TEME, Vol. XLVII, Nº 4, October - December 2023, pp. 787-807

Original research paper Received: September 5, 2022 Revised: September 6, 2022 Accepted: June 5, 2023 https://doi.org/10.22190/TEME220905049N UDC 339.13:677(497.11) 339.13:677(4-12)

# THE TEXTILE INDUSTRY TRADE COMPETITIVENESS OF SELECTED EUROPEAN TRANSITION COUNTRIES

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#### Abstract

The paper analyses the textile industry trade competitiveness of nine European transition economies (Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Hungary, North Macedonia, Romania, Serbia and Slovenia), in parts and in its entirety, by using the following indicators: Revealed comparative advantage (RCA), Competitiveness growth index (RCA1), Index of net business performance (RCA2), and Michaely index (MI). The analysis focuses on the period between 1995 and 2018. The results of the analysis show that the textile industry of Northern Macedonia is internationally competitive, and that most countries have revealed comparative advantages. The textile industry contributed to the surplus in trade balance in North Macedonia, Bulgaria and Romania, while North Macedonia, Romania, Bulgaria, Croatia, Bosnia and Herzegovina and Serbia achieved some level of production specialisation. It was also confirmed that these countries had statistically different levels of trade competitiveness. The top level of production finalisation accounted for the greatest average value of competitiveness indicators.

Key words: development, trade competitiveness, textile industry, Serbia, countries in transition.

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# ТРГОВИНСКА КОНКУРЕНТНОСТ ТЕКСТИЛНЕ ИНДУСТРИЈЕ ОДАБРАНИХ ЕВРОПСКИХ ЗЕМАЉА У ТРАНЗИЦИЈИ

#### Апстракт

У раду се у целини и деловима испитује трговинска конкурентност текстилне индустрије девет европских транзиционих економија (Босна и Херцеговина, Бугарска, Хрватска, Чешка, Мађарска, Северна Македонија, Румунија, Србија и Словенија) коришћењем индикатора: Откривена компаративна предност (РЦА), Индекс раста конкурентности (РЦА1), Индекс нето пословних перформанси (РЦА2) и Михаели индекс (МИ). Анализа се фокусира на период између 1995. и 2018. године. На основу добијених вредности може се закључити да је текстилна индустрија Северне Македоније међународно конкурентна, те да су у већини земаља откривене компаративне предности. Позитиван допринос текстилне индустрије формирању активног трговинског биланса констатован је само у Северној Македонији, Бугарској и Румунији, док су Северна Македонија, Румунија, Бугарска, Хрватска, Босна и Херцеговина и Србија оствариле одређени степен специјализације производње. Такође, потврђено је постојање статистички значајних разлика у достигнутом степену трговинске конкурентности између ових земаља, са највишом просечном вредношћу свих показатеља конкурентности на највишем степену финализације производње.

Кључне речи: развијеност, трговинска конкурентност, текстилна индустрија, Србија, земље у транзицији.

## **INTRODUCTION**

The textile industry is a manufacturing activity with a long tradition. Clothing and other textile products (industrial textiles, household textiles, etc.) belong to the group of the oldest products that man began to produce. It started to develop immediately after the First Industrial Revolution.

The significant contribution of the textile industry to the economic development of Great Britain, the United States of America and many Asian countries in the nineteenth and twentieth centuries is indisputable. Moreover, even though the textile industry is described as a lowaccumulative and labour-intensive area of production, its participation in creating the total value of production is noticeable in quite a few economically highly developed countries.

Until 2005, this area of production was one of the most protected production activities in the world through the system of trade quotas, which enabled economically advanced countries to shape the nature of business transactions within the textile industry in global relations. Unfortunately, this was often at the expense of economically less developed countries. The abolition of trade quotas and the strong wave of globalisation of production have brought significant changes to the world textile industry (Adhikari & Yamamoto, 2007). There has been an affirmation of multinational textile companies that carry out various business activities

in many countries using the comparative advantages of individual countries to improve production competitiveness and overall business. Many well-known companies in the textile industry have undergone a system of subcontracting – outsourcing or relocating their labour, environmental, and/or cost-intensive activities to countries with lower operating costs and more liberal regulation. This, in turn, marked the relocation of production and employment from developed to less developed countries (e.g., from the US, Japan, Germany, Italy and France to China, India, Tunisia, Morocco, Poland, Turkey, Romania, Bulgaria, Serbia). These processes are accompanied by the disappearance of old, well-known companies and the emergence of new fast-growing companies in the textile industry, mostly in countries with dynamic development.

The paper presents an explanation of the trade competitiveness of the textile industry of nine countries with a socialist background (B&H, Bulgaria, Croatia, the Czech Republic, Hungary, North Macedonia, Romania, Serbia and Slovenia), and focuses on the period between 1995 and 2018. The goal of the paper is to analyse the trade competitiveness of the mentioned economies, which showed varying degrees of success while transitioning from socialist to market economy, and had a very pronounced process of deindustrialisation.

Some of these countries are among the most successful transition economies (Czech R., Slovenia and Hungary). Others became successful as a result of joining the EU (Croatia, Bulgaria, Romania), while Bosnia and Herzegovina, N. Macedonia, and Serbia can be marked as countries of the so-called delayed transitions.

Two research hypotheses were set: (H1) the trade competitiveness of the textile industries of the analysed countries is substantially different; and (H2) the manifested differences are a significant part of the result of the reached level of finalisation of production in the textile industries of these countries.

### THE CONCEPT OF INDUSTRY COMPETITIVENESS

Competitiveness is a popular, but also a broadly defined concept. In economic theory and practice, there is no single understanding and interpretation of this concept, and the scope of competitiveness analysis varies from individual entities to countries and regional economic integrations.

