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Extended Supply Chain and Small and Medium Retail Enterprises in Serbian Garment Industry

Abstract

Some recent researches reveal that the garment industry is among those with a high rate of returned goods. Therefore exploring and understanding extended supply chains, which cover both direct and reverse good flows, is of particular importance. Yet research on extended supply chains in the garment industry is almost neglected in literature. The objective of this paper is to gain an insight into the nature of reverse flows within the extended supply chain in the garment industry. The aim is to emphasise their significance and complexity. Empirical results presented were obtained by a survey conducted in Novi Sad, the second largest city in the Republic of Serbia. It was found that giving more attention to reverse flows in research and practice is necessary. Due to the complexity of the problem, the focus is on retailers and small and medium enterprises, which are considered as drivers for economic recovery and development.

Key words: *return flows, garment industry, extended supply chain, small and medium enterprises.*

■ Introduction

The supply chain for garments, particularly in the fashion industry has attracted the great interest of experts [1]. Yet reverse flows within the extended supply chain are not much explored. A better insight into the nature of return flows allows the development of successful and effective reverse logistics management throughout the chain, and achievement of related opportunities, e.g. operation cost reduction, improved efficiency, and better return clauses in contract with suppliers.

The objective of this paper is to gain insight into the nature of reverse flows within an extended supply chain in the garment industry. Due to the complexity of the problem, the focus is on retailers and their inbound and outbound reverse flows and logistics. The aim is to emphasise the complexity of an extended supply chain in the garment industry and identify the main concepts of a reverse network and logistics in the retail tier. Practical research was directed towards small and medium enterprises (SMEs) because SMEs play a key role in most economies and most retail firms in the garment industry. Another original characteristic of the practical research was that the nature of reverse flows was explored in the context of a very specific business environment - in the Republic of Serbia, which represents a transitional economy.

The structure of the paper is as follows: In the second section, a basic extended supply chain in the garment industry is shown, as well as the main concepts and reasons for generating returns. The main reverse flow characteristics are discussed within the context of an unstable market and transitional economy, more precisely in the context of the Serbian economic environment. Practical research on the nature of reverse garment flows and related logistics was conducted in Novi Sad, the capital of the north Serbian province of Vojvodina. The survey methodology is described in the third Section, and the main results are given in the fourth Section. Discussion, final remarks and a conclusion are given in the last two sections, respectively.

■ Extended supply chain and logistics in the garment industry

Concept of an extended supply chain

The traditional viewpoint of a „one-way" supply chain has been increasingly substituted by the concept of an extended supply chain. The extended supply chain embraces all the elements of a traditional one-way supply chain, but it also extends in a closed-loop that includes reverse flows and new activities, such as collecting, repackaging, recycling, reuse, reoperation, resale or disposal. The importance of these flows is growing due to companies' need to create a competitive advantage, reduce costs and increase customer satisfaction [2].

The concept of an extended supply chain in the garment industry is shown in *Figure 1* (see page 14). The extended network contributes to the complexity of the logistics problem, because reverse flows could be generated in each tier. Furthermore the extended supply chain may include new participants and new channels. The term "reverse flows" often
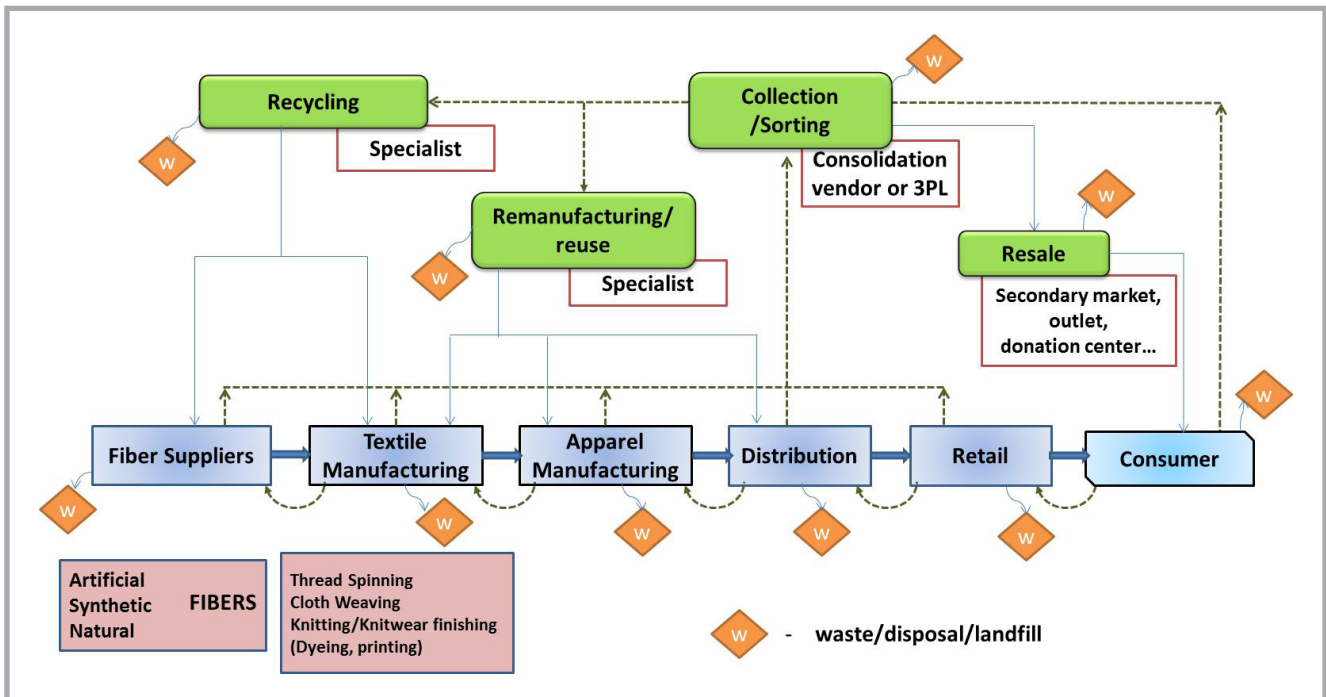
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Figure 1. *Extended supply chain in garment industry (developed from [2 - 4]).*

