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Anić, Ivan-Damir; Rajh, Edo; Teodorović, Ivan

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[The Institute of Economics, Zagreb](#)

Ivan-Damir Anić\*  
Edo Rajh\*\*  
Ivan Teodorović\*\*\*

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## STRATEGY AND FIRM PERFORMANCE IN THE CROATIAN TEXTILE AND CLOTHING INDUSTRY

*This paper examines the differences and similarities in strategies employed by companies operating in the Croatian textile and clothing industry. The analysis is based on company survey comprising 80 manufacturers. The data was analyzed using k-mean cluster analysis, one-way analysis of variance (ANOVA) and chi-square test. Research results indicate that textile and clothing manufacturers employ two major strategies: low cost strategy and value-oriented strategy. While low cost strategy implies lower material costs, emphasis on subcontracting and lower level of brand intensity, value-oriented strategy comprises the production of firms' own products, own brand development and higher level of production costs. The results further indicate that value-oriented strategic approach yields significantly more value added per employee, sales volume per employee, and return on sales (ROS) than low-cost strategy, and thus appears to provide a means by which textile and clothing manufacturers may mitigate the effects of increased price competition and achieve competitive advantage in the marketplace.*

*Key words: Croatia, textile and clothing industry, competitive strategy, firm performance*

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\* I. D. Anić, Senior Research Associate, The Institute of Economics, Zagreb (e-mail: danic@eizg.hr)

\*\* E. Rajh, Senior Research Associate, The Institute of Economics, Zagreb (e-mail: erajh@eizg.hr)

\*\*\* Ivan Teodorović, Senior Research Associate, The Institute of Economics, Zagreb (e-mail: iteodorovic@eizg.hr)

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## Introduction

The textile and clothing industry is a diverse and heterogeneous industry which covers an important number of activities, ranging from the transformation of fibres to yarns and fabrics to the production of a wide variety of clothing products. The Croatian textile and clothing industry is facing great challenges because of fierce import competition and declining demand. Due to its lower level of competitiveness, Croatian textile and clothing industry is losing its market share. The share of textile and clothing industry in gross value added of total economy (basic prices) was 1.2% in 2002 and 1.0% in 2005. Also the share of textile and clothing industry in manufacturing employment decreased. It was 12.5% in 2005 and 10.5% in 2008. The local manufacturers seek strategies that would help them improve their performance and enhance their competitive position in the marketplace.

The purpose of this research is to gain better insight into the strategies employed by firms operating in the Croatian textile and clothing industry. The paper investigates the following research questions: (RQ1) What are major strategies employed by the Croatian textile and clothing manufacturers? (RQ2) What are major differences and similarities in those strategies? (RQ3) Which strategy has the greatest impact on business performance? In order to examine the research questions we performed the empirical analysis that was based on the data obtained from the company survey carried out in Croatia. K-means cluster analysis was employed to identify the major strategies employed by manufacturing firms. The data were further analyzed using one-way analysis of variance (ANOVA) and chi-square test.

This study builds on previous works related to competitive strategy and strategic behavior of manufacturing companies, and particularly those operating in the textile and clothing industry (Porter, 1980; Porter 1985; Keenan, Saritas, Kroener, 2004; Taplin and Winterton, 2004; Taplin, 2006, Anić, Rajh and Teodorović, 2008). As compared to previous works this paper classifies textile and clothing companies into groups according to the strategy employed, and examines the differences and similarities in the strategies adopted. Further contribution to the literature of this paper is the examination of the relationship between strategies of the textile and clothing companies and their performance.

Several managerial implications might be derived from this study. Planning effective manufacturing strategies is an important means of coping with a changing business environment and may help companies achieve a competitive advantage. The framework provided helps the textile and clothing manufacturers evaluate their own strategies and improve their market positioning.

After the introduction, theoretical framework is given in the section two. The methodology is presented in section three and the research results in section four.

The final section five includes conclusion, managerial implications of the paper and future research directions.