Competitiveness can be a dynamic, multifactorial, and hierarchical issue (Jovović, 2017). It can be seen at distinct levels, starting from small businesses, industrial clusters, supply chains of economies, and economic branches, all the way to national economies and individual regional units (Fischer & Schornberg, 2007).

The export competitiveness of the industry sector is a function of many factors. The quality of products and accompanying services, customer satisfaction, and employee satisfaction in this production sector are just some of them (Rybakovas, 2009) In other words, the competitiveness of the industry implies its ability to successfully compete in order to achieve sustainable growth within the global environment (Lall, 2001; Esterhuizen, Rooyen & D'Haese, 2008).

Due to the fact that competitiveness is viewed as the attributes and qualities of an economy that allow for a more efficient use of factors of production (Schwab, 2019, p. 2), and as a factor in changing the structure of the economy, economies strive to improve the competitiveness of industry and, on that basis, increase the well-being of the population in their countries (UNIDO, 2013, p. xviii)

As industry competitiveness involves the macroeconomic assessment of the competitiveness of certain sectors of the economy, there is an overlap in the observation of national competitiveness and the competitiveness of individual sectors. The competitiveness of the country shows its ability to produce goods whose realisation increases the level of the well-being of the population in conditions of free competition (Despotović et al., 2021, p. 576). Jucevicius and Ribakovas (2010, p. 391) believe that national competitiveness is largely determined by the quality of the economic performance of certain industrial sectors, that is, the competitiveness of companies operating in certain industrial branches, i.e. the ability of individual companies to compete and, on the basis of this, increase their market share, profit and growth (Krstić et al., 2016, p. 1037)

According to Cvetanović, Nikolić and Cvetanović (2019, p. 211) the competitiveness of the sector refers to the ability of companies operating within the observed area to compete on the domestic, and especially the world market. Additionally, it refers to the readiness of the state to ensure favourable business conditions for domestic companies that are not inferior to similar industrial companies in other countries.

### LITERATURE REVIEW

Textile industry trade competitiveness is a contemporary research issue in various foreign (Rout & Saini, 2021; Dhiman et al., 2020; Kiron, 2020; Bambang & Sukadwilinda, 2020; Guan et al., 2019; Kathuria, 2018; Assadzadeh et al., 2013; Singh & Lal, 2013; Chi, 2010; Shafaei, 2009; Kilduff & Chi, 2007, etc.) and domestic (Gligorijevic & Corovic, 2020; Corovic, Gligorijevic & Manasijevic, 2019; Corovic, Jovanovic & Ristic, 2013; Halilbasic, Brkic & Bosic, 2015; Raicevic & Corovic, 2010) papers, in which a similar methodological approach has been applied. Authors Rout, Gordhan and Saini (2021) conducted a study of "the trade competitiveness of India's man-made fiber-based textile and apparel sec-

tor for the period 2010-2019" by using the Index of Revealed Comparative Advantage, Trade Intensity Index, and Export Similarity Index. Bambang and Sukadwilinda (2020) did an "Analysis of Export Competitiveness Textile and Apparel Indonesia, China, India" using the Herfindahl approach, Trade Specialisation, Releveled Comparative Advantage and Constant Market Share. Guan et al. (2019) researched "International competitiveness of Chinese textile and clothing industry" using the 'Diamond Model', in which trade competitiveness revealed comparative advantage, and international competitiveness' impact on market share is observed through the estimated coefficients of explanatory variables: raw materials, labour, capital, demand, related industries, strategies and policies. Chi (2010) utilised Ordinary-least-square regression under a gravity model framework and the calculated relative difference index to study the impacts of major economic and political factors on the US technical textile export to its 15 major trading partners between 1996 and 2006. Similarly, for their research on the competitiveness of Serbia's textile industry, Corovic, Jovanovic and Ristic (2013) used the simplified national export profile and the Balassa index of revealed comparative advantage, and for the research "Competitiveness of the Textile Industry of the Republic of Serbia on the EU Market", Gligorijević and Ćorović (2020) used a Trade Performance Index group of indicators.

## AN OVERVIEW OF THE ECONOMIC DEVELOPMENT AND EXPORT OF THE TEXTILE INDUSTRIES IN THE SELECTED COUNTRIES IN THE PERIOD BETWEEN 1995 AND 2018

The relatively rapid economic growth of the analysed countries was accompanied by a pronounced trend of deindustrialisation in the period between 1995 and 2018 in most countries (Serbia, North Macedonia, Croatia, Romania and Slovenia). Unlike these countries, Bosnia and Herzegovina, the Czech Republic and Hungary strengthened their Manufacturing and increased its share in the economy, i.e., its contribution to GDP (table 1).

Slightly different trends were noted regarding the importance of Textiles and clothing in creating value added in manufacturing. At the beginning of the period, North Macedonia and Slovenia had the highest share of Textiles and clothing in the creation of value added in manufacturing (above 14%). A slightly smaller participation was present in Romania, Bosnia and Herzegovina, and Croatia (around 12%), and the least participation was recorded in Bulgaria (11.77%), Hungary (8.07%), the Czech Republic (7.24%), and Serbia (6.13%). At the end of the observed period (in 2018 for all countries except for the Czech Republic - 2013), the largest share of Textiles and clothing in value added in manufacturing was recorded by North Macedonia (18.87%), Bosnia and

Herzegovina (12.59%), Bulgaria (10.45%) and Romania (10.15%), followed by Serbia (7.32%) and Croatia (5.08%), while the smallest share of Textiles and clothing in value added in manufacturing was measured in the Czech Republic (2.54%), Slovenia (2.35%) and Hungary (2.11%). The situation is more favourable with regard to the export of textile industry products, because all observed countries achieved an increase in exports compared to 1998 (Graph 1).

