

International Competitiveness of the Polish Protective Clothing Manufacturers in Face of European Integration

Abstract

This article attempts to assess the competitiveness of Polish protective clothing manufacturers based on relevant indicators. The analysis is built on statistical data from 1999-2004 according to the appropriate codes of the Eurostat Combined Nomenclature.

Keywords: international competitiveness, comparative advantage, competitive advantage, protective clothing, European single market.

On 1 May 2004, the Polish protective clothing market became part of the EU single market, thus becoming fully subject to market regulations. This fact considerably changed the situation in the Polish protective clothing market [1]. To achieve competitiveness on the single European market, the development of a company marketing strategy should be very carefully planned [2].

Additionally, the ongoing globalization of the economy, the mobility of capital, and the ever shorter periods in which innovations and products are developed, compel all nations and social groups to face new challenges [3]. Enterprises are forced to take new approaches to competition, and to modify their methods of operating in the new, more difficult and more demanding environment [4]. Therefore, it is especially important to assess the international competitiveness of the Polish protective clothing manufacturers, especially in the face of European integration.

The notion of international competitiveness

In economic literature, competitiveness is frequently given different meanings. In addition, the theory of international trade emphasises the need to distinguish between competitiveness and the concept of comparative advantages [5, 6].

A **comparative advantage** is defined as the ability of a given economy to manufacture a product more efficiently than other countries do; it is reflected in the directions of export and import specialisations.

A **competitive advantage** results from the strength of a given economy, or a branch of an economy, with respect to its foreign competitors that supply specific goods to the domestic and international markets [7].

Competitiveness depends on both macro- and microeconomic factors. As a concept, it is extremely complex, and so a number of definitions have been developed that vary with the concept's broader or narrower connotations.

In narrow terms, the concept includes only international trade, and it is used to determine a country's position in global trade. The dynamic aspect of this approach allows us to identify variations of the share that an economy (or its sectors) holds in total imports to a given market. Declines indicate lessening competitive advantage, and enlargements are assumed to reflect the growing competitiveness of the exports.

Examination of the broad aspect of competitiveness also takes into account other factors that are not directly related to foreign trade. The literature of the subject points up that **how a company is managed**, as well as other **microeconomic factors** mentioned above (including the ability to recognise the appearing threats & opportunities, and the skill of allowing prompt adjustment to the changing business environment), is becoming more and more important in building an ability to compete [8].

A special role is also attributed to relations between competitiveness and innovation; the significance of being innovative in the creation of so-called sustaining competitiveness is particularly stressed. Technological competitiveness and the ability to compete in the area of goods distribution are essential. Cost competitiveness remains important, but its role has been diminishing considering the globalisation of the economy. The prerequisite to a firm's building and maintaining sustained competitiveness in the global market is its ability to innovate [7].

This article attempts to assess the competitiveness of Polish protective clothing manufacturers based on relevant indicators. The analysis is built on statistical data from 1999-2004 according to the appropriate codes of the Eurostat Combined Nomenclature.

Methods employed to assess the competitiveness of Polish protective clothing

The following indicators were used to assess the competitive position of the Polish export of protective clothing to the EU's markets:

Branch specialisation indicator [8] given by the following formula:

$$u = \frac{X_{ij} - M_{ij}}{X_{ij} + M_{ij}}$$

where:

X - export;

M - import;

i - a given product; j - a given country.

If $M = 0$, then $u = 1$, $X = M$, then $u = 0$, $X = 0$, then $u = -1$, i.e. u may vary between -1 and 1 .

This indicator describes the percentage share of Poland's trade surplus (or deficit) in international trade in product i (here i stands for industrial and occupational clothing – IOC). In other words, the indicator describes the directions and intensity of the specialisation processes in the Polish economy with respect to its major trading partners [8].

In addition, we calculated the indicator's value for all of Section XI of the Combined Nomenclature – textiles and textile articles. The results are presented in Figure 1.

Figure 1 clearly indicates a very high degree of branch specialisation in industrial

and occupational clothing in Poland (the indicator's value is close to 1). The indicator is much higher than for all Section XI (textiles and textile materials). However, it has dropped slightly since 2003.

Branch specialisation in the IOC trade with third countries is also very high, but slightly lower than for the EU. As before, the Polish IOC shows an advantage over all textile articles, as well as in comparison with the indicator's value for an EU15 member state, namely Germany (see Figure 2).

Index of revealed comparative advantage

The competitiveness of the export of Polish protective clothing to the Community was investigated by calculating the revealed comparative advantage index (RCA), as given by the following formula:

$$RCA = \frac{\sum X_{ij}}{\sum X_{im}} \cdot \frac{\sum X_{mj}}{\sum X_{mj}}$$

where:

i – the type of product in selected, product groups (e.g. protective clothing),

j – the product-exporting country (e.g. Poland),
 m – the product group (textile articles and goods),
 X – export.

