

STATISTICAL ANALYSIS OF TEXTILE INDUSTRY AT THE EUROPEAN UNION LEVEL IN POST CRISIS PERIOD

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ABSTRACT

Textile and clothing industry represents an important part of the European manufacturing industry, and over the years has proven to be an essential activity for the economic performance and social welfare of many European regions. The textile and clothing industry has experienced significant development in recent decades as a result of technological advances, the evolution of production costs, the appearance of dominant international competitors and the abolition of import quotas after 2005. In response to competitive challenges, the textile and clothing industry experiences a long process of restructuring and modernization. Due to globalization and technological progress, a significant number of companies in the industry have redefined their strategy, striving for competitiveness. The aim of the paper is to analyze the evolution of the main indicators for the European textiles and clothing industry, under the influence of globalization and the recent economic crisis.

KEYWORDS: *textile and clothing industry, competitiveness, European clothing sector, globalization.*

JEL CLASSIFICATION: *L67, M11, M21, P42*

1. INTRODUCTION

The clothing industry around the world is confronted with a similar problem: the impossibility of commercializing the entire production of clothing (Popescu et al, 2013). The last economic crisis has led to a steady fall in production, a loss of markets that generated the dismissal of a large number of employees, the closure of underperforming enterprises or the shift of production to cheap labor. In order to cope with high competition and changes in the market, developed countries have adapted their processes, stepping up their research into automated systems of technology processes, leading to progress in automation and robotics as well as inventing new so-called smart sewing machines (Underhill, 2016). Thus, the automation of production processes becomes inevitable for the survival of firms in the new global economic context. The rapid change of fashion trends, the emergence of new materials and technologies, and increasingly demanding customers have imposed the need for flexible production, adaptable to variations in production parameters for innovative and in trends garments (Cuc et al., 2015).

Strong competition at EU level has contributed to the phenomenon of production delocalization from industrialized countries to developing countries, where labor costs are low and legislation is more permissive. In the medium term, this system has proven to be effective, allowing the existing enterprises to operate with modern machinery and technologies and staff already qualified in the

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field. In the long run, however, it is more profitable for an economy to sell the finished product under its own brand than to sell only labor, raw materials or semi-finished goods (Girneata & Dobrin, 2015). In the current economic context in which companies are trying to cope with national competition but, more importantly, they have to cope with the competition generated by international companies, innovation becomes the tool of growth and differentiation from tough competition in the textile market.

The liberalization of the European textile and clothing market in 1 January 2005 has allowed access to various markets, leading to increased exports and imports, but it has also been controversial because the industry concentrates a large number of employees, especially in regions where alternative work places would be difficult to find, a category that makes it vulnerable to permanent changes. Textiles and clothing are believed to be among the sectors in which developing countries have the most to gain from liberalization of multilateral trade (Folcut et al, 2009).

The clothing industry offers basic jobs for less-skilled workers in developed and developing countries within the European Union. Within this sector, modern technology can be easily integrated, even in poor countries, with a minimum investment. At the same time, the textiles and clothing industry has an important gain, especially where research, development and innovation are important competitive factors (Gardetti & Torres, 2013).

The phenomenon of company migration to less developed countries has spawned a new concept, namely that of factory-based producers (Carr et al., 2000). Companies often tend to focus on more profitable business segments by moving their business to countries with better economic conditions or by specializing only in activities that bring higher profits. As a result, many manufacturers are currently only dealing with the product design, choice of materials and product placement, preferring to outsource activities such as actual production.

2. RESEARCH METHODOLOGY

The research methodology involves analyzing the evolution of the main indicators that characterize the textile and clothing industry at European level, namely: *turnover*, *value of investments*, *number of employees* and *number of companies* operating in this sector of activity. The period for which tests were carried out is the post-crisis period: 2009 - 2016, and the data was taken from annual Euratex reports. For an in-depth analysis of the evolution of the mentioned indicators, we used the calculation of some indicators expressed by absolute values and by relative sizes.

