The competitiveness of Polish manufacturing export on the EU market in the years 2004-2006

Olczyk, Magdalena

Gdańsk University of Technology

2008

MAGDALENA OLCZYK

POLITECHNIKA GDAŃSKA

THE COMPETITIVENESS OF POLISH MANUFACTURING EXPORT ON THE EU MARKET IN THE YEARS 2004-2006

Introduction

The author decided to analyze the competitiveness of the Polish export of industrial commodities on the EU market for three reason. The first reason being the lack of complex research concerning the competitiveness of export. The publications, with which the author is familiar, are regarding either selected aspects of the competitiveness of export. The second reason is the lack of information which is necessary in order to construct Polish pro-export policy. Meaning a type of policy encouraging investments in competitive branches of export. The third grounds for interest in this subject is the current relevance of this problem. In March 2000 at the meeting of the European Council in Lisbon, the Countries of the EU determined their strategic goal for the summer of 2000-2010 as, "becoming the world's most competitive economy, based on knowledge, with the ability to generate permanent growth which will guarantee more job opportunities and a higher level of social care." In this context it is necessary for Poland (as a member of the European Union) to evaluate of its level

of competitiveness as well as to monitor its changes. Moreover it is of great importance to recognize the advantages and disadvantages of Polish export in order to achieve faster and greater success on the uniform European market.

The author limited the choice of the subject of analysis to the export of industrial commodities. Taking into consideration the whole flow of Polish export, the author consciously made the decision to omit the export of service due to the fact that any kind of research on this subject and its competitiveness would require a different research methodology. Moreover the author also omitted the analysis of the export of agricultural products. The reason for this is the specific nature of the rotation of these commodities, connected with the interaction of common agricultural policy on European market.

Competitiveness as a comparative category requires reference to a different object. As a comparative level in analysis, the author has chosen other transforming countries from the region of middle-eastern Europe e.g. The Czech Republic, Hungary, Slovakia. The reason for this selection stems from quite obvious premises. These are countries which are under-going transformations, at a similar level of economic development, for which the Countries of the European Union are also the largest and most strategic export market.

The statistical data has been obtained from the base of Eurostat – COMEX. It provides information concerning the value as well as the volume (in physical units) of our export, ranked according to the HS 2 classification.

The methodology

The analysis had two aims. First was to defining the level of competitiveness of the Polish export of industrial products on the market of the EU between the years of 2004-2006. The author used the Constant Market Share method[1], which we can be mathematically written as:

$$\Delta X_i = \sum_i \Delta x_{ij} = \underbrace{\sum_i x_{ij}(\Delta M/M)}_{\textbf{demand effect}} + \underbrace{\sum_i x_{ij}[(\Delta M_j/M_j)-(\Delta M/M)]}_{\textbf{structural effect}} + \underbrace{\sum_i x_{ij}[(\Delta x_{ij}/x_{ij})-(\Delta M_j/M_j)]}_{\textbf{competitiveness efect}}$$

where:

X_i – total export of country „i" (Poland) of commodity „j"

Mj- EU's total import of commodity „j"

M- EU's total import, Δ- stand of increment

[1] Tyszyński H.: *World trade in manufactured commodities,1890-1950*. „The Manchester School of Economics and Social Studies" 1951, nr 19, p. 222-304.

This method decomposes the increase of the Polish export of industrial commodities on the market of the European Union between the years of 2004-2006 into three parts. The first part called the demand effect, illustrates the hypothetical increment of export, which we would achieve if Polish export on the EU market grew at the same rate as world export. The second part is called the structural effect. Its positive value occurs when our export on the EU market is dominated (which is advantageous) by export commodities characterized by the level of export increase which is greater than the level of import increase in the Countries of the European Union. The last part called the competitiveness effect, has the most important meaning in this method. If the effect of competitiveness (the residual value) is greater than zero, the competitiveness of the export of a given product has increased. On the basis of this method one can answer the question what is the level of the competitiveness of Polish export of industrial commodities on the EU market in comparison with Czech, Hungarian and Slovak exportation on this market.

