

EXPORT COMPETITIVENESS OF CROATIAN TEXTILE INDUSTRY – CMS ANALYSIS AND IMPORTANCE FOR ECONOMY

HIRVATİSTAN TEKSTİL SANAYİNİN İHRACAT REKABET GÜCÜ – SABİT PİYASA PAYI ANALİZİ VE EKONOMİ İÇİN ÖNEMİ

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ABSTRACT

The main aim of the paper is to assess the competitiveness and the overall impact of the textile industry on the Croatian economy. Authors attempt to measure the importance of the textile sector by deploying the Constant Market Share (CMS) analysis. Such analysis is used to quantify the export performance of Croatian textile industry compared to the rest of the world and individual foreign markets (EU 15, EU 27). The analysis revealed rather disappointing results in terms of the competitive position of the textile industry. However, the analysis enabled a clear identification of the root causes of the competitiveness loss.

In the second part of the article, input-output analysis is applied to explore the recently published input-output tables for the Croatian economy. Such analyses provide the framework necessary for measuring the overall importance of textile industry for the Croatian economy in terms of gross output, value added and employment. It also facilitates benchmarking of results with other industry activities in Croatia and to some extent other countries. Multipliers for textile industry, as far as output and value added are concerned, are low, while the opposite holds for direct effects on employment. Overall multipliers for Croatian economy are “shallow” reflecting the nature of service based economy on one hand but also the loss of competitive position in manufacturing industry.

The manufactures of textiles and of wearing apparel; dressing and dyeing of fur, have a quite strong direct mutual interrelationship, albeit the two sectors are weakly interconnected to the rest of the economy and have limited impact. They seem to function as an isolated cluster.

Key Words: Croatian textile industry, Export competitiveness, Input-output, EU, JEL classification: C67, F40

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1. INTRODUCTION

In a globalised economy, openness and trade are identified as the most important factors for economic growth promotion and job creation. In the EU, one of the key components of the EU's 2020 strategy (1) trade policy are increasing the competitiveness of the EU and member states in global markets. Croatia is small economy with limited domestic demand and international trade could significantly contribute to growth of economic activity and employment.

In this empirical research, constant market share (CMS) analysis and an input-output table analysis are used for the assessment of the Croatian economy in terms of both direct

and indirect impacts of textile industry on economic growth and employment. The first part of the paper provides a short literature review on textile industry export and market share analysis. Last chapter concludes.

Various indicators of international competitiveness point to the conclusion that Croatia is lagging behind in trade integration in the EU market in comparison to "new" member states which joined EU in 2004. The most important indicators of trends in Croatian textile industry during the period 2000-2010 are presented in Table 1. Most of indicators point to negative trends - gross value added decreased even in nominal terms while employment almost halved. Textile industry is continuously decreasing in importance, in terms of share of the total Croatian economy.

Table 1. Indicators of textile and clothing industry importance in Croatia

	2000	2005	2010	Index 2010/2000
Trends in textile and clothing industry				
Gross value added, in mil. of kunas	2,085.9	2,269.2	1,987.8	95.3
Share of textile and clothing in GVA, Croatia	1.4	1.0	0.7	50.9
Share of textile and clothing in GVA, EU	1.0	0.7	0.6	60.0
Employment, in thousands	46.4	37.0	25.3	54.5
Employment, 2000=100	100.0	79.7	54.5	
Share in Croatian employment	3.5	2.6	1.8	51.0
Share in EU employment	1.9	1.4	1.0	
Average wages, in kunas	1912	2417	2920	152.7
Average wages, Croatia = 100	57.5	55.2	54.7	95.1
Labour productivity, GVA/employment	44.954	61.367	78.590	174.8
Labour productivity, Croatia = 100	40.7	38.5	40.6	99.7

Source: Croatian Bureau of Statistics, various issues.

Negative trends for the textile industry are not specific to Croatia only, as similar trend can be observed throughout the European Union. Figure 1 presents the average growth rates during more than ten years in all industrial activities. Data shows that manufacture of wearing apparel is the

industry with highest negative growth rate in the period 2000-2012, while production of textiles also recorded significant decreases in production activity. The highest average growth during the analysed period was recorded in the production of basic pharmaceutical products.