Absolute indicators express the condition of the investigated phenomenon from a period or point of time or the changes occurring successively over time. **The absolute change** (increase or decrease) highlights with how many units of measurement the individual values have changed over a certain period of time, compared to another period chosen as the basis of comparison. Depending on the basis of comparison used, there were calculated two indicators: the absolute change calculated with fixed base and the absolute change calculated with the base chained.

Absolute change with fixed base is noted $\Delta_{i/0}$ and is obtained as the difference between the level of each period (y_i) and the reference period level (y_0).

The absolute change with the base chained is noted $\Delta_{i/i-1}$ and is calculated as the difference between the level of each year (y_i) and the level of the previous year (y_{i-1}) (Andrei and Bourbonnais, 2008).

$$\Delta_{i/0} = y_i - y_0 \quad (1)$$

$$\Delta_{i/i-1} = y_i - y_{i-1} \quad (2)$$

Indicators expressed by relative size reveal the proportion or the gap between the different levels of an indicator in distinct periods. **The dynamic index** calculated with fixed base is noted $I_{i/0}$ and it is computed as the ratio between the level of each year and the base year level, being expressed as a percentage. The dynamic index calculated with the base chained, $I_{i/i-1}$, is computed as the ratio between the level of each year and the level of the previous year, being expressed as a percentage, also (Andrei and Bourbonnais, 2008).

$$I_{i/0} = \frac{y_i}{y_0} \quad (3)$$

$$I_{i/i-1} = \frac{y_i}{y_{i-1}} \quad (4)$$

Furthermore, the research aimed at highlighting **the growth rate** with fixed base, $R_{i/0}$, which is calculated as the ratio of absolute change of each period of time and the level corresponding to the year taken as reference base, namely 2009. The growth rate with variable base, $R_{i/i-1}$ is calculated as the ratio between the absolute change with the base chained and the level of the previous year (Andrei and Bourbonnais, 2008).

$$R_{i/0} = \frac{y_i - y_0}{y_0} * 100 \quad (5)$$

$$R_{i/i-1} = \frac{y_i - y_{i-1}}{y_{i-1}} * 100 \quad (6)$$

3. CHARACTERISTICS OF THE TEXTILE AND CLOTHING INDUSTRY

The current production of textiles and clothing is characterized by the existence of several stakeholders of different sizes in geographically dispersed locations. Also, production includes various stages and activities that must be performed in order within a limited timeframe (Fernandez-Stark et al., 2011). The textile and clothing industry is characterized by high volatility, low predictability (Bruce and Daly, 2006), as well as by generally low profit margins.

Subcontracting is a common occurrence, intermediaries, through low production costs, reduce time prices, and the shortest production time is very important in this industry (Rossi, 2013; Masson et al., 2007). Industry experts believe that brands that are also retailers will get lower margins and will face rising costs (Kenneally, 2014), and more and more retailers will leave the market or they will be forced to reduce their operations. Retailers and large brands of textiles and clothing seek more flexibility in design, quality, and prompt delivery in order to maintain their competitiveness on the market.

The textile and clothing industry in Europe is diversified, characterized by innovation and creativity. Production is divided into three categories according to the targeted consumers: clothing and garments, home textiles and interior decorations and textiles that target a wide range of technical uses, including transportation, construction, medical care and furniture (Colovic, 2012). In a competitive global market, European enterprises have as their main competitive advantage research and permanent innovation. Due to their unique performance and durability characteristics, textiles are increasingly replacing traditional basic materials and technologies in areas such as transport, construction or health, with significant long-term growth potential (Euratex, 2012).

In recent decades, more and more retailers of clothing have emerged on the market and have organized supply chains globally. Manufacturers have, in parallel, transferred part of their production to low-cost countries in order to maintain their competitiveness on the market. This was also determined by the large wage gap in global labor markets and high profits from trade.

Phenomena such as globalization, including: liberalization, delocalization, international outsourcing, and internet development have had a major impact on the structure and dynamics of the textiles and clothing industry in Europe, and in particular on small and medium-sized enterprises (Gîrneată, & Mascu, 2014). Also, delocalization, subcontracting and outsourcing of major European textile and clothing brands have contributed significantly to increasing imports from low-cost countries. Competitiveness of the textile and clothing fell rapidly leading to restructuring and downsizing.