Table 1. Share Manufacturing in GDP and Textiles and clothing in manufacturing in 1995-2018

	Growt of GDP (in constant 2010 US\$)		Manufacturing, value added (% of GDP)			Textiles and clothing (% of value added in manufacturing)			
	y/y (in %)	CAGR <sup>1)</sup> (in %)	1995	2018	% change	1995	2018	% change	
B&H	593	8.8	11.44	13.23	1.79	12.543)	12.59	0.05	
Bulgaria	102.4	3.1	-	-	-	$11.77^{4)}$	10.45	-1.32	
Croatia	85.6	2.7	18.54	12.52	-6.02	12.44	5.08	-7.36	
Hungary	85.7	2.7	18.19	18.64	0.45	8.07	2.11	-5.97	
N.Macedonia	78	2.5	18.66	12.602)	-6.06	14.67	18.87	4.20	
Romania	136.5	3.8	23.87	18.71	-5.16	12.71	10.15	-2.57	
Serbia	124.7	3.6	23.47	14.51	-8.96	6.135)	7.32	1.19	
Slovenia	76.2	2.5	21.57	20.43	-1.15	14.35	2.35	-12.00	
Czech R.	73.2	2.4	21.53	23.08	1.55	7.24 <sup>6)</sup>	2.547)	-4.70	

*Note*: <sup>1)</sup>Compound annual growth rate; <sup>2)</sup>data refer to 2017; <sup>3)</sup>data refer to 2010; <sup>3,6)</sup> data refer to 1996; <sup>5)</sup>data refer to 2002; and<sup>7)</sup>data refer to 2013. *Source*: Authors' calculation based on World Bank database



Graph 1. Export textile industry of in 1995 and 2018, in million USD Source: Authors' calculation, based on the data taken from the World Bank database

Although the volume and growth of exports are the basic indicators of the trade competitiveness of the textile industry, this paper provides a more comprehensive and deeper comparative analysis of the export competitiveness of the textile industries of the nine selected transitional economies. Accordingly, in the continuation of the paper, various indicators of the trade competitiveness of the textile industries of the selected countries are analysed in more detail, and the validity of the set research hypotheses is tested with the help of appropriate analytical tools.

# INDICATORS AND DATA SET OF TRADE AND INDUSTRY COMPETITIVENESS

Han, Wen and Kant (2009) state that, although there is no generally accepted indicator of competitiveness in various economic analyses, numerous indicators have been used to detect and measure competitiveness, the combination of which can illustrate the competitiveness of a selected branch or the economy as a whole. This point of view regarding the indicators of the competitiveness of individual sectors and the economy as a whole was previously explained in an almost identical way by Gries and Hentschel (1994), who found that it is possible to describe the competitive position of a certain sector and (or) country by combining a number of partial indicators.

The aforementioned researchers distinguished between indicators of competitiveness oriented towards results and indicators of competitiveness oriented towards the determinants of the competitive position of sectors, that is, countries. The first group of indicators includes, for example, data that speaks about the terms of trade, and comparative advantages revealed by indices, while the second group consists of indicators related to legal and institutional framework of business, and infrastructure development.

Dieter and Englert (2007) point out that, indicators oriented to results are more suitable for the analysis of sectoral competitiveness than indicators oriented to determinants, which are more applicable when researching the competitiveness of countries. According to these authors, results-oriented indicators are extremely useful in revealing the ex-post competitive position of the considered manufacturing sector in the international market. Acknowledging this, the analysis will be done with results-oriented indicators.

Many results-oriented indicators of competitiveness, including different variants of the RCA index, are based on the trade theory of classical economist David Ricard, according to which labour productivity in the observed country indicates the relative comparative advantage of the industry sector between countries.

Ricardian comparative advantage is a useful tool because it shows that a country should produce (and export) relatively more in those industries in which it is relatively more productive. The idea of Revealed comparative advantage (RCA) is to compare the performance of a country in one industry to the performance of a reference group of countries using export flows. RCA compares the country's performance in the observed branch of industry with the performance of other countries in the value of whole exports (Leromain & Orefice, 2014. p. 56).

RCA posits that patterns of trade among countries are governed by their relative differences in productivity. It shows the production specialisation level in a certain sector. In activities characterised by high productivity, there is a tendency to specialise and concentrate production (Jucevicius & Rybakovas, 2010. p. 392). Therefore, RCA measures can be most appropriately utilised to study patterns of comparative advantage within somewhat narrowly defined sectors (French, 2017. p. 4).

The RCA metric can be readily calculated using trade data to 'reveal' such differences. In particular, RCA shows that country j has revealed comparative advantage in the observed industry in a situation when its ratio of the value of exports of industry i to the value of total exports of all industrial products exceeds the same ratio considered for the whole world:

$$RCA_{ij} = (x_{ij}/X_j) / (x_{iw}/X_w)$$
(1)

In equation (1),  $X_{ij}$  denotes the value of industry *i* in country *j*; Xj, denotes the value of total exports of country *j*;  $x_{iw}$  denotes the value of total exports of industry *i* from all countries; and  $X_w$  denotes the value of total industrial exports of all economies in world trade. For RCA >1, it follows that the observed industry is more significant in the country's exports compared to total international trade. According to Clark, Sawyer and Sprinkle (2005), the country has revealed comparative advantage for a given industry in relation to the global competitive environment. A country with a revealed comparative advantage in industry *i* is considered to have export potential in that area of production (UNCTAD, 2021). A country's higher RCA value for industry indicates its greater export strength in industry, and precisely because of this fact, RCA is a sign of the international specialisation of certain countries (Jucevicius & Ribakovas, 2010. p. 392).

RCA1 measures the competitiveness of a sector in a regional and global market. It is measured as a fraction between the relation of commodity sector/group exports (esc) and whole country exports (Ec), and the relation of world commodity sector/group exports (Es) and global exports value (E). It can be seen in equation (2):

$$RCA1 = (esc/Ec) / (Es/E)$$
(2)

For RCA1>1, there is a revealed comparative advantage of a commodity group (sector) in international economy. Conversely, for RCA1<1, there is no revealed comparative advantage in the market under consideration.