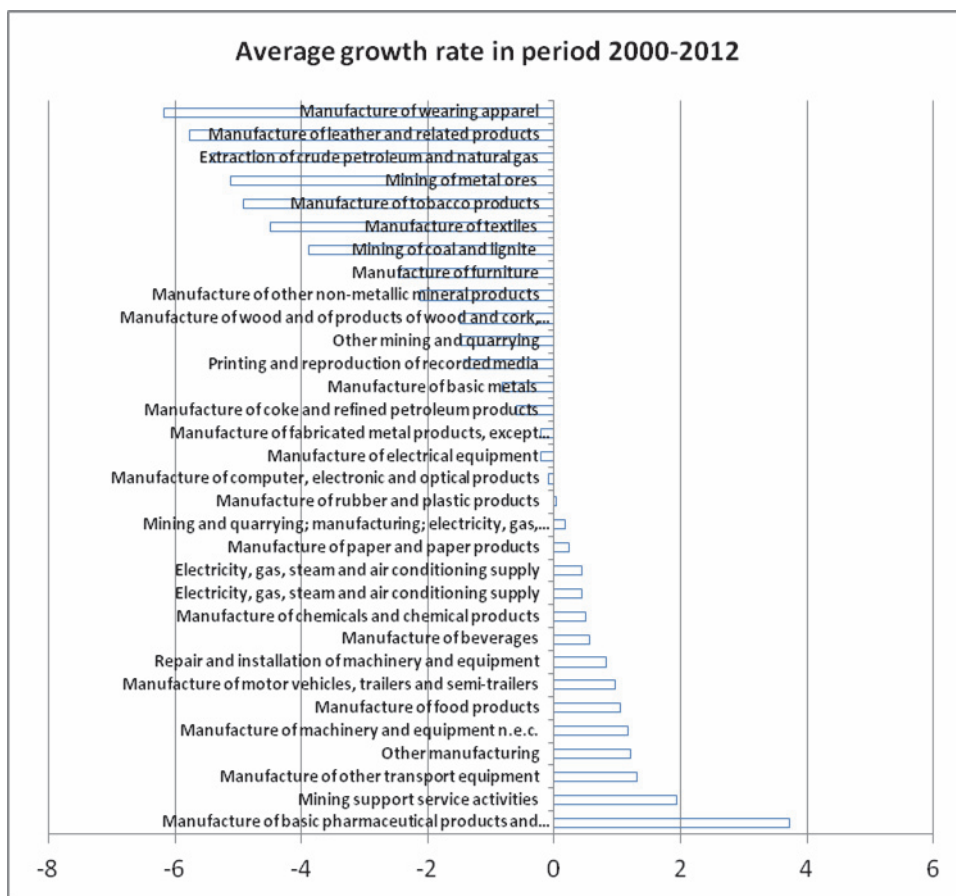


Figure 1. Average annual growth rate, various industries in the European Union, 2000-2012.

2. LITERATURE REVIEW ON THE ROLE OF EXPORT FOR ECONOMIC GROWTH, CMS ANALYSIS AND INPUT-OUTPUT ANALYSIS

In economic literature, four main ways through which exports influence economic growth have been identified: competition in international markets encourages the achievement of greater efficiency of production (2); Exports promote specialization and economies of scale, leading to greater benefits in return (3). Enterprises engaged in exports tend to introduce technical progress, which has spillover effects for the rest of the economy (4).

Most authors find arguments in favour of the causality flows from exports to economic growth. The most cited term in this field is the so called the export-led growth (ELG) hypothesis (5). Export expansion and openness to foreign markets is viewed as a key determinant of economic growth because of the positive externalities it provides: efficient resource allocation, greater capacity utilization, exploitation of economies of scale and increased technological innovation stimulated by foreign market competition.

The most important arguments in favour of the positive role of international trade on domestic economy are spillover effects and price equalization. Large literature on knowledge spillovers from Foreign Direct Investment (FDI) has subsequently emerged, both theoretically (6-7) as well as empirically (8).

Recent literature in this field is more oriented towards measuring net trade and quantification of the value added content of trade (9-11). The results are sensitive to variations in sector composition of exports. In exports of manufacturing industries because of higher vertical integration, share of domestic value added in exports are, as a whole, lower, although high variations are recorded. This suggests that internal EU innovativeness and efficiency is probably much more important for the level and growth of the EU27 GDP than its external competitiveness.

Empirical and comparative research of other countries often finds that the value added content in exports represents a lower share in terms of total value added of the economy in comparison to the exports coefficient with respect to gross production. Researchers (12) found explanation of the low domestic value added in manufacturing exports in the fact that indirect value added represents a low proportion of the value added content in exports, which is a result of weak linkages of export activities with the rest of the national economy, especially with the same manufacturing activities.

CMS analysis is used to quantify the export performance of Croatian textile industry compared to the rest of the world and individual foreign markets (EU 15, EU 27). There are several underlying reasons for the failure of the industry's exports to grow as rapidly as the world average: a) exports may be concentrated in commodities for which demand is growing relatively slowly; b) exports may be directed primarily to relatively stagnant regions; or c) the industry in question may have been unable or unwilling to compete effectively with other sources of supply. Here, the constant market share approach (CMS) is applied to explain these effects in the case of Croatian textile industry. The CMS method was first suggested and applied to the study of international trade (13) and was refined (14-19).

An input-output analysis is based on a static presentation of structural relationship among economic sectors. It is mainly oriented to the estimation of the impact of final demand on domestic output, value added and prices. Although some aspects of inter-sectoral relationship between economic units can be found in very old economic literature, Wassily Leontief is considered as the main developer of the input-output analysis. At the moment we may witness several international programs that aim at interconnecting national input-output (IO) tables (20). For more on the process of input-output compilation and conversion of the supply and use tables to symmetric input-output tables see (21).

Input-output tables are used as a quantitative model suitable for the national and regional level economic analysis. In global markets, characterised by international competition and more complex production processes, input-output analysis which enables the identification of supply chains on domestic and international level is even more important. Techniques and areas covered by input-output analyses are described in the following papers (22-29).

Input-Output (I/O) multipliers can also be used to assess the regional economic impact (30). More on construction of input-output tables for Croatia, and conversion of Supply and Use tables into Symmetric I-O table see (31).