This index identifies the ratio between the share of Polish IOC export in the total IOC export to the EU markets and Poland's share in the export of textiles and textile articles to the EU markets. It does not have an upper limit, but its lower limit is zero. For particular product groups, values in excess of one mean that a comparative advantage has appeared [9, 10].

The RCA for industrial and occupational clothing, presented in Figure 3, shows that Poland is capable of competing in the single European market as an IOC producer (in all the years in question, the index value exceeded 1). The RCA values for particular years indicate Poland's comparative advantage as an IOC exporter to the single market. This conclusion is underpinned by the theoretical assumption that the foreign trade structure reflects the competitive positions of particular branches of manufacturing, with the positions hinging on the produc-

tion factors available in a given country. However, it is quite alarming that the analysed index has been visibly declining since 2002. If nothing is done to stop this trend, then Polish industrial and occupational clothing will run the risk of gradually losing its comparative advantage in the single market.

The Polish RCA's downward trend is largely connected with the steadily shrinking share of the Polish IOC export to the EU in the value of third countries' export to the Union (see Table 1).

An analysis of the data in Table 2 gives very interesting findings. Regarding the total value of occupational clothing exported from Poland, the EU accounts for 78% to 90% of products. A much smaller amount of protective clothing imported to Poland comes from the former EU-15 countries – from 30% to 39%. It is worth noting that the value of exported occupational clothing is between 9 to 16 times as high as its import value.

Unit values

Additionally, the unit value index was calculated, which illustrates the level

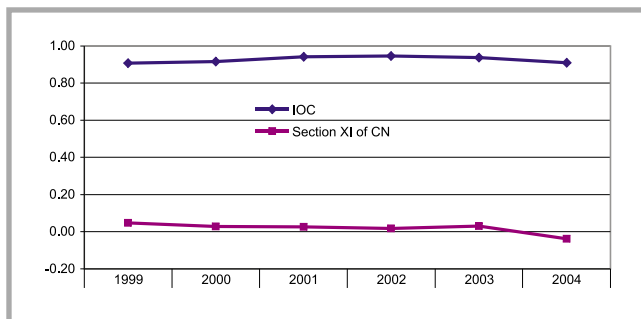


Figure 1. Branch specialisation indicator for trade in IOC and textile articles between Poland and EU (prior to enlargement of EU15), years 1999-2004; Source: author's calculations based on Eurostat data.

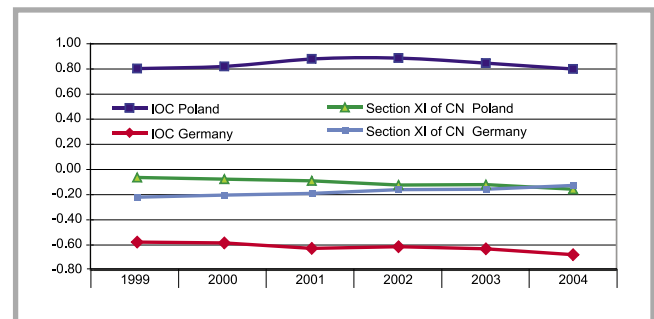


Figure 2. Branch specialisation indicator for trade in IOC and textile articles between: 1) Poland and the world, and 2) Germany and the world, years 1999-2004; Source: author's calculations based on Eurostat data.

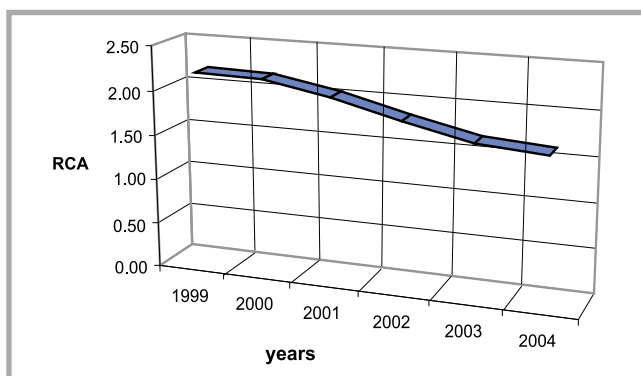


Figure 3. Poland's RCA in the IOC export to the European single market, years 1999-2004; Source: author's calculations based on Eurostat data.