cannot describe completely the complexity of the possible return channels. Goods can be returned either partly or wholly through the same channels they previously reached the end customer, as well as through the newly-created, dedicated reverse channels, and then join any of the direct channels (e.g. primary channels, outlets, those created for humanitarian activities, etc.). In all cases, new participants may also be involved. For example, a new reverse channel with new parties may be developed due to complaints, while in primary channels third parties could be engaged for returns.

The demand characteristics as well as the competition and product characteristics induce the adjustment of supply chain strategies to the specific environment as well as the introduction of new players and increasing the importance of reverse flows. However, the complexity of garment extended supply chains nowadays is mostly related with the distribution channels. Unsold items have to be returned from the store after the end of their life cycle to provide room for new clothing collections. Some earlier research reveals that the returns from retailers mostly end on other markets (e.g. outlets), and they are much less remanufactured or recycled than those sent by the manufacturers [5]. This actually means that when garment products reach the distribution channels, the returns mostly circulate forwards and

backwards throughout them until they finally reach end customers.

Retailers can use four basic types of physical networks and reverse logistics to cope with the return flows [6]. The *first* type identified is the integrated outbound and reverse network - the seller using an own-account distribution fleet for backhauling to return products from stores to a regional distribution center - RDC. The *second* type assumes a not integrated outbound and return network. Typically a third party organization is used to collect returns and deliver them to a separate warehouse for further reverse logistics operations. The *third* type uses the services of third parties - the whole process of returning the product are through new channels and left to third parties on behalf of the retailer. Finally the *fourth* type assumes returns to suppliers for credit. For retailers, that means the least responsibility for returns and partial return of investments from the supplier. For suppliers, this means additional costs because goods can be in various states so they have to collect, control, sort, grade and reprocess them. Moreover they often have different types of buy-back contracts whereby suppliers share the risk of unsold goods with retailers. Which type of network applied depends on many factors, i.e. the reasons for return, market characteristics, product characteristics, retailer characteristics and the particular

power in negotiating contracts between the retailer and supplier.

Reasons for returns

In retail point, reverse flows can be generated by the retailer or end-customer. Returns are caused by defects, failed units, retail stock redistribution and clearing, recalls, obsolete or out of warranty products, buyers' remorse, etc. [7]. General return rates depend on the product life cycle, product quality and demand predictability. The supply chain structure (e.g. e-commerce channels) and supply chain strategy applied also impact the return rate.

Impact factors on reverse flows in Serbian garment market

The ideal situation is that a retailer orders the quantities and assortment which is of perfect quality and which will be sold on a whole, while the customer exactly knows what he/she wants, and buys it. However, this is not applicable in a real environment. Considering the reasons identified for returns, there are many sources of uncertainty which cause a need for reverse flows and related logistics support. These sources impact the extended supply chain structure and reverse flow characteristics i.e. industry, product and market characteristics, including competition, customer power and the legal and economic environment. All of them will be briefly discussed in the rest of the section.

Industry and product characteristics
In general, product quality could be among the first reasons for a return. The product quality depends on manufacturing and logistics processes in the supply chain, both of which contribute to the right product being in the right condition when reaching the end-customer.