3. METHODOLOGY

3.1. Constant market share analysis

The general idea behind the CMS analysis is that export performance mainly depends on product composition, geographical distribution, and the level of competitiveness. The usefulness of this model stems from the fact that even if a country maintains its share of every product in every market, it can still have a decrease in its aggregate market share if exports are directed towards markets that grow more slowly than the world average and if it exports products for which demand is growing more slowly than average. This part of the empirical analysis explores the evolution of Croatian textile industry market shares in world exports over the 2001-2012 period, taking into account the impact of product and geographical composition on aggregate results.

For the purpose of the analysis of export performance of Croatian manufacturing industry, a revised version of the constant market share (CMS) model was applied, as proposed by (32). The components of the basic model are defined as follows:

$$TE = CE + PE + GE + RE$$

where

TE= total effect

CE= competitiveness effect

PE= product effect

GE= geographical effect

RE = residual effect

Total effect:

$$TE = \left[\frac{\sum_m \sum_p q^t_{m,p}}{\sum_m \sum_p Q^t_{m,p}} - \frac{\sum_m \sum_p q^{t-1}_{m,p}}{\sum_m \sum_p Q^{t-1}_{m,p}} \right] \times 100$$

Competitiveness effect:

$$CE = \sum_m \sum_p 0.5 \times \left[\frac{q_{m,p}^t}{Q_{m,p}^t} - \frac{q_{m,p}^{t-1}}{Q_{m,p}^{t-1}} \right] \times \left[\frac{Q_{m,p}^{t-1}}{\sum_m \sum_p Q_{m,p}^{t-1}} + \frac{Q_{m,p}^t}{\sum_m \sum_p Q_{m,p}^t} \right] \times 100$$

Product effect:

$$PE = \sum_m \sum_p 0.5 \times \left[\frac{q_{m,p}^{t-1}}{Q_{m,p}^{t-1}} + \frac{q_{m,p}^t}{Q_{m,p}^t} \right] \times \left[\frac{\sum_m Q_{m,p}^{t-1}}{\sum_m \sum_p Q_{m,p}^{t-1}} - \frac{\sum_m Q_{m,p}^t}{\sum_m \sum_p Q_{m,p}^t} \right] \times 100$$

Geographical effect:

$$GE = \sum_m \sum_p 0.5 \times \left[\frac{q_{m,p}^{t-1}}{Q_{m,p}^{t-1}} + \frac{q_{m,p}^t}{Q_{m,p}^t} \right] \times \left[\frac{\sum_p Q_{m,p}^t}{\sum_m \sum_p Q_{m,p}^t} - \frac{\sum_p Q_{m,p}^{t-1}}{\sum_m \sum_p Q_{m,p}^{t-1}} \right] \times 100$$

Residual effect:

RE = TE – (CE + PE + GE), where:

q^t =aggregate exports of the focus industry

q_p^t = exports of the p-th commodity of the focus industry

Q_p^t = world exports of the p-th commodity

s^t = aggregate exports share of the focus industry in total world exports of focus industry

s_p^t = share of the p-th commodity of the focus industry in the p-th commodity of world exports of focus industry

m = market index

p = product index

t = time

An explanation of the individual effects of industry's export growth from the basic model is displayed in the table 2.

Importance of exports for Croatian economy is assessed through input-output model which are able to quantify direct and indirect impact of exports on national economy. Additionally, constant market share methodology is used for decomposition of total changes in Croatian exports on product, geographical and competitiveness effect.

3.2. Input-output analysis

In the input-output framework, matrix A usually presents technical coefficient matrix (ratios of inputs of each industry in gross output of gross output), x is vector of gross output and y vector of final demand. We can derive the following set of equations:

$$Ax + y = x$$

$$x - Ax = y$$

$$(I - A)x = y$$

The solution of this linear equation system is:

$$x = (I - A)^{-1} * y$$

A = matrix of input coefficients for intermediates (technology matrix)

I = unit matrix

(I - A) = Leontief matrix

(I - A)⁻¹ = Leontief inverse

y = vector of final demand

x = vector of output.

Table 2. Explanation of the CMS effects

Effect	Description of meaning
Total Effect (TE)	The Total Effect measures the yearly change of the focus industry's aggregate export share in world trade. A positive value suggests that the exports of the focus industry expand faster compared to the rest of the world, and a negative value indicates the opposite.
Competitiveness Effect (CE)	The competitiveness effect reveals the capacity of a industry to increase its market share due to competitiveness factors only, independently of structural developments in the market or in the product trade pattern. A positive value indicates a competitive advantage of the exports of the focus industry compared to the rest of the world, while negative value indicates a disadvantage.
Product Effect (PE)	The part of export growth attributed to the commodity composition of the industry's export. Product effect (PE) is positive if export is concentrated in commodities in which world demand is growing rather quickly).
Geographical Effect (GE)	The geographical effect measures the effect stemming from the geographical breakdown of a industry's exports. This effect is positive if industry's export is concentrated in markets which experiencing relatively rapid growth. A negative value shows that the exports of the focus industry are directed to markets in which demand is growing slower than in the rest of the world.
Residual Effect (RE)	Residual Effect (RE) captures the difference between the actual export growth and the growth that would have occurred if the export shares remained constant.

Source: authors.