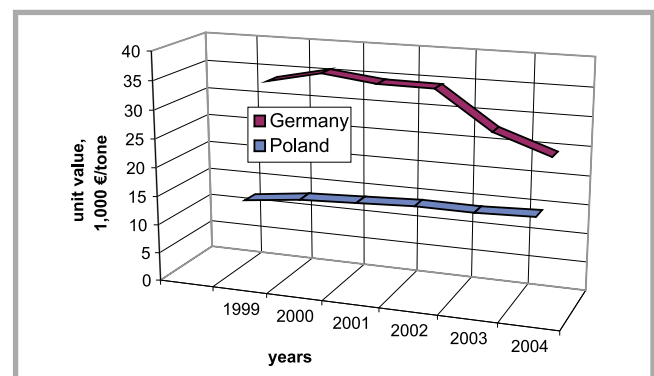


Figure 4. IOC unit value index in 1,000 €/tone in Poland and Germany, years 1999-2004; Source: author's calculations based on Eurostat data.

of unit values in the Polish export and in one EU15 country, namely Germany. Figure 4 markedly highlights the considerable difference between the unit values of the Polish and German IOC exported to third countries. Polish clothing is exported at significantly lower unit values. At the same time, however, the gap and the related price competitiveness of the Polish IOC are clearly diminishing. This trend has two sources: one is the gradually increasing unit values in Poland, and another the significant price reductions in Germany from 2002.

To make the analysis more precise, the import-prices to export-prices ratio has also been calculated for Poland's trade with the former EU-15 and with the world (see Table 3).

The analysis of the data in Table 3 allows us to draw the following conclusions:

- Average unit prices of Polish occupational clothing exported to the member states are stable, showing a slight upward trend.
- Average unit prices of imported occupational clothing are changeable, but during the period in question, they were invariably lower than the export prices. If we assume an average export unit price to be 100%, then an import price may make up from 58% to 98% of the former, depending on the period.
- Export of occupational clothing accounts for about 3% of export in section XI. The export of occupational clothing is characterised by an extremely worrying downward trend; since 1999 its share in total export declined by 17%.

An analysis of the data provided in Table 4 allows the following conclusions to be drawn:

- Average export unit prices in Poland's trade with the world are stable, and similar to prices in Poland's trade with the EU.
- However, unit import prices are lower than in trade with the EU, and their downward trend is distinct. Since 1999, they have dropped by more than 40%.
- The proportion of occupational clothing exported in section XI of Poland's trade with the rest of the world has been declining.

Table 1. Share of Polish IOC export to the EU in the total value of third countries' export to the EU; Source: author's calculations based on Eurostat data.

Years	EU import from third countries, 1,000 €	Poland's export to EU, 1,000 €	Proportion of Poland's export in the value of third countries' export to EU, %
1999	901,671	79,791	8.8
2000	1,012,762	80,620	8.0
2001	1,112,108	84,094	7.6
2002	1,083,824	70,874	6.5
2003	1,119,475	65,051	5.8
2004	595,995	31,455	5.3

Table 2. Share of Poland's trade with the Community in the trade in occupational clothing; Source: developed by the author based on Eurostat data.

Years	Export		import		export value/import value	
	total world 1000 €	incl. to EU, %	total world, 1000 €	incl. from EU, %	total	from EU
1999	88,696	90.0	9719	39.3	9.1	20.9
2000	94,664	85.2	9425	37.4	10.0	22.8
2001	102,280	82.2	6557	38.6	15.6	33.2
2002	89,148	79.5	5283	36.5	16.9	36.7
2003	82,966	78.4	6819	30.3	12.2	31.5
2004	38,842	81.0	4303	34.4	9.0	21.2

Table 3. Structure of Poland's trade in occupational clothing with EU-15 countries, years 1999-2004; Source: developed by the author based on Eurostat data.

Years	Average unit prices, 1000 €/t		Import prices to export prices ratio (export price = 100%), %	Share in the value of trade in occupational clothing in section XI, %	
	import	export		import	export
1999	15.3	15.5	98.7	0.17	3.31
2000	13.9	16.1	86.3	0.14	3.14
2001	10.0	16.4	61.0	0.10	3.12
2002	9.7	16.6	58.4	0.08	2.80
2003	10.2	16.5	61.8	0.09	2.66
2004	13.7	16.9	81.1	0.12	2.74

Table 4. Structure of Poland's foreign trade in occupational clothing, years 1999-2004; Source: developed by the author based on Eurostat data.

Years	Average unit prices, 1000 €/t		Import prices to export prices share (export price = 100%), %	Value of trade in occupational clothing in section XI, %	
	import	export		Import	Export
1999	11.0	15.0	73.1	0.31	3.20
2000	11.0	16.1	68.3	0.27	3.18
2001	8.7	16.5	52.7	0.17	3.22
2002	7.8	17.0	45.9	0.14	2.92
2003	6.3	16.9	37.3	0.18	2.81
2004	6.2	17.3	35.8	0.22	2.77

- In 2004, the value of occupational clothing imported in section XI CN under trade with the rest of world was 83% larger than the value of occupational clothing imported in section XI CN in trade with the EU.
- As an IOC-manufacturing country, Poland has achieved a very high level of branch specialisation, which proves the strong position of its manufacturers against their foreign competitors.