The RCA2 index measures the contribution amount of a particular sector to the formation of an active trade balance i.e. the comparative advantage of the sector's exports and its competitiveness. In this regard, the volume of exports is, to some extent, a measure of a comparative advantage of one sector. The index is calculated when commodity sector imports are subtracted from exports, and that is put into relation with imports added to exports. It is shown in formula (3):

$$RCA2 = [(e_{sc} - i_{sc}) / (e_{sc} + i_{sc})]$$
(3)

RCA2 ranges from -1 to 1. If RCA2 equals -1, there are no exports; consequently,  $e_{sc}=0$ . When RCA2 is greater than -1, but lower than 0, it indicates comparative shortcomings; if RCA2 equals 0, the exports are equal to the imports, and  $e_{sc}=i_{sc}$ . If RCA2 is greater than 0, but lower than 1, it shows a detected comparative advantage; and if RCA2 equals 1, the imports do not exist, i.e.  $i_{sc}=0$ .

The Michaely index (MI), named for its author, quantifies trade specialisation at the industry level (Laursen, 2015. p. 108). The form for its calculation is given in equation (4):

$$MI_{ij} = (X_{ij}/\sum_i X_{ij} - M_{ij}/\sum_i M_{ij}) \times 100$$
(4),

where  $X_{ij}$  denotes the value of exports of *i* sector of *j* country, and  $M_{ij}$  are imports of *i* sector of country *j* (Michaely, 1962). The part of the formula before the minus sign tells about the percentage participation of the observed industry in national exports, while the part of the formula after the minus sign indicates the percentage participation of the given industry in national imports. The measure ranges between -100 and +100. A positive order of the index points to the conclusion that the observed country is specialised in a certain area, while on the contrary, a negative value implies a lack of specialisation (Laursen, 2015. p. 108).

# A COMPARATIVE ANALYSIS OF THE TEXTILE TRADE COMPETITIVENESS OF THE SELECTED COUNTRIES IN THE PERIOD BETWEEN 1995 AND 2018

In 2018, only the Bulgarian Textile industry (Textile fibres, yarn, fabrics and clothing) realised a surplus in foreign trade with other countries (+8.49%), compared to 1995 when five of the nine analysed countries had a surplus in the textile industry: Croatia (exports exceeded imports by +56.60%), North Macedonia (+50.12%), Slovenia (+48.18%), Romania (+29.97%) and Bulgaria (+9.09%).

After Bulgaria, where Textile industry exports exceeded imports by 8.49%, the highest coverage of imports by exports in 2018 was recorded in North Macedonia, where import-export coverage was 96.19%, followed by Serbia (85.29%), Romania (80.32%), Slovenia (73.64%), Bosnia and Herze-

govina (62.14%), Croatia (55.73%) and Hungary (52.90%). The Czech Republic had the lowest coverage of imports by exports – only 3.58%.

The obtained results for four indicators of foreign trade competitiveness of the textile industries (Revealed comparative advantage – RCA, Competitiveness growth index - RCA1, Index of net business performance - RCA2, and Michaely index) of the selected transition countries in the period between 1995 and 2018 are given in Table 2.

Table 2. Trade competitiveness indexes of analysed countriesin the 1995-2018 period, average values

	RCA	RCA1	RCA2	MI
Czech Republic Textile industry	-0.3907	0.59478	-0.9233	-0.0144
Textiles fibres and their wastes	0.120761	0.109933	-0.86312	0.000581
Textile yarn and related products	-0.12851	0.402402	-0.90009	-0.00362
Articles of apparel & clothing accessories	-1.67808	0.082441	-0.97107	-0.0114
Hungarian Textile industry	-0.1938	0.64533	-0.1067	-0.0017
Textiles fibres and their wastes	-0.8977	0.015845	-0.42253	-0.0013
Textile yarn and related products	-0.69968	0.188715	-0.33645	-0.01324
Articles of apparel & clothing accessories	0.259117	0.440771	0.108828	0.012866
Slovenian Textile industry	-0.1048	0.90377	-0.0711	-0.0005
Textiles fibres and their wastes	-2.42378	0.004682	-0.83713	-0.00275
Textile yarn and related products	0.086783	0.459628	0.024144	0.001557
Articles of apparel & clothing accessories	-0.26115	0.439461	-0.14338	0.000706
Romanian Textile industry	0.35826	2.77173	0.04128	0.05417
Textiles fibres and their wastes	-1.22955	0.037618	-0.61587	-0.00444
Textile yarn and related products	-1.17241	0.409821	-0.59759	-0.05621
Articles of apparel & clothing accessories	1.76566	2.324287	0.606628	0.11482
Bulgarian Textile industry	0.38262	2.3829	0.07083	0.04333
Textiles fibres and their wastes	-0.8873	0.071012	-0.50387	-0.0053
Textile yarn and related products	-0.77396	0.447285	-0.46134	-0.02996
Articles of apparel & clothing accessories	1.445151	1.864604	0.537072	0.078582
Croatian Textile industry	0.36893	1.63524	-0.1201	0.03363
Textiles fibres and their wastes	-2.11013	0.005513	-0.85939	-0.00173
Textile yarn and related products	-0.52863	0.272311	-0.50868	-0.00966
Articles of apparel & clothing accessories	0.800162	1.357417	0.086024	0.045028
Serbian Textile industry	0.2245	1.26642	-0.1958	0.01283
Textiles fibres and their wastes	-1.57636	0.020016	-0.75605	-0.00285
Textile yarn and related products	-0.72349	0.302562	-0.58133	-0.01832
Articles of apparel & clothing accessories	1.077817	0.943838	0.2117	0.034003
B&H Textile industry	0.28227	1.52286	-0.3345	0.02493
Textiles fibres and their wastes	-1.6513	0.01004	-0.85681	-0.00174
Textile yarn and related products	-1.07982	0.264478	-0.76221	-0.02057
Articles of apparel & clothing accessories	1.105221	1.248343	0.059624	0.047239
North Macedonian Textile industry	1.15726	4.13646	0.29817	0.14937
Textiles fibres and their wastes	-1.22719	0.054748	-0.6041	-0.00071
Textile yarn and related products	-0.65323	0.462425	-0.41292	-0.02892
Articles of apparel & clothing accessories	2.634587	3.61929	0.759663	0.178994

Source: Authors' calculation based on the data taken from the UNCTAD stat database

The negative average values of RCA indexes in the most successful countries in transition (Czech R., Slovenia and Hungary) indicates that their textile industry is not relatively competitive as it does not show a comparative advantage.