Vector Ax reflects the requirements for intermediates, while vector y represents the exogenous aggregate final demand. The matrix $(I-A)$ is usually called the Leontief matrix. On the diagonal of this matrix the net output is given for each sector with positive coefficients (revenues) while the rest of the matrix covers the input requirements with negative coefficients (costs). The Leontief inverse $(I-A)^{-1}$ reflects the direct and indirect requirements for intermediates. In estimation of multiplicative effects on the domestic economy it is crucial to identify proportion of domestic intermediates which are used in production process of an industry. The higher the share of domestic intermediate inputs, the more significant indirect effects is expected and vice versa.

The notion of multipliers rests upon the difference between the initial effect of an exogenous change in final demand (in our case change in foreign demand for manufacturing industry products) and the total effects of that change on domestic economy. An output multiplier for export of manufacturing industry is defined as the total value of production of all domestic sectors that is necessary to satisfy a value of final demand for textile sector. It is worth to have in mind that multiplier is effective in both directions. A drop in foreign demand besides direct decrease of revenues of certain manufacturing industry also has negative impact on other domestic industries which are part of supply chain.

4. RESULTS AND DISCUSSION

4.1. CMS analysis

The total effect (TE), competitiveness effect (CE), product composition effect (PE) and geographical distribution effect (GE) are calculated separately for the global world market as well as the EU 27 and EU 15 markets (Table 3). The values of these effects above zero indicate a gain in the market share of Croatian textile industry in comparison with the same sector of the reference markets, and the values below zero indicate a loss.

Observing the total effect (TE) in the global market, negative signs are noted in the periods 2004-2006, 2009-2010 and in 2012. The loss in market share during the mentioned periods is primarily attributable to the negative competitiveness effect (CE), revealing the inability of Croatian textile industry to increase its market share due to competitiveness factors only, independently of structural developments in the market or in the product trade patterns. The economic recovery of EU 15 and EU 27 markets in

2011 had a positive impact on the exports of Croatian textile industry. However, the recovery was short lasted since in 2012 both competitiveness effect and total effect were negative.

The product effect was positive in observed period (except in 2009). It indicates that the export of Croatian textile industry is concentrated in commodities in which world demand is growing rather quickly. Also, the negative sign in 2009 is somehow expected concerning the reduction of the demand in the global markets as a consequence of the global crisis.

The geographical effect was negative in the years: 2009, 2010 and 2012. It reveals the unfavourable geographical export structure of Croatian textile industry due to the high export concentration to Italian market in which demand is growing slower than in the rest of the world.*

In spite of common characteristics of the textile industry as a whole, there are significant differences in changes of trade performance among the product groups. It confirms the analysis of the relative changes in the export shares of Croatian textile products as a share of total world exports (Table 4). In the period from 2001 to 2012 the growth of export shares in total world exports of individual commodity highlighted the following products: silk, manmade filaments, manmade staple fibres, yarns, special woven or tufted fabric. However, these products do represent a significant part of the total export structure of the Croatian textile industry. Conversely, the shares of clothes dramatically reduced in world exports. The distribution of competitiveness effect (CE) and product effect (PE) according to products reveal the negative competitiveness effect as the main reason of the loss in market shares (Table 5).

The results obtained indicate that the failure of the major products to compete in EU 15, EU 27 and the world market had a major impact on the export performance of Croatian textile industry. However, the positive values of the geographical effect and product effect in most years of the observed period offered the opportunities for Croatian textile industry to survive in the global markets.

Although the competitive edge of textile industry in Croatian economy is shrinking, a multiplying effect remains, in terms of overall economy, gross value added and employment. These effects are more thoroughly analyzed in the following section.

*In 2012 Italian market accounted 54.5 percent of the total export of Croatian textile industry.

Table 3. Export of Croatian textile industry - distribution of CMS effects

	TE	CE	PE	GE	RE
WORLD					
2002	0.03	-0.28	0.31	0.03	-0.04
2003	1.41	0.59	0.84	0.11	-0.14
2004	-0.10	-0.72	0.64	0.13	-0.15
2005	-1.21	-1.60	0.40	0.02	-0.02
2006	-0.80	-1.20	0.41	0.02	-0.03
2007	0.09	-0.17	0.28	0.10	-0.12
2008	0.05	-0.05	0.10	0.04	-0.05
2009	-0.22	-0.18	-0.06	-0.05	0.07
2010	-0.96	-0.98	0.04	-0.06	0.04
2011	0.02	-0.06	0.11	0.07	-0.10
2012	-0.42	-0.49	0.06	-0.15	0.16
EU 27					
2002	0.14	-0.51	0.84	-2.47	2.28
2003	1.83	0.08	2.25	-0.59	0.09
2004	0.28	-0.97	1.49	-0.87	0.62
2005	-0.92	-1.35	0.57	0.64	-0.78
2006	-0.47	-0.97	0.63	2.05	-2.18
2007	0.27	-0.33	0.68	-0.80	0.72
2008	0.11	-0.26	0.50	-0.20	0.06
2009	-0.55	-0.28	-0.23	-0.15	0.12
2010	-0.31	-0.50	0.21	3.29	-3.30
2011	0.51	0.05	0.44	1.02	-1.00
2012	-0.36	-0.01	-0.36	-3.93	3.95
EU 15					
2002	0.16	-0.43	1.01	-1.65	1.24
2003	1.73	0.04	2.89	-0.29	-0.91
2004	0.27	-0.91	1.90	-0.27	-0.45
2005	-1.04	-1.45	0.73	0.17	-0.49
2006	-0.54	-1.01	0.86	2.22	-2.62
2007	0.23	-0.30	0.90	-0.91	0.54
2008	0.12	-0.19	0.65	-0.04	-0.30
2009	-0.57	-0.32	-0.43	-0.30	0.48
2010	-0.30	-0.47	0.32	3.91	-4.06
2011	0.45	0.03	0.70	1.60	-1.88
2012	-0.30	0.02	-0.58	-3.88	4.15

