development is that there is no sector with significantly negative product effect. This indicates that in general Lithuanian export structure is more orientated towards sectors with growing global demand and less orientated towards sectors with decreasing global demand.

**Conclusions**

The CMSA analysis of Lithuanian export to EU-28 during 2009 - 2012 (post-crisis period) revealed that increasing market shares of Lithuanian exporters was more due to gains in competitiveness but export structure was also favorable. However, more detailed structural analysis showed some downturn risks for Lithuanian export. High growth of Latvian and Estonian economies and the demand for Lithuanian production was mainly due to fast recovery from severe economic downturn. As the recovery stops and economies will start growing at their trend rate, the market orientation effect and Lithuanian export growth may be much lower.

If we compare recent situation with the pre-crisis period (Kalendiene, Miliauskas, 2011), it is obvious that gains in market share now are much smaller than it was before. It is mainly due to lower competitiveness effect. Though, market orientation of Lithuanian exports in EU is almost the same.
References


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