In countries such as Serbia and B&H, as well as Romania, Croatia and Bulgaria, the positive values of the RCA index shows that their textile industries have comparative advantage in the national market. Only in North Macedonia is the value of the RCA index higher than one, meaning that the textile industry of this country is internationally competitive.

Within the textile industry, the competitive situation in the activities of *Textiles fibres and their wastes* and *Textile yarn and related products* is very unfavourable. The positive values of the RCA index in *Textiles fibres and their wastes* were recorded only in the Czech Republic, and only in Slovenia in *Textile yarn and related products*. This means that just some level of competitiveness from activities within their national economies has been achieved. The circumstances are considerably better in the field of production of *Articles of apparel & clothing accessories*, where entities from Serbia, Bosnia and Herzegovina, Bulgaria, Romania, and especially from North Macedonia managed to build substantial international competitiveness. *Articles of apparel & clothing accessories* in Hungary and Croatia is competitive in the national market of these countries, which is not the case with Slovenia, or the Czech Republic, where these products have no comparative advantages in either the domestic or the international markets.

Based on the average, the RCA1 index detected that comparative advantage in the global market exists in most of the observed countries, with the largest comparative advantage of the textile industry recorded in North Macedonia, followed by the Romanian, Bulgarian, Croatian, Bosnian and Serbian Textile industries. In contrast to these countries, the Czech, Hungarian and even Slovenian Textile industries do not have competitiveness in the analysed market.

A partial analysis of the textile industry shows that the activities of *Textile yarn and related products* and *Textiles fibres and their wastes* are not competitive in the relevant market. Additionally, the activities of *Articles of apparel & clothing accessories* in the Czech Republic, Hungary and Slovenia are similarly not competitive in the relevant market. The situation is completely different in the countries of North Macedonia, Romania, Bulgaria, Croatia, Bosnia and Herzegovina, and Serbia, where the activity of *Articles of apparel & clothing accessories* has a discovered comparative advantage in the global market.

The average values of the RCA2 index in the analysed countries indicate that the textile industry is adding trade surplus in North Macedonia, Bulgaria and Romania. Conversely, in Slovenia, Hungary, Croatia, Serbia, Bosnia and Herzegovina, and especially in the Czech Republic, due to comparative shortcomings, this sector of the manufacturing industry has a deficit in foreign trade, which negatively affects the foreign trade balance of these countries. The values of the RCA2 index indicate a very unfavourable situation in terms of the contribution to the foreign trade balance, and Textiles fibres and their wastes and Textile yarn and related products in all observed countries (except for Textile yarn and related products in Slovenia). This situation is a consequence of the currents of globalisation, due to which less added value is produced, such as textiles fibres and their wastes and textile yarn and related products, which are used as raw materials when producing final products in the textile industry (i.e. in the production of articles of apparel and clothing accessories, products in less developed countries or in countries that have distinct comparative advantages in their production). The picture is completely different with the subsector Articles of apparel & clothing accessories because this activity has a deficit in foreign trade only in the Czech Republic and Slovenia, while Articles of apparel & clothing accessories positively affects the movement of the foreign trade balance in the rest of the analysed countries, especially in North Macedonia, Romania and Bulgaria.

The average values of MI show that North Macedonia, Romania, Bulgaria, Croatia, Bosnia and Herzegovina, and Serbia have achieved a certain specialisation level in the textile industry, in contrast to the Czech Republic, Hungary and Slovenia, which have insufficient specialisation in the textile industry. All observed countries (except the Czech Republic for Textiles fibres and their wastes, and Slovenia for Textile yarn and related products) have an insufficient level of specialisation in Textiles fibres and their wastes and Textile yarn and related products. The least specialised was Textile varn and related products in Romania, Bulgaria, North Macedonia, and Bosnia and Herzegovina. The circumstances with the trade of Articles of apparel & clothing accessories are significantly more favourable, because all observed countries (except the Czech Republic) have achieved a certain level of specialisation, with the highest level of specialisation recorded by North Macedonia, Romania and Bulgaria, followed by Bosnia and Herzegovina, Croatia and Serbia. Hungary and Slovenia were the least specialised in the sub-sector of Articles of apparel & clothing accessories, while the Czech Republic has not achieved any specialisation in this sub-sector.

The validity of the H1 hypothesis was tested with the multivariate analysis of variance - MANOVA. Based on the Wilks' Lambda (WL) indicator and its values, it can be deduced that the trade competitiveness of the analysed countries' industries are statistically different. By combining all of the presented indexes (RCA, RCA1, RCA2 and MI), and by getting a WL result lower than 0.05, the H1 hypothesis, which posits that the trade competitiveness of the textile industries of the analysed countries are substantially different, is confirmed.