Source: Authors' calculations based on data from COMEXT Database.

Table 4. Relative changes of export share of Croatian textile products in total world export

HTS Code	Product	$\frac{(2005 - 2001)}{2001} \times 100$	$\frac{(2008 - 2005)}{2005} \times 100$	$\frac{(2012 - 2008)}{2008} \times 100$	$\frac{(2012 - 2001)}{2001} \times 100$
50	Silk	-36.84	3.44	57.94	3.19
51	Wool, animal hair, horsehair yarn	-74.61	-6.92	-37.24	-85.17
52	Cotton	-55.16	-27.63	-34.17	-78.64
53	Vegetable textile fibres nes, paper yarn	-89.26	39.28	-86.94	-98.05
54	Manmade filaments	77.47	21.49	-7.51	99.41
55	Manmade staple fibres	123.59	-2.79	-13.16	88.75
56	Wadding, felt, nonwovens, yarns, twine	104.30	51.69	-2.41	202.44
57	Carpets and other textile floor coverings	181.76	-29.87	-60.14	-21.44
58	Special woven or tufted fabric, lace	-57.65	161.09	42.17	57.80
59	Impregnated, coated or laminated textile fabric	-57.37	-4.37	-56.79	-82.38
60	Knitted or crocheted fabric	-34.29	24.91	-41.12	-51.67
61	Articles of apparel, accessories, knit or crochet	-6.20	-13.06	-14.09	-29.94
62	Articles of apparel, accessories, not knit or crochet	-31.49	-31.71	-44.45	-74.01
63	Other made textile articles, sets, worn clothing	-17.13	2.79	-74.51	-78.29
50-60	Textile	11.62	20.54	-19.77	8.61
61-63	Clothes	-18.28	-13.99	-44.35	-60.75

Source: Authors' calculations based on data from COMEXT Database.

Table 5. Distribution competitiveness effect and product effect according to textile products in the period 2002-2012

HTS Code	Product	WORLD		EU 27		EU 15	
		CE	PE	CE	PE	CE	PE
50	Silk	-0.0001	-0.1174	0.0000	-0.0010	-0.0001	-0.0007
51	Wool, animal hair, horsehair yarn	-0.0109	-0.0788	-0.0091	0.0015	-0.0908	0.0018
52	Cotton	-0.0233	-2.1186	-0.0134	0.0008	-0.0784	-0.0001
53	Vegetable textile fibres nes, paper yarn	-0.0055	-0.0495	-0.0057	0.0011	-0.0609	0.0013
54	Manmade filaments	0.0086	-0.8342	0.0143	0.0001	0.0080	-0.0014
55	Manmade staple fibres	0.0143	-0.1239	0.0161	0.0001	0.1558	0.0023
56	Wadding, felt, nonwovens, yarns, twine	0.0135	0.0655	0.0191	0.0010	0.0730	0.0000
57	Carpets and other textile floor coverings	0.0003	-0.6195	0.0005	-0.0046	0.0052	-0.0038
58	Special woven or tufted fabric, lace	0.0008	-0.4948	0.0010	-0.0021	-0.0054	-0.0010
59	Impregnated, coated or laminated textile fabric	-0.0159	-0.3170	-0.0136	0.0022	-0.1414	0.0040
60	Knitted or crocheted fabric	-0.0017	-1.2970	-0.0008	-0.0026	-0.0036	-0.0016
61	Articles of apparel, accessories, knit or crochet	-0.1005	0.2165	-0.0814	0.3528	-0.7403	0.4546
62	Articles of apparel, accessories, not knit or crochet	-0.3170	0.1272	-0.3584	0.2744	-3.8094	0.3491
63	Other made textile articles, sets, worn clothing	-0.0301	0.0002	-0.0275	0.0144	-0.2932	0.0078
50-60	Textile	-0.0018	-0.5441	0.0008	-0.0003	-0.0126	0.0001
61-63	Clothes	-0.1492	0.1146	-0.1558	0.2139	-1.6143	0.2705

Source: Authors' calculations based on data from COMEXT Database.

4.2. Direct and indirect impact of textile and clothing industry on Croatian economy: I-O multipliers

The notion of multipliers rests upon the difference between the initial effect of an exogenous change in final demand (in our case change in foreign demand for textile industry products) and the total effects of that change. An output multiplier for textile sector is defined as the total value of production of all domestic sectors that is necessary to satisfy a value of final demand for textile sector. It is worth to have in mind that multiplier is effective in both directions. A drop in foreign demand besides direct decrease of revenues of textile industry also has negative impact on other domestic industries which are part of supply chain.