Second aim of this analysis is to find the basis of an efficient strategy of increasing Polish export on the European market. To succeed it the author used the so-called matrix of competitiveness. We create this using two indicators. First is the indicator of relative price, being the relation between the price in export and the price in import of a given product. The cost of export is obtained by dividing the values and volumes of the export of a given product. Then we must go about counting the cost of import analogically. The second indicator shows the participation on the market being the quotient of Polish export of a given product on the EU market to the size of EU import of this product. Using these two indicators the author had created a matrix for competitiveness, which separates Polish export on the EU market into four streams e.g. the export of commodities with an efficient strategy of competing with quality, export with an efficient strategy of competing with price, the export of commodities with a potentially efficient strategy of competing with quality as well as the export of commodities with an inefficient strategy of competing with a lower price.

The results of analysis

To answer to the question, how looks the level of the competitiveness of Polish export on EU market after accession, the author decomposed the manufacturing export of Poland, Czech Republic, Hungary and Slovak Republic to the three effect of CMS method (see table 1).

Table 1. Manufacturing export of Poland, Czech Republic, Slovak Republic and Hungary to the EU market between 2004-2006: components of CMS method.

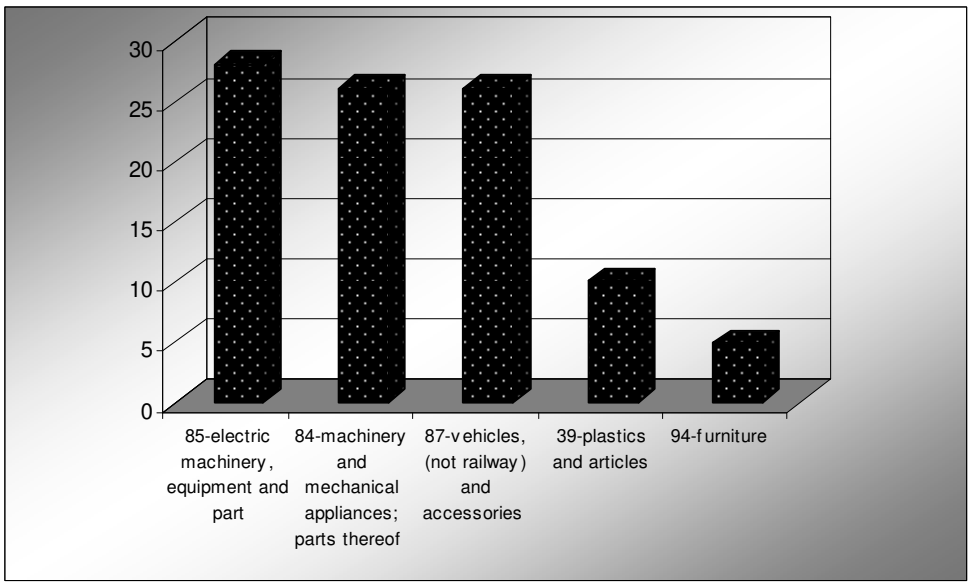
country	export increase 2004-2006	demand effect	structural effect	competitiveness effect
Poland	16,76	9,63	-1,8	7,52
Czech R.	16,21	9,46	-1,8	8,55
Slovak R.	5,68	4,44	-0,37	1,61
Hungary	8,19	7,55	-1,49	2,13

Source: Eurostat Comext database and own calculations.

The Polish export was characterized by the lowest participation of demand effect in export increase during 2004-2006. It means the Polish export was the least dependent on European prosperity among the other analyzed countries, what guarantee a stable growth of it in the future. Additionally the structure of Polish exportation (like other countries) was very advantageous, what showed the low (although sill) negative value of structural effect (level only 2% of Polish export increase between 2004-2006). It means all analyzed countries tend to specialize in export of commodities for which European demand has been growing above average in the EU. But what most important is, that the level of competitiveness (calculated as a participation of the competitiveness effect in export growth) of Polish export to UE was so high as the competitiveness of the Czech exportation. This result was moreover a twice better than an outcome of Slovak Republic and Hungary in their manufacturing export to the European market.