## 2. Theoretical framework

Manufacturing strategy is defined as an plan of manufacturing capability for the achievement of business goals in a future environment. The concept of manufacturing strategy is often traced to work of Skinner (1969). There is an extensive literature on competitive strategies. Researchers use various approaches to identify major strategies. One approach is Porter's classification of three generic strategies: cost leadership strategy, differentiation strategy, and focus strategies (Porter, 1980). A low cost advantage exists when the firm delivers the same benefits as competitors but at lower costs and prices. In pursuing the cost leadership strategy the emphasis is on cost reduction and firms strive to become the low cost producer. Efforts are focused on cost control. Since the objective is cost reduction, the company tends to reduce major costs, and tend to emphasize simpler product lines with low variety and high volumes (Kotha and Orne, 1989). The strategy of differentiation attempts to create a product or service that is perceived to be unique by customers. A differentiation advantage involves use of product quality, advertising, customer service, and/or store location, layout and design to become distinctive in comparison to competitors, using those product/service benefits which its customers perceive as important in their buying decisions (Coyne, 1985). Companies with this strategy orientation tend to have more complex product lines, wider product lines and more service complexity (Kotha and Orne, 1989). For a differentiation strategy to be profitable, customers must be willing to pay a price premium for the benefits and the premium must exceed the additional costs of product quality, advertising, and customer service. The third is a focus strategy, in which a firm concentrates on a particular group of customers, geographic markets, or product line segments. Research has shown that the failure to develop either low-cost or differentiation leads to inferior performance (Porter 1980; Dess and Davis, 1984; Sandberg, 1986). For a declining industry with a declining sales and market share, such as textile and clothing industry, Porter's generic strategies need some modification (Pretorius, 2008). Some researchers posit that firms in different strategic groups have different profitability while others think that group membership has no effect on performance (Shah, 2007).

Past research suggests that there are various strategies and sources of competitive advantage in the textile and clothing industry, including costs, production location, fashion branding, design, agility, human resources, education, technology, delivery, R&D, innovative products, high quality of products (Bheda, Narag

and Singla, 2003; Taplin and Winterton, 2004; Jin and Moon, 2006; Jin, 2004; Keenan, Saritas and Kroener, 2004). While cheap labor has been the main source of competitiveness of new industrialized countries, it cannot be a viable factor in the long run due to the rise of labor costs. As the industry sector develops, its competitive advantage factors should be changed accordingly. Developed countries can not compete with new industrialized countries on low costs and low wages, and must find other sources of competitive advantage. European competitiveness depends on innovation, research and development, fashion and design, creation and quality, and the use of new materials and new technologies, together with positive industrial relations (Keenan, Saritas and Kroener, 2004; European Commission, 1996). The keys of sustained competitiveness are the preservation and the development of know-how and skills through effective education and training, as the importance of knowledge-intensive tasks and flexible skills in the sector rises (Keenan, Saritas and Kroener, 2004). Some firms in high-wage countries base their competitiveness on the development of their own products and brand management (Jin, 2004).

In this study we use the following variables to examine the similarities and differences among companies in their strategies: various cost variables, brand intensity, business model applied and R&D. Firms' performance is measured in terms of value added per employee, sales volume per employee, and return on sales (ROS). Based on the literature review we might hypothesise that companies in the textile and clothing industry employ various strategies. Various strategies produce different performance of companies.

### **3. Methodology**

#### ***3.1. Survey and sample profile***

Data collection was performed in the Croatian textile and clothing manufacturing setting. The questionnaire for this study was developed on previous research and literature review. The questionnaire contained companies' financials, dimensions of manufacturing strategy, strategic behavior of manufacturers and company information. The questionnaire was mailed to managers and owners of the companies selected in the sample (153 leading textile and clothing producers registered in sectors DB 17 and DB 18, following the National Classification of Economic Activities - NKD 2002). Those manufacturers were listed in the directory of the Croatian Chamber of Economy. The mailing was followed up by telephone calls. During the period of December 2006 to February 2007 in Croatia, 80 responses were received for a response rate of 52%, out of which 55 ques-

tionnaires were usable for data analysis. According to the share in the Croatian manufacturing, the sample might be regarded as the representative one. Appendix 1 provides a summary of the sample characteristics.

### ***3.2. Measurement***

Through a review of relevant literature we identified several measures that could be used in this study. These measures were supplemented and adapted to the study context. Measures of costs include total expenses, material costs, wages and marketing expenses. Companies were asked to indicate their total expenses, material costs, wages and marketing expenses for the 2003-2005 period. The average values were calculated and used in the analysis. Total expenses and wages were measured per employee, while material costs and marketing expenses were expressed as proportion of total sales.