As can be seen from Table 6, in the set of analysed countries Croatian results show a relatively lower share of domestic intermediates in the value of production of the textile and clothing industry. In more developed countries such as France or United Kingdom, share of domestic intermediate inputs is higher and more significant indirect effects are expected. One can notice that among presented economies, Croatia recorded the highest share of value added in total production of textile and clothing industry as a reflection of raising labour cost and prevalence of Lohn jobs in textile industry. Ratio domestic/imported intermediates in Croatia is much more similar to more developed countries while Czech Republic and Hungary import the majority of inputs in this sector.

Dependence of domestic producers on exports is very heterogeneous for different product groups (Table 7). Machinery and equipment and production of textile and leather products are the sectors most affected by foreign demand in all countries. In most countries value added and employment in this sectors are almost entirely determined by foreign demand. On the other hand, production of food products, beverages and tobacco are still primarily delivered to domestic consumers. In other manufacturing sectors there are heterogeneous importance of foreign demand

depending on natural resources and integration in global market. In Croatian case, the highest impact of foreign demand is present for production of textile and leather products and machinery and equipment which is in line with results for other CEE countries. Manufacturing products not classified in other groups comprise export of furniture and this sector is on the third place regarding total importance of exports. In the product group of chemical products importance of foreign demand in Croatia is below comparable countries and the same stands for other non-metallic and metal products.

Table 8 combines the results for direct and total impacts of exogenous change in final demand for various sectors and textile and clothing industry. The term multiplier is calculated as a ratio of Total impact/Direct impact values. In terms of output multipliers, indirect effects are higher in production of goods (agricultural and manufacturing products) and construction, in comparison to service sector. Supply chain in the production of goods is usually more complex and therefore the impact on other sectors is higher while multipliers for services are "shallow". Data for textile and clothing industry points to lower impact on other domestic industries: change in demand for products in this industry of one unit induces less than 1.5 higher output.

The same conclusion stands for the value added and intermediate consumption multipliers. Interesting conclusion can be drawn from data on domestic and imported intermediate goods. In general, multipliers for imported intermediates are higher, implying that indirect effects are more significant in the case of imports. Contrary, in the case of textile and clothing industry, the multiplier is higher for domestic intermediates. Structure of intermediate products in this sector is more in favour of domestic producers in comparison to other sectors. Multipliers for textile and clothing as far as output, intermediate consumption and value added are considered, are low, comparable to multipliers typical for service industry.

Table 6. Share of intermediate consumption and value added in production value of textile industry

France, 2007	Textiles	Clothes	Total T&C
Domestic intermediate consumption	46.6	45.0	45.9
Imported intermediates	23.4	22.5	23.0
Value added	28.9	31.4	30.0
Germany, 2007			
Domestic intermediate consumption	40.6	36.6	39.0
Imported intermediates	26.2	34.9	29.7
Value added	32.2	27.2	30.2
United Kingdom, 2005			
Domestic intermediate consumption	39.8	51.8	44.1
Imported intermediates	18.6	12.0	16.2
Value added	40.6	35.1	38.6
Italy, 2005			
Domestic intermediate consumption	49.4	52.5	50.9
Imported intermediates	19.5	15.4	17.5
Value added	29.9	31.3	30.6
Hungary, 2005			
Domestic intermediate consumption	21.0	18.1	19.3
Imported intermediates	52.9	56.5	54.9
Value added	25.6	24.7	25.1
Poland, 2005			
Domestic intermediate consumption	35.8	34.6	35.2
Imported intermediates	31.1	25.0	27.9
Value added	32.7	39.9	36.5
Czech Republic, 2005			
Domestic intermediate consumption	30.5	14.9	26.3
Imported intermediates	42.4	52.7	45.2
Value added	25.4	32.0	27.2
Slovenia, 2005			
Domestic intermediate consumption	40.2	32.2	37.4
Imported intermediates	37.1	40.3	38.2
Value added	22.4	26.9	24.0
Croatia, 2004			
Domestic intermediate consumption	30.4	29.0	29.6
Imported intermediates	24.7	15.8	19.5
Value added	44.6	55.0	50.6

Source: Eurostat and authors' calculations.

Table 7. Percentage of Gross Value Added (VA) and employment (EMP) induced by foreign demand for manufacturing products

		Prod. of food products, beverages and tobacco	Prod. of textile and leather products	Prod. of wood, paper and publishing	Chemical products including petroleum pr	Other non-metallic and metal products	Machinery and equipment	Manufacturing n.e.c.
Croatia	VA	16,7	89,8	34,3	50,8	43,6	81,1	65,8
	EMP	15,0	89,2	43,3	49,5	50,4	85,2	72,6
Czech Republic	VA	27,9	96,7	63,0	81,5	80,4	89,4	82,0
	EMP	27,9	98,2	62,5	83,1	80,7	90,1	82,1
Slovakia	VA	28,0	91,4	61,2	79,6	78,0	83,6	64,1
	EMP	28,0	91,4	60,9	84,4	72,7	82,9	64,1
Slovenia	VA	24,9	85,6	65,6	90,8	73,6	93,5	83,6
	EMP	24,6	84,0	67,0	91,4	71,0	93,0	83,4
Poland	VA	19,2	67,3	39,4	46,2	52,7	62,8	59,1
	EMP							
Romania	VA	3,8	80,3	39,1	53,1	42,9	56,5	60,0
	EMP	3,8	81,5	47,7	53,6	47,8	60,2	60,5
Hungary	VA	29,1	84,7	38,6	71,4	58,7	91,7	57,7
	EMP	29,4	84,4	45,3	74,4	62,1	91,0	59,1