The Constant Market Share analysis allowed too identify the first fifth sections of Polish, Czech, Slovak and Hungarian export to EU in the years 2004-2006, which generated the largest value of competitiveness effect (see graph 1). They were first of all electro-machinery industrial commodities like electric and mechanical machinery and their parts and vehicles together with accessories for them.

Graph 1. Top 5 of industrial section with the largest competitiveness effect in Polish export to UE between 2004-2006 (in % of total competitiveness effect).



Source: Eurostat Comext database and own calculations

What were quite surprising, that almost the same industrial sections were the competitive winner in Czech, Slovak and Hungarian exportation to the European market between 2004-2006 e.g. motor vehicles, electric machinery, mechanical equipment figured as the most successful (most competitive) export commodities (see table2).

Table 2. Top 5 of industrial commodities with the largest competitiveness effect in Czech, Slovak and Hungarian export to UE between 2004-2006 (in % of total competitiveness effect).

Top 5	Czech Republic	Slovak Republic	Hungary
1	84- machinery and mechanical appliances	85- electric machinery, equipment and parts	84- machinery and mechanical appliances
2	87-vehicles, parts and accessories	84- machinery and mechanical appliances	87-vehicles, parts and accessories
3	85- electric machinery, equipment and parts	39-plastics and articles thereof.	85- electric machinery, equipment and parts
4	95- toys, games & sports equipment	74-copper and articles thereof	95- toys, games & sports equipment
5	39-plastics and articles thereof.	48- paper & paperboard & articles thereof	39-plastics and articles thereof.

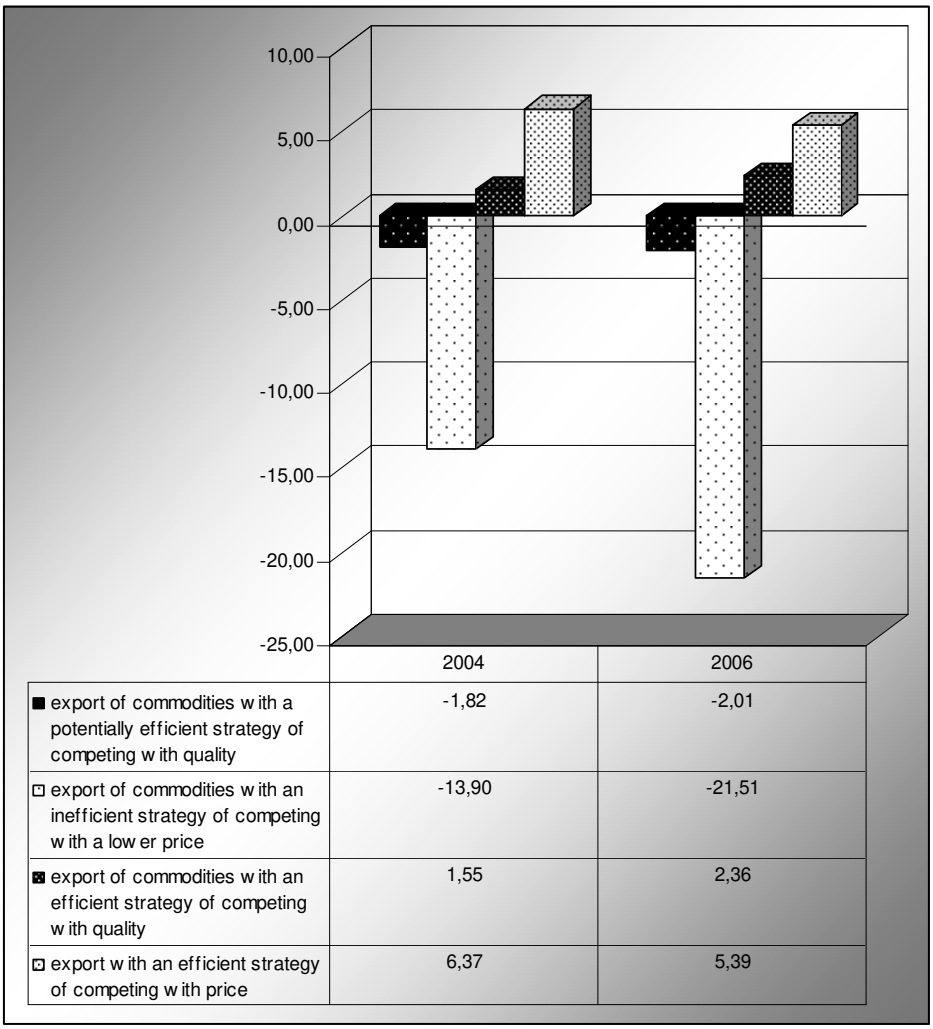
Source: Eurostat Comext database and own calculations.