The most important expression of the management quality existing in the textile and clothing industry is the economic performance and competitiveness of this sector of activity (Girneata et al., 2015). The information contained in the following tables reflects the changes in the textile and clothing industry at European level in recent years and indicates the degree of competitiveness of these activities. Due to the complexity of the elements in the analysis, these will be explored in detail below.

The turnover of textile and clothing companies in the European Union has fluctuated during the analyzed period of eight years. As it can be seen from Table 1, turnover of the industry is characterized by a slight recovery after 2009, with the nominal value of this indicator rising by € 4.8 billion in 2010 and € 11.9 billion in 2011. This represents an increase of 2.87% and 7.13% respectively in each of the two years. Unfortunately, this growth was not sustainable, therefore, in 2012 the turnover decreased by 13.6 billion euros compared to the value recorded in the previous year. However, it is noted a reviniment from 2015, with increases of 2.48% and 1% from one year to the next, this growth tending to be a long-term one.

Table 1: Statistical analysis of textile industry turnover at the European Union level

Year	Turnover (Bil. Euro)	Absolute change		Dynamic index		Growth rate	
		$\Delta_{i/0}$	$\Delta_{i/i-1}$	$I_{i/0}$	$I_{i/i-1}$	$R_{i/0}$	$R_{i/i-1}$
2009	167.0	-	-	100.00	-	-	-
2010	171.8	4.80	4.80	102.87	102.87	2.87	2.87
2011	178.9	11.90	7.10	107.13	104.13	7.13	4.13
2012	165.3	-1.70	-13.60	98.98	92.40	-1.02	-7.60
2013	166.5	-0.50	1.20	99.70	100.73	-0.30	0.73
2014	165.3	-1.70	-1.20	98.98	99.28	-1.02	-0.72
2015	169.4	2.40	4.10	101.44	102.48	1.44	2.48
2016	171.1	4.10	1.70	102.46	101.00	2.46	1.00
Total	1,355.3	-	4,10	-	-	-	-

Source: Calculated by authors based on data included in Euratex Reports

The decrease in turnover can also be explained by the decrease in investments made by textiles and clothing companies, as shown in Table 2. The level of investments has the same trend as the turnover, with a slight decrease in 2012 and a minor recovery in 2016. The most notable decline was recorded in 2013, when the value of investments reached 4.1 billion euros, 16.33% less than in 2009 and 18% less than in 2012. Although investments in the last three years were increasingly higher in this sector, the 2009 values were not reached again.

Therefore, there is a growing interest of investors in this sector of production, at least at the level of the European Union, where the labor cost is maintained at a high level. Stagnation of investment appetite can also be explained by actions and decisions adopted at European level in recent years aimed at limiting the effects of the economic crisis and relying on the imposition of austerity policies within the EU member states. Thus, by lowering wages with certain percentages in some

countries, demand for many consumer goods, including clothing, has declined, and investors have been less convinced of the attractiveness of this area and have limited investment.

Table 2: Statistical analysis of textile industry investment at the European Union level

Year	Investment (Bil. Euro)	Absolute change		Dynamic index		Growth rate	
		$\Delta_{i/0}$	$\Delta_{i/i-1}$	$I_{i/0}$	$\Delta_{i/0}$	$\Delta_{i/i-1}$	$I_{i/0}$
2009	4.9			100.00			
2010	5.1	0.20	0.20	104.08	104.08	4.08	4.08
2011	5.3	0.40	0.20	108.16	103.92	8.16	3.92
2012	5.0	0.10	-0.30	102.04	94.34	2.04	-5.66
2013	4.1	-0.80	-0.90	83.67	82.00	-16.33	-18.00
2014	4.3	-0.60	0.20	87.76	104.88	-12.24	4.88
2015	4,3	-0,60	0,00	87,76	100,00	-12,24	0,00
2016	4,8	-0,10	0,50	97,96	111,63	-2,04	11,63
Total	37,8	-	-0,10	-	-	-	-

Source: Calculated by authors based on data included in Euratex Reports

The evolution of the number of employees in the industry within the 2009-2016 period follows a continuous descending trend (Table 3), from about 2,037,000 employees in 2009 to about 1,634,000 employees in 2014. In the last two years, there have been slight increases in this indicator, with 50,000 and 8,000 more employees from one year to the next. Currently, there are 16.94% fewer employees than in 2009, but 0.48% more than in 2015.