Additionally, the garment industry is seen as a dynamic and unpredictable market. On the whole, clothing has a very short to moderate life cycle (several weeks to a year). The common product characteristics in the garment industry are [8 - 10]: short life-cycles, high volatility, low predictability, a high degree of impulse purchases and high product variety. All these characteristics certainly impact the fact that clothing retail (including the catalog and e-commerce channels) belongs to the industries with the most developed reverse flows [2].

Business environment and market characteristics in Serbia
South and Eastern European garment markets have passed a period of transition and have slowly growing sales, under the strong pressure of the economic crisis. Serbia also belongs to such markets where the textile and garment industry has great potential, but it has faced many challenges [11]. The majority of companies in the textile industry face market loss and a drastic decrease in the domestic market. International retailers and brands have entered the market intending to stay there. There is also the great influence of unfair competition and „grey markets". Generally, large retailers may have more power in the supply chain relationship than manufacturers, hence they have more room to make suitable return clauses than small firms. Small firms are usually clothing specialists on the market, having limited capabilities to develop own distribution and reverse channels.

The economic crisis and high level of unemployment additionally impact market demand uncertainty. Within such an uncertain environment, local manufacturers are mainly SMEs, while the distribution and retail channels are more diversified, including SMEs but also big and international retailers, brand representatives, clothing specialists and non-specialists. The number of outlet stores is also increasing. On the other hand, customer service demands and lifestyles are more changeable and ambiguous than before. The legal framework regarding consum-

Table 1. Basic information about the research.

Type of research	Survey questionnaire
Contact	In person
Target groups	Retail SMEs
Received responses	81 questionnaires offered 66 questionnaires completed
Research period	August 2011, November 2011 – January 2012 (4 months)

Table 2. Main results of individual survey responses.

Rate of returned products' value in respect of the revenue (in %)			
Non-significant	25.00	Less than 1	12.50
From 1 to 3	15.00	From 3 to 5	10.00
From 5 to 10	10.00	More than 10	7.5
Never conducted such an analysis	20.00		
Average retention of products in retail store			
From 1 to 7 days	9.09	From 7 to 30 days	21.21
From 1 to 3 months	42.42	More than 3 months	27.27
How often the returns are dispatched from your store			
Every day, several times a week	12.00	Once a week	12.12
1-2 times per month	15.15	Less than once per month	10.61
Rarely, if necessary	60.61	Depends on the type of product/unit	1.52
The ultimate destination of the product			
Back to the supplier (under contract to return unsold products to supplier)	62.12	Partners which exploit the material for other products	
Wholesaler's facility (e.g. distribution centre)	24.24	Landfill	
Outlet stores (stores with goods sold at lower prices)	9.09	Own facility (e.g. distribution center) until next season	0
Secondary market ("dollar" store) in the country	3.03	Secondary market in other countries	
Facilities for service and repair of products	1.52	For recycling	

er protection is rather harmonised with EU standards. In that sense, customers put additional pressure on retailers. All these facts contribute to the development of supply chain diversity in the garment industry, to an increasing rate of returns and, consequently, to the diversity and complexity of reverse channels.

▪ Methodology

To partly reveal the complex nature of garment returns in a specific environment, we conducted a survey to identify, describe and analyse the main characteristics of RL in Novi Sad, the second largest city in the Republic of Serbia. A survey-based methodology was applied to obtain the main data regarding the main reverse flow characteristics and reverse networks applied and to provide a basis for future research. The target group was retail SMEs who sell clothing and footwear, and have been operating for more than one year. The research period covered 4 months in two different seasons (*Table 1*). Usable data were obtained from 66 retail stores. The main results of the survey are given in the next Section. The questionnaires were delivered directly to the sellers or sales managers

and in most cases they answered immediately, giving additional explanations for particular questions, if needed. This approach achieved both a high response rate and satisfactory quality of answers. The questionnaire consisted of three parts: A – General information about the retailer, B – The importance of feedback and the concept of flow, and C – Entities participating in the return flows.