Marketing intensity was measured as the percentage of companies that invested in marketing during the period of 2003-2005, as follows: (1) company did invest in marketing; (2) company did not invest in marketing. Business model includes manufacturers that emphasize full manufacturing and companies that employ predominantly subcontracting. Companies were distinguished according to the percentage of in-house production made by using their own design and customer specifications. Companies with more than 50% of own production in total output are categorised as full manufacturers, while companies with less than 50% of own production are categorised as subcontractors. The companies performing exactly 50% of own production in total output were included in the group of subcontractors. Brand intensity was measured as the proportion of brand sales in total sales. For brand intensity manufacturers indicated the share of brand sales in sales volume for the period of 2003-2005 on the scale as follows: (1) 0-10 %, (2) 11-30 %, (3) 31-60 %, (4) 61-90 %, (5) 91-100 %. R&D intensity represents the percentage of companies that have established in-house R&D departments. We calculated capital intensity as the amount of fixed assets in relation to number of employees.

Performance was measured in the local currency (Croatian kuna - HRK) using sales volume per employee, value added per employee and profitability (ROS). Performance was measured using value added per employee. Value added might be defined as the difference between the cost of materials purchased by a firm and the price for which it sells goods produced using those materials. It usually includes wages, depreciation and profit. Value added was calculated by summing up wages, depreciation and profit before taxes. We summed up all those financial variables to obtain value added for each company. Value added (output) was then divided by the number of employees (input). This indicator represents

the productivity measure of business performance. Profitability was expressed as return on sales (ROS). Return on sales was measured as the share of profit before tax in sales in percentage.

### *3.3. Data analysis*

K-means cluster analysis was employed to develop typology of strategies employed by firms in textile and clothing industry in Croatia. Cluster analysis takes a sample of organizations and groups them in a way that the statistical variance among elements grouped together is minimized while between-group variance is maximized. In general, k-means clustering procedure can be understood as ANOVA in reverse. Analyzed objects are moved in and out of clusters until the most significant ANOVA results are achieved. As an indicator of how well the respective variable discriminates between clusters, the magnitude of the F values is used. In k-means cluster analysis statistically generated cluster centres are computed by procedures in which objects are organized according to the distance between themselves. After that, k number of cluster centres is chosen in order to classify all objects in k number of clusters (k is a predetermined number of clusters). Objects are assigned to particular clusters according to their distance from particular cluster centres. The procedure is repeated until cluster centres are found that allow classification of all objects in k number of clusters with the most significant ANOVA results. In k-means cluster analysis distances between objects and between objects and cluster centers are measured by unscaled squared Euclidean distances. For example, the distance  $D(i,k)$  of an object  $i$  from cluster centre  $k$  for  $M$  analyzed variables  $X_j$  is calculated as follows: where  $\bar{X}_j$  is the mean value of variable  $j$  for cluster  $k$ . Values  $X_j$  are not rescaled in any way, therefore distances between objects and between objects and cluster centers are expressed in measurement units of analyzed variables.

The following three strategic dimensions were used to identify the strategic groups: (1) material costs, (2) business model and (3) brand intensity. These strategic variables were identified using past research on strategic behavior of manufacturers operating in the textile and clothing industry. The variables reflect both a scope of firms' activity, business-level strategy and the resources committed in order to achieve competitive advantage within the target market segments. Analysis of variance (ANOVA) and chi-square test were used to test the impact of individual dimensions relating to strategy development and business performance.

#### 4. Results

The results of k-means cluster analysis reveal major strategies employed by the Croatian manufacturers in the textile and clothing industry. Two major groups of companies were identified using three strategic variables: (1) companies employing low cost strategy, and (2) companies focusing on value-oriented strategy. Significant differences between company groups were found for all three strategy dimensions, for material costs and strategic emphasis at 0.00 level and for brand intensity at 0.1 level. Summary statistics on cluster analysis is given in table 1.

Table 1:

#### K-MEANS CLUSTERING AND ANOVA RESULTS FOR STRATEGIC GROUPS, MEAN VALUES

Strategic variables/groups	Group 1 Low cost manufacturers (N = 27)	Group 2 Value-oriented manufacturers (N = 28)	p-value
Material costs (%)	32.00	57.00	0.000
Strategic manufacturing vs. subcontracting emphasis (%)	10.55	90.28	0.000
Brand intensity*	1.60	2.21	0.065

Notes: Brand intensity: Manufacturers indicated the share of brand sales in sales volume for the period of 2003-2005 on the scale as follows: (1) 0-10 %, (2) 11-30 %, (3) 31-60 %, (4) 61-90 %, (5) 91-100 %.