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Effect		Б	Hypothesis	Error df	Sig	Partial
	value	1	df	LIIOI UI	Sig.	Squared
Pillai's Trace	0.953	1024.530 <sup>b</sup>	4.000	204.000	0.000	0.953
Wilks' Lambda	0.047	1024.530 <sup>b</sup>	4.000	204.000	0.000	0.953
Hotelling's Trace	20.089	1024.530 <sup>b</sup>	4.000	204.000	0.000	0.953
Roy's Largest Root	20.089	1024.530 <sup>b</sup>	4.000	204.000	0.000	0.953
Pillai's Trace	2.161	30.401	32.000	828.000	0.000	0.540
Wilks' Lambda	0.011	56.758	32.000	753.910	0.000	0.677
Hotelling's Trace	16.653	105.383	32.000	810.000	0.000	0.806
Roy's Largest Root	13.506	349.468°	8.000	207.000	0.000	0.931
	Pillai's Trace Wilks' Lambda Hotelling's Trace Roy's Largest Root Pillai's Trace Wilks' Lambda Hotelling's Trace Roy's Largest Root	Pillai's Trace0.953Wilks' Lambda0.047Hotelling's Trace20.089Roy's Largest Root20.089Pillai's Trace2.161Wilks' Lambda0.011Hotelling's Trace16.653Roy's Largest Root13.506	Value         F           Pillai's Trace         0.953         1024.530 <sup>b</sup> Wilks' Lambda         0.047         1024.530 <sup>b</sup> Hotelling's Trace         20.089         1024.530 <sup>b</sup> Roy's Largest Root         20.089         1024.530 <sup>b</sup> Pillai's Trace         2.161         30.401           Wilks' Lambda         0.011         56.758           Hotelling's Trace         16.653         105.383           Roy's Largest Root         13.506         349.468 <sup>c</sup>	Value         F         Hypothesis df           Pillai's Trace         0.953         1024.530 <sup>b</sup> 4.000           Wilks' Lambda         0.047         1024.530 <sup>b</sup> 4.000           Hotelling's Trace         20.089         1024.530 <sup>b</sup> 4.000           Roy's Largest Root         20.089         1024.530 <sup>b</sup> 4.000           Pillai's Trace         2.161         30.401         32.000           Wilks' Lambda         0.011         56.758         32.000           Hotelling's Trace         16.653         105.383         32.000           Roy's Largest Root         13.506         349.468 <sup>c</sup> 8.000	ValueFHypothesis dfError dfPillai's Trace0.9531024.530b4.000204.000Wilks' Lambda0.0471024.530b4.000204.000Hotelling's Trace20.0891024.530b4.000204.000Roy's Largest Root20.0891024.530b4.000204.000Pillai's Trace2.16130.40132.000828.000Wilks' Lambda0.01156.75832.000753.910Hotelling's Trace16.653105.38332.000810.000Roy's Largest Root13.506349.468c8.000207.000	Value         F         Hypothesis df         Error df         Sig.           Pillai's Trace         0.953         1024.530 <sup>b</sup> 4.000         204.000         0.000           Wilks' Lambda         0.047         1024.530 <sup>b</sup> 4.000         204.000         0.000           Hotelling's Trace         20.089         1024.530 <sup>b</sup> 4.000         204.000         0.000           Roy's Largest Root         20.089         1024.530 <sup>b</sup> 4.000         204.000         0.000           Pillai's Trace         2.161         30.401         32.000         828.000         0.000           Wilks' Lambda         0.011         56.758         32.000         810.000         0.000           Hotelling's Trace         16.653         105.383         32.000         810.000         0.000           Roy's Largest Root         13.506         349.468 <sup>c</sup> 8.000         207.000         0.000

Table 3. Multivariate Tests

Source: Authors' calculation

More detailed data about indicators of trade competitiveness concerning a statistically significant difference is given in Table 3 (column Sig.). Based on this data, it was found that all of the indexes used differ statistically in relation to the observed countries. Also, an estimate of the magnitude of the impact (Partial Eta Squared column) is given. This indicator shows to which degree the independent variable – the observed country in the case of this analysis – is responsible for the difference in the observed indexes, which represent the dependent value. By reviewing the partial eta square, the conclusions are that the observed countries have a significant influence in explaining all indicators, as well as that countries explain the highest percentage of the variance of the RCA2 indicators, and the lowest percentage of the variance of the RCA indicators.

Information about which countries differ statistically by individual indicators of trade competitiveness is given in the Bonferroni column. It shows statistically important differences between Serbia (7) and the Czech Republic (1), and Hungary (2) and North Macedonia (9) in the RCA indicator. The analysis of the RCA1 indicator value shows that Serbia is different from Croatia (6), and Bosnia and Herzegovina (8), but also from all other countries. The RCA2 index shows that the difference between Serbia and Hungary (2), Slovenia (3), as well as Romania (4) and Croatia (1-2) is not statistically important. According to the MI indicator, Serbia differs only in relation to Romania (4) and North Macedonia (9).

From Table 4, it can be concluded that North Macedonia has the highest values in all examined indicators. Also, it is possible to draw conclusions regarding other analysed countries.

Country	RCA	RCA1	RCA2	MI
(1) Czech Republic	-0.390583	0.594875	-0.923250	-0.014500
(2) Hungary	-0.193708	0.645250	-0.106750	-0.001667
(3) Slovenia	-0.104792	0.903792	-0.071125	-0.000500
(4) Romania	0.358208	2.771750	0.041292	0.054167
(5) Bulgaria	0.382542	2.382833	0.070833	0.043250
(6) Croatia	0.368875	1.635250	-0.120042	0.033542
(7) Serbia	0.224542	1.266417	-0.195792	0.012917
(8) B&H	0.282250	1.522875	-0.334458	0.024875
(9) N. Macedonia	1.157292	4.136375	0.298167	0.149333
F	31.860	76.181	142.576	33.328
p-value	0.000	0.000	0.000	0.000
Par.Eta Squa.	0.552	0.746	0.846	0.563
	1-4, 1-5, 1-6, 1-	1-4, 1-5, 1-6,	1-2, 1-3, 1-4,	1-4, 1-5, 1-6,
	7, 1-8, 1-9, 2-4,	1-7, 1-8, 1-9,	1-5 1-6, 1-7, 1-	1-8, 1-9, 2-4,
	2-5, 2-6, 2-7, 2-	2-4, 2-5, 2-6,	8, 1-9, 2-4, 2-	2-5, 2-9, 3-4,
	8, 2-9, 3-4, 3-5,	2-7, 2-8, 2-9,	5, 2-8, 2-9, 3-	3-5, 3-9, 4-7,
Donformoni	3-6, 3-8, 3-9, 4-	3-4, 3-5, 3-6,	5, 3-8, 3-9, 4-	4-9, 5-9, 6-9,
Bomerrom	9, 5-9, 6-9, 7-9,	3-7, 3-8, 3-9,	6, 4-7, 4-8, 4-	7-9, 8-9
	8-9	4-6, 4-7, 4-8,	9, 5-6, 5-7, 5-	
		4-9, 5-6, 5-7,	8, 5-9, 6-8, 6-	
		5-8, 5-9, 6-9,	9, 7-8, 7-9, 8-9	
		7-9, 8-9		