To identify the base of competitiveness of Polish export on the EU market in the years 2004-2006 the author created the competitiveness matrix for Polish exportation to this market (see graph 2). The analysis showed, that the low price of industrial commodities was the main base of Polish export to European market (almost $^{2}/_{3}$ in 2004 year and ¾ in 2006 year of export sections had a unit value ratios below 1). The strategy of low price was completely inefficient (see the negative total sum of trade balance of Polish export to UE market with an efficient and an inefficient strategy of competing with low price. Additionally strongly increasing between 2004-2006 years the negative trade balance of export of commodities with an inefficient strategy of competing with a lower price showed, that Polish exporters loosed their "export price gap" on EU market.

In the years 2004-2006 the successful export strategy for Poland to compete on EU market was high price. It is reflecting in generating in year 2006 the positive trade balance in sections, where a unit value ratios was above 1. Regrettably a detailed analysis showed, that Polish high quality commodities (with positive trade balance)

belonged to low technology driven industries (like section 44 – wood and articles of wood and 61-63- textile articles).

Graph 2. The matrix of competitiveness for Polish manufacturing export to EU between 2004-2006 (balance of trade in mld euro).



	2004	2006
export of commodities with a potentially efficient strategy of competing with quality	-1,82	-2,01
export of commodities with an inefficient strategy of competing with a lower price	-13,90	-21,51
export of commodities with an efficient strategy of competing with quality	1,55	2,36
export with an efficient strategy of competing with price	6,37	5,39

Source: Eurostat Comext database and own calculations

Conclusions

On the basis of calculations the author has come to the following conclusions. The level of competitiveness of Polish export on the EU market is so high as the export of Czech Republic and twice better than the exportation other analyzed countries e.g. Hungary

and Slovakia. In the years 2004-2006 the fundament of the competitiveness of Polish export onto the market of the European Union was low price, what was (as showed the analysis) an inefficient strategy. While between the years 2004-2006 the Polish export of high quality industrial commodities generated a positive trade balance, but still remains to determine the margin of Polish export onto the EU market.

References

Aiginger K., Landesmann M.: *Competitive economic performance: the European view*. Wiedeń: WIFO, Working papers, nr 179, 2002.

Aiginger K.: *A framework for evaluating the dynamic competitiveness of countries*. „Structural Changes and Economics Dynamics", 1998, nr 9.

Aiginger K.: *Measuring the position of countries on the quality ladder*. WIFO Report, 1996.

Aiginger K.: Specialization and concentation of European manufacturing. Enterprise DG, Working Paper, 1999, nr 1.

Aiginger K.: *The use of unit values to discriminate between price and quality competition*. „Cambridge Journal of Economics", 1997, nr 21.

Aignger K.: *The unit values as a complemantary measure for assessment of the competitiveness of nations*. Contributed paper to the MIT-Workshop "On the future of industry". Boston, 1995.

Aiginger K.: *Unit values, quality ladders and non-price competition*. OECD Conference on new indicators for the knowledge-based-economy. Paryż, 1996

Bowen H., Pelzman D.: *U.S export competitiveness, 1962-77*. „Applied Economics" 1984, nr 16, p. 461-473.