Source: authors' calculations based on input-output tables downloaded from Eurostat web page: http://epp.eurostat.ec.europa.eu/portal/page/portal/esa95_supply_use_input_tables/data/workbooks

Overall national economy employment multiplier is 1,8. Activities like industry, construction and transport have the highest employment multipliers, while public administration and clothing industry have the lowest multipliers. As for value added multipliers, the most significant values were recorded in construction (2,01), industry (1,89), and agriculture (1,71), while overall multiplier for national economy is 1,72. Overall multiplier is a little bit shallow in comparison to other economies reflecting the service based nature of Croatian economy. The structure of economy clearly demonstrates that in the case of scenario of continuing recession in the construction industry and the loss of competitive position of manufacturing would have a strong negative effect on the overall economy. This is actually taking place these days keeping in mind even stronger proliferation of the loss of competitive position of manufacturing industry in period 2004-2012.

Changes in final demand have most important direct impact on employment in clothing industry (8.4). It is the highest direct effect among all industry activities. It is in accordance to the expectation because of high labour intensity in this

industry. On the other hand, indirect effects on employment are very limited and multiplier is the lowest among all industries. We can conclude that the loss of international competitiveness in the textile and clothing sector as presented in the previous section has the most pronounced impact on reduction of employment in this sector. Negative impact on the other industries was also present, but limited in scope on overall output, value added and intermediate consumption due to low heterogeneity of intermediate products and less complex supply chains.

The manufactures of textiles and apparel; dressing and dyeing of fur, have a quite strong direct mutual interrelationship, albeit the two sectors are weakly interconnected to the rest of the economy and have limited impact. They seem to function as an isolated cluster. These conclusions follow the conclusions found in other research (33).

Figure 2. clearly presents that multipliers for clothing and textile industry are the lowest in the group of good producing industries and more similar to service sectors.

Table 8. Output, value added and employment multipliers in Croatian economy, position of textile and clothing industry*

ACE code	A, B	C, D, E	F	G, H	I, J, K	L, M, N, O, P	NACE 2002 – section 17	NACE 2002 – section 18	Average of all industries
	Agriculture, forestry and fishing	Industry, incl. electricity	Construction	Trade and hotels	Transport and business services	Public and personal services	Textile	Clothing	Total economy
Gross output									
Direct impact	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total impact	1.776	1.749	1.871	1.616	1.575	1.485	1.482	1.465	1.652
Multiplier	1.776	1.749	1.871	1.616	1.575	1.485	1.482	1.465	1.652
Value added									
Direct impact	0.512	0.368	0.359	0.525	0.532	0.592	0.446	0.550	0.443
Total impact	0.877	0.695	0.723	0.812	0.831	0.847	0.669	0.767	0.763
Multiplier	1.712	1.892	2.012	1.546	1.561	1.431	1.500	1.396	1.723
Domestic intermediates									
Direct impact	0.455	0.423	0.483	0.367	0.355	0.268	0.304	0.290	0.387
Total impact	0.776	0.724	0.871	0.616	0.575	0.447	0.482	0.465	0.652
Multiplier	1.705	1.712	1.804	1.678	1.622	1.669	1.585	1.600	1.685
Imported intermediates									
Direct impact	0.056	0.097	0.146	0.100	0.071	0.072	0.247	0.158	0.088
Total impact	0.146	0.264	0.259	0.178	0.146	0.126	0.326	0.227	0.208
Multiplier	2.589	2.725	1.778	1.783	2.066	1.762	1.318	1.432	2.360
Total intermediate consumption									
Direct impact	0.488	0.581	0.641	0.473	0.449	0.356	0.554	0.450	0.511
Total impact	0.899	0.995	1.149	0.803	0.745	0.600	0.814	0.697	0.871
Multiplier	1.843	1.713	1.793	1.697	1.659	1.685	1.468	1.548	1.704
Employment									
Direct impact	3.6	2.3	2.7	5.0	1.9	7.5	4.0	8.4	2.9
Total impact	6.1	4.5	4.9	6.9	3.9	9.9	5.5	9.7	5.4
Multiplier	1.7	2.0	1.9	1.4	2.0	1.3	1.4	1.2	1.8

Source: CBS and authors' calculation. *Multipliers by sectors are calculated as un-weighted average of sections included in specific sector.