Conclusions

Our analysis of these indices enabled us to assess the competitiveness of the Polish IOC manufacturers, and to draw the following conclusions:

- Poland holds a comparative advantage in the IOC export to the EU, and therefore Polish IOC is a competitive product in the European market that buys 80% of the Polish IOC export (ca. 6% of all IOC import to the Community).

- Unit values in the Polish IOC export to the EU are higher than those in third countries' export to that area.
- Unit values of the Polish IOC export to the third countries are below German unit values and lower than the EU export unit values. Consequently, Polish exporters are price-competitive in the markets of third countries.
- A worrying phenomenon in the most recent period has been the downward trends suggested by almost all analysed indices.

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The 60th Anniversary of the Textile Research Institute (IW) in Łódź, Poland

The two-day celebration began on September 12, 2005 at the New Theatre in Łódź with a ceremonial meeting which was attended by invited guests, as well as former and present employees of the Institute. The official part of the meeting was opened by Jolanta Mamenas, the managing director of the Institute, who presented the Institute's foundation and history, its main achievements, and the outstanding researchers who have worked there since its foundation. Many congratulatory addresses followed, including from Stefan Krajewski, the Voivode of Łódź (provincial governor of the Łódź region), Marek Bartosik, the Ministry of Scientific Research and Information Technology, Prof. Jan Krysiński, the Rector of the Technical University of Łódź, Prof. Tadeusz Więckowski, the Rector of the Technical University of Wrocław, Prof. Tadeusz Kulik, the Rector of the Technical University of Warsaw, Prof. Janusz Szosland, the Honorary Chairman of the Polish Textile Association, Prof. Eckhard Schollmeyer, Prof. Henrik Wenzel, Prof. Marc van Parys, Dr. Victoria Vlasenko, and Dr Tatyana Chibisova, representatives of the Deutsches Textilforschungszentrum Nord-West e.V, Krefeld (Germany), the Technical University of Denmark; the Technical University of Ghent and UNITEX (Belgium), the Kiev National University of Technology and Design, Kiev (Ukraine), and the Nonwovens Research Institute, Serpukhov (Russia) respectively, and Prof. Izabella Krucińska, the Dean of the Faculty of Textile Engineering and Marketing, Technical University of Łódź.

Jadwiga Sójka-Ledakowicz Ph. D., Eng., the Institute's vice director responsible for scientific research, was awarded the Gold Cross of Merit, and Bogna Goetzendorf-Grabowska Ph. D. Eng., & Halina Królikowska M. Sc. Eng. —were awarded the Silver Cross of Merit; and 28 former & present employees were awarded congratulation letters.

The official part of the meeting was followed by the comedy 'Mayday' written by Ray Cooney, and by a dinner-party. The second day of the Anniversary celebration took place at the

International Scientific Symposium 'New Vision of Textile Industry and Economic Needs'

at the Dobieszków Conference Hall. The following lectures were presented:

- 'Nanotechnology to Functionalisation of Textile Materials' by Prof. Eckhardt Schollmeyer, DTNW, Krefeld, Germany.
- 'Perspectives for Material Engineering at the Beginning of the 21st Century' by Prof. Krzysztof J. Kurzydłowski, Technical University of Warsaw.
- 'Biotechnology in the Textile Industry' by Dr Jadwiga Sójka-Ledakowicz, Textile Research Institute, Łódź.
- 'Our Engineering Is Your Change to Innovations' by Prof. Mark van Parys, I. Garez, M.Eng., A. Deraeve, M.Eng., Technical University of Gent, Belgium.
- 'Microporous Polyurethane Membranes as a Basic Component of Multilayer High-tech Composite' by Prof. Stefan Brzeziński, IIMW, Łódź.
- 'Current Multifunctional Multiplayer Textiles: Unlimited Possibilities of Their Application' by Dr Victoria Vlasenko, EKMA, Kiev, Ukraine.
- 'Research and Innovation in Textile Industry: the Role of Technological Centres' by Dr Jan Laperre, Centexbel, Ghent, Belgium.
- 'Textile Dyes: Past, Present and Future' by Prof. Wojciech Czajkowski, Technical University of Łódź.
- 'Savings of Water and Energy by Process Integration in Polyester Dyeing: Latest Achievements and Perspectives' by Prof. Henrik Wenzel Christensen, IPU, Lyngby, Denmark.
- 'Modern Methods of High Quality Yarn Production' by Prof. Tadeusz Jackowski, Dr Danuta Cyniak, Dr Jerzy Czekalski, Technical University of Łódź.

An open-air party ended the anniversary celebrations.

TEXTILE RESEARCH INSTITUTE
Brzezińska 5/15, 92-103 Łódź, Poland
Tel. (director) (+48 42) 616-31-00
Fax (+48 42) 679-26-38
e-mail: info@mail.iw.lodz.pl http://www.iw.lodz.pl