Table 4. Multivariate analysis of variance

Source: Authors' calculation

The values of the competitiveness indicators were observed by degrees of finalisation in order to test the H2 hypothesis, and all countries were analysed in aggregate, not partially. Testing was done with ANOVA – analysis of variance. Table 5 shows the descriptive indicators of the values of the competitiveness indicators according to the degrees of finalisation, when all analysed countries are observed together. The results showed that the peak level of finalisation (sub-sector *Articles of apparel* & *clothing accessories*) led to the highest average values of the competitiveness indicators.

From the presented data, it can be seen that the highest average values of all competitiveness indicators exist at the highest level of finalisation (*Articles of apparel & clothing accessories*).

The results of the ANOVA analysis can be seen in Table 6. The level of finalisation of production was the independent variable, while the aforementioned indexes were the dependent variables. The realised value of the F test indicates that the level of finalisation significantly affects the average value of all competitiveness indexes, as Sig. is less than 0.005. This means that the highest average values of the indicators are connected with the highest degree of production finalisation.

					95	%
			Std.	Std.	Confidence	
		Moon			Interval for	
		- Iviean	Deviation	Error	Mean	
					Lower	Upper
					Bound	Bound
	Textiles fibres and their wastes	-1.320	0.748	0.249	-1.895	-0.745
DCA	Textile yarn and related products	-0.630	0.404	0.135	-0.941	-0.320
ĸĊA	Articles of apparel & clothing accessories	0.794	1.247	0.416	-0.164	1.753
	Total	-0.385	1.227	0.236	-0.871	0.100
	Textiles fibres and their wastes	0.037	0.036	0.012	0.009	0.064
DCA1	Textile yarn and related products	0.357	0.101	0.034	0.279	0.434
KCAI	Articles of apparel & clothing accessories	1.369	1.107	0.369	0.518	2.219
	Total	0.587	0.846	0.163	0.253	0.922
	Textiles fibres and their wastes	-0.702	0.169	0.056	-0.832	-0.572
DCAN	Textile yarn and related products	-0.504	0.263	0.088	-0.707	-0.301
RCA2	Articles of apparel & clothing accessories	0.140	0.511	0.170	-0.253	0.533
	Total	-0.355	0.495	0.095	-0.551	-0.160
MI	Textiles fibres and their wastes	-0.002	0.002	0.001	-0.004	-0.001
	Textile yarn and related products	-0.020	0.017	0.006	-0.033	-0.007
	Articles of apparel & clothing accessories	0.056	0.060	0.020	0.009	0.102
	Total	0.011	0.048	0.009	-0.008	0.030
Source: Authors' calculation						

Table 5. Competitiveness of selected countries, depending on the production finalisation level in the textile industry

Mean Sum of Squares Df F Sig. Square Between Groups 20.931 2 10.465 13.779 0.000 RCA Within Groups 18.228 24 0.760 39.159 26 Total Between Groups 4.352 10.560 8.703 2 0.001 RCA1 Within Groups 24 9.890 0.412 18.593 26 Total 14.552 Between Groups 3.486 2 1.743 0.000 RCA2 Within Groups 2.875 24 0.120 26 Total 6.361

#### Table 6. ANOVA

Source: Authors' calculation

2

24

26

0.014

0.001

0.028

0.032

0.060

10.716

0.000

Between Groups

Within Groups

Total

MI

The results presented in Tables 5 and 6 prove that the level of finalisation positively affects export competitiveness, and that the effect is statistically significant. This confirms the H2 hypothesis, which posits that the manifested differences are a significant part of the result of the reached level of finalisation of production in the textile industry of these countries.

### CONCLUSION

The textile fibres, yarn, fabrics and clothing sector greatly contributed to the export expansion of the observed countries in transition (except Slovenia). The largest increase in the value of textile industry exports in the period between 1995 and 2018 was recorded by the Czech Republic and Romania.

The obtained negative average values of the RCA index in the most successful countries in transition (the Czech Republic, Hungary and Slovenia) show that the textile industries in these countries have no comparative advantage, i.e., that they are not competitive compared to the textile industries of other countries. The situation is somewhat more favourable in countries such as Serbia and the B&H, as well as Romania, Croatia and Bulgaria, where the positive values of the RCA index indicate that the textile industry has a comparative advantage in the national market. The value of the RCA index is greater than 1 only in North Macedonia, which means that the textile industry of this country is internationally competitive. Within the textile industry, the competitive situation in the activities of *Textiles fibres and their wastes* and *Textile yarn and related products* is very unfavourable.