Burzyński W.: *Analiza konkurencyjności polskiego eksportu do Unii Europejskiej przeprowadzona metodą jakościowo-cenową*. W: Korzyści i koszty członkostwa Polski w Unii Europejskiej. Praca zbiorowa. Warszawa: IKiCHZ, 2000, T.1.

Chern T., Ping T., Robinson E, Wilson P., Chuan H.: *Assessing Singapore's export competitiveness through dynamic shift-share analysis*. Singapur: Monetary Authority of Singapore, 2002.

Havlik P.: *Trade and cost competitiveness in the Czech Republik, Hungary, Poland and Slovenia*. Waszyngton: The World Bank, 2000, paper nr 482.

Havlik P., Ladesmann M., Steher R.: Competitiveness of CEE Industries: Evidence from foreign trade and specialization and quality indicators. Austrain Institute of Economic Research, 2001.

Marczewski K.: Selected aspects of competitiveness of Polish exports. Warszawa: IKiCHZ, 1997.

Milana C.: *Constant market shares analysis of export growth*. „European journal of political economy" 1984, nr 4, p. 453-478.

Richardson J.: *Some sensitivity tests for a "Constant Market Share" analysis of export growth*. „Review of economics and statistics" 1971, nr 53, p. 300-304.

Riguaz L.: *Market Share Analysis applied to Canadian wheat exports*. „Canadian Journal of Agriculture Economics" 1971, nr 19, p. 22- 34.

Sprott D.: *Market share analysis of Australia's wheat exports between 1950-51 and 1960-70*. „The Wheat situation" 1990, nr 35, p. 11-60.

Stern R., Leamer E.: *Quantitative international economics*. Chicago: Aldine Publishing, 1970.

Tyszyński H.: *World trade in manufactured commodities,1890-1950*. „The Manchester School of Economics and Social Studies" 1951, nr 19, p. 222-304.

Olczyk M.: *Konkurencyjność- teoria i praktyka.* Cedewu, Warszawa, 2008, p.125-157.

Konkurencyjność polskiego eksportu artykułów przemysłowych na unijny rynek w latach 2004-2006

Celem artykułu jest określenie poziomu i fundamentu konkurencyjności polskiego eksportu artykułów przemysłowych na Wspólnym Rynku na tle wybranych krajów.

Wyniki analizy przeprowadzonej metodą Constant Market Share, zastosowanej do dekompozycji wzrostu eksportu Polski, Czech, Słowacji i Węgier na rynek Unii Europejskiej w okresie 2004-2006 wskazały, iż Polska stała się (obok Czech) liderem pod względem struktury i poziomu konkurencyjności lokowanych na unijnym rynku towarów przemysłowych. Głównym źródłem wzrostu wywozu Polski na unijny rynek w analizowanym okresie był wzrost konkurencyjności wywożonych na ten rynek towarów. Ponadto systematyczny wzrost polskiego wywozu w latach 2004-2006 był skutkiem pozytywnych zmian w polskiej strukturze towarowej. Działy, które w największym stopniu generowały dodatni efekt konkurencyjności w analizowanym okresie były jednakowe dla wszystkich analizowanych krajów. Należały do nich najbardziej zaawansowane technologicznie działy takie jak: maszyny i urządzenia mechaniczne, maszyny i urządzenie elektryczne oraz pojazdy nieszynowe.

Analiza macierzy konkurencyjności Polski, Czech, Węgier i Słowacji na rynek UE w latach 2004-2006 wskazała na silnie rosnącą skuteczność polskiego eksportu towarów przemysłowych wysokiej jakość, przy dominującej, lecz nieskutecznej cenowej formie konkurowania na unijnym rynku. W 2006 roku Polska odnotowała na rynku UE dodatnie saldo wymiany w kategorii artykułów przemysłowych wysokiej

jakości, co może świadczyć o rodzącej się, nowej, skutecznej formie konkurowania na unijnym rynku.