Table 3: Statistical Analysis of Textile Industry Employment at the European Union Level

Year	Employment (1000 pers.)	Absolute change		Dynamic index		Growth rate	
		$\Delta_{i/i-1}$	$I_{i/0}$	$\Delta_{i/0}$	$\Delta_{i/i-1}$	$I_{i/0}$	$\Delta_{i/0}$
2009	2.037			100,00			
2010	1.876	-161	-161	92,10	92,10	-7,90	-7,90
2011	1.834	-203	-42	90,03	97,76	-9,97	-2,24
2012	1.780	-257	-54	87,38	97,06	-12,62	-2,94
2013	1.664	-373	-116	81,69	93,48	-18,31	-6,52
2014	1.634	-403	-30	80,22	98,20	-19,78	-1,80
2015	1.684	-353	50	82,67	103,06	-17,33	3,06
2016	1.692	-345	8	83,06	100,48	-16,94	0,48
Total	14.201,0	-	-345	-	-	-	-

Source: Calculated by authors based on data included in Euratex Reports

Although the number of employees in the industry is decreasing, it can be noticed that the number of companies in the field has not experienced significant decline, being the only indicator that registered increase from one year to the next, except in 2010 and 2013 (Table 4).

In 2016, there were approximately 177.684 companies in the textile and clothing industry, 38.46% more than in 2009 and 1.84% more than in the previous year. It should be noted that the largest increase in the number of companies operating in this sector was registered in 2012. There were 24.28% more companies than in 2011, although in the same year the turnover, the level of investments and the number of employees in the textile and clothing industry have declined.

Table 4: Statistical Analysis of Textile Industry Companies at the European Union Level

Year	Companies	Absolute change		Dynamic index		Growth rate	
		$\Delta_{i/i-1}$	$I_{i/0}$	$\Delta_{i/0}$	$\Delta_{i/i-1}$	$I_{i/0}$	$\Delta_{i/0}$
2009	128,330			100.00		0.00	
2010	127,039	-1.291	-1.291	98.99	98.99	-1.01	-1.01
2011	145,978	17.648	18.939	113.75	114.91	13.75	14.91
2012	181,423	53.093	35.445	141.37	124.28	41.37	24.28
2013	172,662	44.332	-8.761	134.55	95.17	34.55	-4.83
2014	172,756	44.426	94	134.62	100.05	34.62	0.05
2015	174,480	46.150	1.724	135.96	101.00	35.96	1.00
2016	177,684	49.354	3.204	138.46	101.84	38.46	1.84
Total	1,280,352.0	-	49.354	-	-	-	-

Source: Calculated by authors based on data included in Euratex Reports

4. CONCLUSIONS

Based on the analysis performed, it can be concluded that in order to cope with economic difficulties, companies have decided to gradually lay off a number of employees and even reduce investment, but most of them were able to remain on the market. However, by correlating this indicator with the turnover, it can be noticed that, although companies managed to avoid bankruptcy, the crisis had a major impact on this sector of activity, because in the European Union the turnover of the textile and clothing industry diminished significantly in 2009 and, despite constant growth, it failed to return to the level recorded in 2007, namely 211.3 billion Euro (Euratex, 2008).

The industry is characterized by a low degree of innovation, relatively low salaries, generating a low attractiveness of the activity. Companies in the field have difficulties in attracting key resources, such as young professionals or skilled employees, but also in accessing development credits.

Phenomena such as globalization, including: liberalization, delocalization, international outsourcing, and internet development have had a major impact on the structure and dynamics of the textiles and clothing industry in Europe, and in particular on small and medium-sized enterprises. Also, delocalization, subcontracting and outsourcing of major European textile and clothing brands have contributed significantly to increased imports from low-cost countries. Competitiveness of the textile and clothing fell rapidly leading to restructuring and downsizing.

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