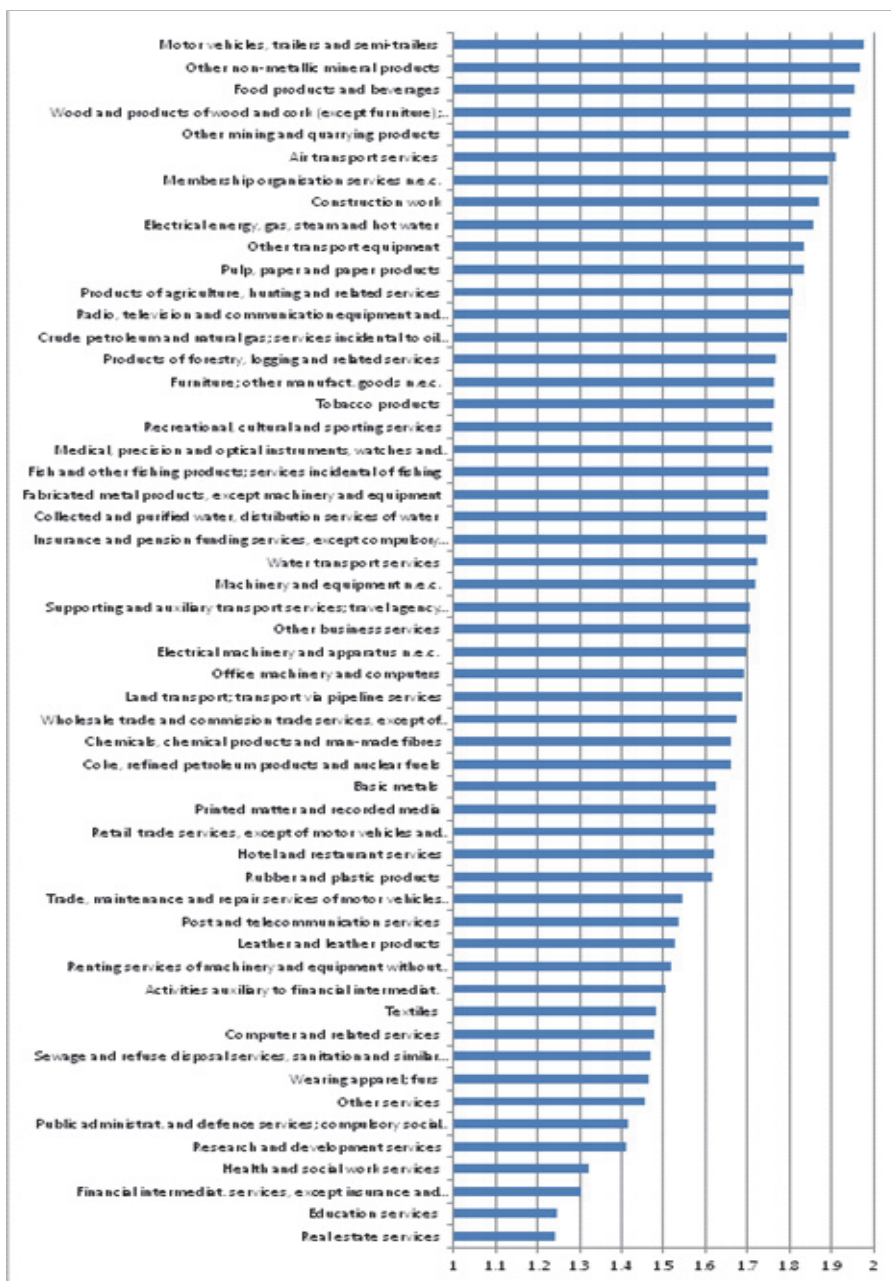


Figure 2. Output multipliers for various industries in Croatia, based on input-output table for 2004

4. CONCLUSION

The latest trends in international markets are falling demand and strengthening competitive pressures. These processes have been additionally spurred by the global economic crisis which started in the second half of 2008. In the period from 2001-2012 Croatian exports experienced considerable reductions in the share of textiles and clothing. The main characteristics of the Croatian textile industry trade structure are: weak export growth, a high level of export concentration, sharp increase in trade deficit and the reduction of export share in world exports. Export performance of Croatian textile industry is analyzed using constant market share (CMS) analysis. The results indicate that the failure of the major clothing products to compete in EU 15, EU 27 and global market had a major impact on export performance.

Regarding the future of textile industry in Croatia and projections it seems reasonable to expect continuation of declining trend and gloomy prospects. Namely, the share of textile and clothing industry in gross value added of total economy will continue decreasing trend reaching below 0.5% in medium term. On the other hand the drop in total employment will be even more pronounced because of necessary productivity growth. The share of total employment will converge somewhere close to 1.5%, a little bit above EU average. As for overall competitiveness of textile industry, product effect is expected to play positive role in the future, while competitiveness and geographical effect will play negative effect and prevail over positive product effect. Textile and clothing industry is expected to continue losing ground in Croatian economy and export importance.

Similar to experiences of other economies, indirect effects determined by input-output technique in Croatian case are higher in production of goods and construction in comparison to the service sector. Results for textile and clothing industry indicate a lower impact on other domestic industries: change in demand for products in this industry of one unit induces less than 1.5 higher output on the total economy level.

Changes in final demand have the most important direct impact on employment in the clothing industry. This is in line with expectations due to high labour intensity in this

industry. Indirect effects on employment are very limited. We can conclude that the loss of international competitiveness which resulted in the declining export share of the textile and clothing sector has the most pronounced impact on reduction of employment in this sector while impact on other economic industries has been limited.

Machinery and equipment on one hand and production of textile and leather products on the other are the sectors most strongly affected by foreign demand in all transition countries.

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