The average value of the RCA1 index shows that the detected comparative advantage of the textile industry in the global market exists in most of the observed countries, with the largest comparative advantage of the textile industry recorded in North Macedonia, then Romania and Bulgaria, followed by Croatia, Bosnia and Herzegovina and Serbia. The Textile industries of the Czech Republic, Hungary and even Slovenia are not competitive in the relevant market. The analysis of individual parts of the textile industry shows that the activities of *Textile yarn and related products* and *Textiles fibres and their wastes* do not have a competitive advantage in the relevant market, and neither do the activities of *Articles of apparel & clothing accessories* in the Czech Republic, Hungary and Slovenia. The situation is different in the countries of North Macedonia, Romania, Bulgaria, Croatia, Bosnia and Herzegovina, and even Serbia, where the activity of *Articles of apparel & clothing accessories* has a clear comparative advantage in the global market.

The average values of the RCA2 index show the existence of a positive contribution of the textile industry in the formation of the active trade balance in North Macedonia, Bulgaria and Romania. Conversely, in

Slovenia, Hungary, Croatia, Serbia, Bosnia and Herzegovina, and especially in the Czech Republic, due to comparative shortcomings, this sector of the manufacturing industry has a deficit in foreign trade, which negatively affects the foreign trade balance of these countries. The values of the RCA2 index indicate a very unfavourable situation in terms of the contribution to the foreign trade balance and *Textiles fibres and their wastes* and *Textile yarn and related products* in all observed countries (except for *Textile yarn and related products* in Slovenia).

The average values of MI show that North Macedonia, Romania, Bulgaria, Croatia, Bosnia and Herzegovina, and Serbia have achieved a certain degree of specialisation in the textile industry, in contrast to the Czech Republic, Hungary and Slovenia, which have insufficient specialisation in the textile industry. All observed countries have an insufficient level of specialisation in the activities of *Textiles fibres and their wastes* and *Textile yarn and related products*, and the lowest level of specialisation was recorded in *Textile yarn and related products* in Romania, Bulgaria, North Macedonia and Bosnia and Herzegovina.

Statistically significant differences in the achieved level of trade competitiveness among the observed countries are seen through the MANOVA analysis. This confirms hypothesis H1, which concerns the existence of a statistically significant difference in terms of the achieved level of trade competitiveness between the observed countries. The analysis showed that North Macedonia has the highest values in all examined indicators in the observed period.

The highest average values of all competitiveness indicators exist at the highest degree of finalisation (*Articles of apparel & clothing accessories*), as is shown by the ANOVA analysis. Additionally, the degree of finalisation significantly affects the average value of all competitiveness indicators. As the highest average values of indicators are related to the highest degree of finalisation, it can be concluded that the degree of finalisation has a positive impact on export competitiveness, i.e. that there is a statistically significant impact of the degree of finalisation on the average value of all competitiveness indicators.

After the analysis, especially the results indicating that the higher level of product finalisation leads to higher exports, the advice for the analysed countries is to develop more activities that lead to final production. As a result, they could bring higher added value and better exports to their countries. In this way, the development and export potential of the textile industries in the analysed countries in transition can be used to a greater extent. Further research may focus on different countries, or a different sector or industry in the same group of selected countries.

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# ТРГОВИНСКА КОНКУРЕНТНОСТ ТЕКСТИЛНЕ ИНДУСТРИЈЕ ОДАБРАНИХ ЕВРОПСКИХ ЗЕМАЉА У ТРАНЗИЦИЈИ

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#### Резиме

Текстилна индустрија, као једна од најстаријих људских делатности, одиграла је значајну улогу у почетним фазама индустријализације у бројним европским и азијским земљама, и још увек има значајну развојну улогу како у сада индустријализованим земљама, тако и у земљама у развоју. Временом текстилна индустрија пролази кроз структурне промене услед глобализације тржишта, промена потреба потрошача, увођења иновација, премештања производње из развијених у мање развијене земље, промене образаца пословања (пословање путем подуговарања - енгл. outsourcing) и сталне појаве нових произвођача из земаља у развоју. Све ове промене утичу и одређују правац и динамику развоја, и трговинску конкурентност текстилне индустрије широм света. У складу са тим, предмет истраживања у овом раду је анализа развијености и трговинске конкурентности текстилне индустрије девет транзиционих европских земаља (Босна и Херцеговина, Бугарска, Хрватска, Чешка Република, Мађарска, Северна Македонија, Румунија, Србија и Словенија) са различитом историјом и нивоом развоја текстилне индустрије, и са различитим укупним развојним успехом током транзиционог периода. У већини посматраних земаља (Србија, Северна Македонија, Хрватска, Румунија и Словенија), остварени економски раст праћен је израженим трендом деиндустријализације, променама у спољнотрговинској активности (динамичан раст извоза), јачањем трговинске конкурентности и смањењем значаја и утицаја текстилне индустрије (осим у Северној Македонији и Србији) у привреди. И поред тога, сектор текстилне индустрије у великој мери је допринео значајној извозној експанзији посматраних земаља у посматраном периоду, иако само у Бугарској у 2018. години бележи суфицит у спољнотрговинској размени (у 1995. години текстилна индустрија је бележила суфицит у Хрватској, Северној Македонији, Словенији, Румунији и Бугарској). Добијени

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резултати показују да постоји значајна разлика у погледу достигнутог нивоа трговинске конкурентности и да је једино текстилна индустрија Северне Македоније међународно конкурентна, а да код већине осталих земаља постоји откривена компаративна предност. Такође, резултати показују и да постоје разлике у нивоу трговинске конкурентности у односу на степен финализације производа текстилне индустрије у посматраним земљама, што намеће закључак о потреби јачања трговинске конкурентности текстилне индустрије у посматраним земљама (посебно у земљама где је конкурентност текстилне индустрије најнижа и/или у земљама где је њен развојни потенцијал највећи) развојем текстилне делатности вишег степена финализације, што доноси и вишу додату вредност и већу могућност извоза. Тиме би се у већој мери искористио постојећи развојни и извозни потенцијал текстилне индустрије у посматраним земљама у транзицији.