Companies within the low-cost strategy group aim to reduce the cost of doing business. They have lower costs of doing business. Those companies emphasize the subcontracting business model and have lower levels of brand intensity. The group of companies which rely on value-oriented strategy does not try to achieve competitive advantage by low costs, but emphasizes the production of their own products (strategic manufacturing strategy) and the development of their own brand. This requires higher material costs to support this strategy.

Analysis of variance (ANOVA) and chi-square test were now used to examine the differences between identified groups of companies in five additional



business activity variables and three performance variables. Table 2 summarizes the main points of similarities and differences among strategic groups.

ANOVA and chi-square test results indicate that the means across strategic groups are significantly different for all of business activity variables ( $p < 0.05$ ), while marketing intensity appeared to be marginally significant ( $p < 0.1$ ). The manufacturers in the first strategic group have lower levels of cost related variables (total expenses, wages and marketing expenditures), which additionally supports their low-cost business strategy.

*Table 2:*

COMPARISON OF STRATEGIES EMPLOYED  
BY CROATIAN COMPANIES IN THE TEXTILE AND CLOTHING  
INDUSTRY BY BUSINESS ACTIVITIES

Scope of business activities	Group 1 Low-cost manufacturers (N = 27)	Group 2 Value-oriented manufacturers (N = 28)	p-value
1. Total expenses per employee*	82,155	231,609	0.000
2. Wages per employee*	39,897	45,324	0.050
3. Marketing intensity*	0.70	1.41	0.094
4. R&D intensity**			
4.1. Percentage of firms having in-house R&D departments (%)	0.0	21.4	
4.2. Percentage of firms which do not have in-house R&D departments (%)	100.0	78.6	0.012
5. Capital intensity*	49,329	143,511	0.032

Note: \* ANOVA, \*\* chi-square test

As expected, low-cost manufacturers have also lower level of capital intensity than value-oriented companies. They employ predominantly subcontracting strategy and invest less in R&D, brand development and marketing. As compared to low-cost manufacturers, value-oriented companies have higher level of costs but also higher level of differentiation and higher level of capital intensity. The value-oriented manufacturers were more capital-intensive than the low-cost

manufacturers, almost certainly because of their investments in fixed assets, i.e. plants, equipment, machinery, computers, logistics and information technology.

The performance of the two different strategic groups is presented in table 3. Three performance measures were used in the analysis: value added per employee, sales volume per employee, and return on sales (ROS). Data shows that value-oriented manufacturers exhibited higher level of value added per employee ( $p = 0.054$ ), higher sales volume per employee ( $p = 0.002$ ), and higher return on sales ( $p = 0.063$ ) than low-cost manufacturers.

Table 3:

THE LINKAGE BETWEEN STRATEGIES AND PERFORMANCE

Variables	Group 1 Low-cost manufacturers (N = 27)	Group 2 Value-oriented manufacturers (N = 28)	p-value
1. Value added per employee (HRK)	44,621	68,410	0.054
2. Sales volume per employee (HRK)	82,243	228,706	0.002
3. ROS (%)	-5.76	2.42	0.063

Overall, our research support our hypothesis that companies in the textile and clothing industry employ different strategies, which result in different performance of companies. In fact, strategies of Croatian textile and clothing manufacturers might be classified into two groups: low-cost strategy and value-oriented strategy. Value-oriented strategy appeared to produce better business performance and it is more appropriate strategy for Croatian companies, since it can help them improve their market position.

**Conclusion**

This paper explored the strategic behavior and performance of companies operating in the Croatian textile and clothing industry. Business strategies in the Croatian textile and clothing industry appear to coalesce around the following two identifiable models: low-cost approach and value-oriented strategy. Several managerial implications might be derived from the findings of this study. The

implications of the study include opportunities for textile and clothing companies. The research results indicate that value-oriented strategy yields better performance than low-cost strategy in the sample of the Croatian textile and clothing manufacturers. Accordingly, basic factors such as cheap labor for production are no longer viable in achieving competitive advantages since those factors can be successfully secured through global sourcing (Jin and Moon, 2006). The most necessary new factor conditions to compete should be sought in advanced or specialized factors, such as fashion branding, skilled human resources, technology. These sources of competitive factors can be easily observed in the most advanced fashion countries. Value-oriented strategy provides a means by which Croatian textile and clothing manufacturers may mitigate the effects of increased competition and achieve competitive advantage in the marketplace. Productivity in the sector increases through the extensive use of modern technology and a highly skilled and trained workforce (Keenan, Saritas and Kroener, 2004).

Although this study produced some interesting and meaningful findings, there are some limitations as well. Like most survey studies, this study took a “snapshot” of a sample of the industry at a single point in time. Several years of data would have provided further information as to how strategic behaviour changes. More abundant and richer data would have enlarged the scope of analysis. Despite these limitations, the results of this study offer useful insights into the strategic behaviour of the Croatian firms in the textile and clothing industry.

There are several areas in need for further research. In order to understand firm’s competitive advantage, scholars should carry out longitudinal studies to capture business strategies in the textile and clothing industry. More accurate measures of subcontractors’ and manufacturers’ capabilities should be conceived and tested. Future research may refine the classification of manufacturing strategies employed in the textile and clothing industry.

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**Appendix 1: Sample characteristics, N = 80**

Company profile	
1. Main business activity (% of manufacturers)	100.0
1.1. DB 17	36.3
1.2. DB 18	63.7
2. Company experience (% of manufacturers)	100.0
2.1. established before 1990	35.1
2.2. established during the period of 1990 – 1999	51.9
2.3. established after 1999	13.0
3. Company size (% of manufacturers)	100.0
3.1. Small companies (less than 50 employees)	37.5
3.2. Medium-sized companies (from 50 do 250 employees)	35.0
3.3. Large companies (more than 250 employees)	27.5
4. Average number of employed persons for the 2003 – 2005 period	233
5. Sales volume per company in country for the 2003 – 2005 period (HRK)	13,395,686
6. Average export revenues for the 2003 – 2005 period (HRK)	15,846,361
7. Material costs (share in sales volume for the 2003 – 2005 period in %)	0.47
8. Marketing expenses (share in sales volume for the 2003 – 2005 period in %)	0.98
9. Expenses per employee per company for the 2003 – 2005 period (HRK)	173,277
10. Brand intensity (share of brand revenues in total sales volume for the 2003 – 2005 period in %)	11 – 30%
11. Average capital intensity for the 2003 – 2005 period (HRK)	94,975
12. Average value added per employee for the 2003 – 2005 period (HRK)	57,061
13. Percentage of companies emphasizing strategic manufacturing approach (%)	52.5
14. Percentage of companies emphasizing subcontracting strategy (%)	47.5
15. Percentage of companies with R&D departments (%)	10.5
16. Sample share in Croatian textile and clothing manufacturing in 2005 (%)	
16.1. in employment	52.1
16.2. in home sales revenues	52.9
16.3. in export revenues	31.5
16.4. in profits after taxes	23.7
16.5. in loss after taxes	27.9

## UTJECAJ STRATEŠKIH ČIMBENIKA NA USPJEŠNOST POSLOVANJA PODUZEĆA U HRVATSKOJ TEKSTILNOJ I ODJEVNOJ INDUSTRIJI

### Sažetak

U radu autori analiziraju razlike i sličnosti u strategijama prerađivačkih poduzeća iz hrvatske tekstilne i odjevne industrije. Analiza se zasniva na anketi koja je obuhvatila 80 poduzeća. Podaci su analizirani k-mean klaster analizom, analizom varijance i hi-kvadrat testom. Rezultati upućuju na zaključak da poduzeća iz tekstilne i odjevne industrije u Hrvatskoj primjenjuju dvije glavne strategije: strategiju niskih troškova i strategiju orijentiranu na vrijednost. Strategija niskih troškova podrazumijeva niže materijalne troškove, naglasak na lohn poslove i niži udio vlastitih marki u prihodima. Strategija orijentirana na vrijednost podrazumijeva orijentaciju na proizvodnju vlastitih proizvoda, razvijanju vlastitih marki i više razine materijalnih troškova. Rezultati istraživanja također upućuju i na zaključak da strategija orijentirana na vrijednost rezultira većom razinom dodane vrijednosti po zaposleniku, većim prihodom od prodaje po zaposleniku i većom profitabilnošću prodaje (ROS). Proizvođači se mogu koristiti ovom strategijom kao odgovorom na povećanu cijenovnu konkurenciju i kao sredstvom postizanja konkurentske prednosti na tržištu.

Ključne riječi: Hrvatska, tekstilna i odjevna industrija, konkurentska strategija, rezultati poslovanja