▪ Main results

The main results of the survey are given in *Table 2* and *Figures 2 - 5* (see page 16). Micro firms comprised the dominant group among the respondents, while two thirds of them hesitated to give data about annual turnover. Among the rest, most have an annual turnover of less than 0.5 million (50%), which is typical for SMEs. One fifth of respondents (20%) confirmed that they had never performed an analysis to assess either the value of returned goods or reverse logistics costs, while additional 25% estimated that the value of returned products is insignificant, or less than 1%. Obviously respondents did not give much importance to this issue. Almost half of respondents (42%)
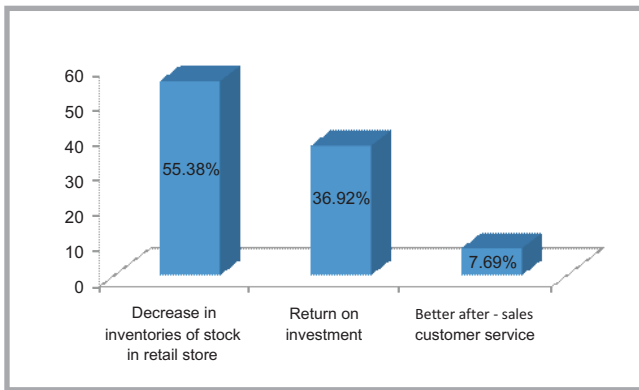
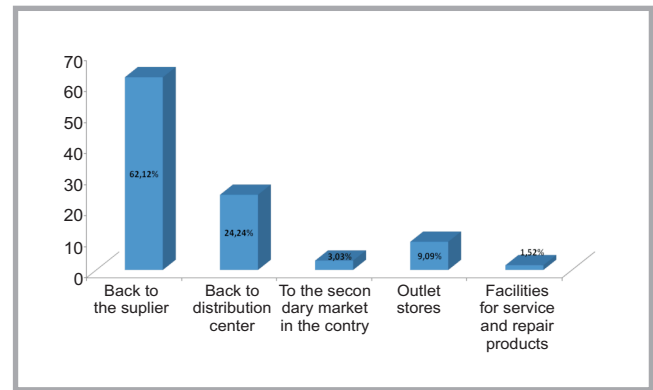**Figure 2.** Retailers' goals achieved for returned goods.

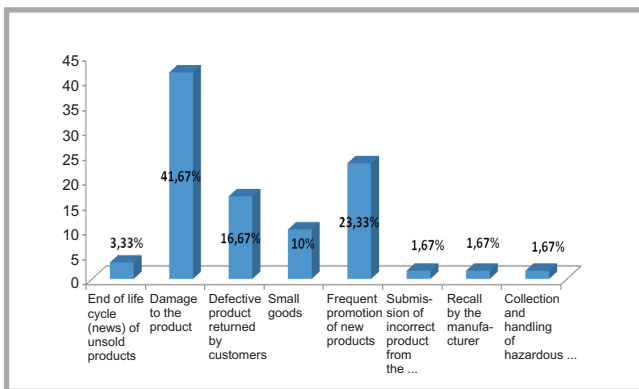**Figure 3.** Where products /packaging return.

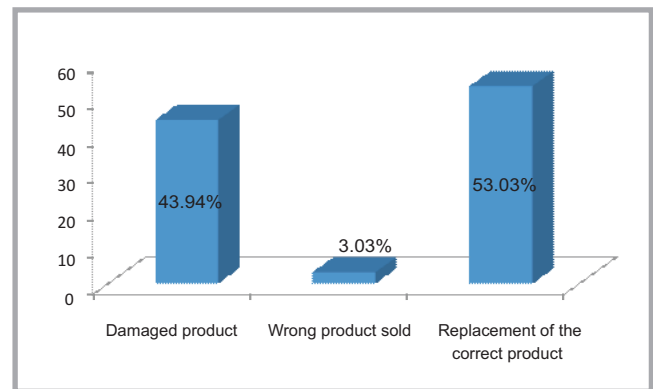**Figure 4.** Main reasons why retailers return a product.

Figure 5. Main reasons why customers return goods.

answered that the average retention of products in the store was 1 - 3 months and an additional 27% retained the goods even longer (***Table 2***).

When goods are returned, the goal of the majority of respondents is to decrease inventories (55%) and a return of investment (37%) (***Figure 2***). Only a few (12%) ship goods from the store several times a week. Basically returns are generated if needed (60%). Products are mostly returned to suppliers (62.12%) and to the distribution centers from where the goods were acquired (24.24%) (***Figure 3***). More than half of respondents (62%) use own-account vehicles for returns and backloads. The respondents usually use vans (63%) and pick-up vehicles (36%) for returns, and 25.76% use hired carriers.

The most frequently used information and communication technology in managing returns is bar coding (24%), while using a database for the planning and analysis of return flows is almost neglected (3%).

The most common reasons for returns from retailers are damaged products (41%) and frequent promotions of new products (23%) (***Figure 4***). Regarding returns from end-customers, more than half of the respondents answered that most products returned are without any defect (***Figure 5***). Interestingly, the rate of defective products returned to suppliers is a little bit lower than that of returns from end-customers. Internet sales is not developed among the respondents (18% have e-sales). However, if it exists, the share of internet returns is 1-30% for more than 80% of stores.

■ Discussion

The garment industry is characterised by complex, and often global supply chains. However, supply chain management complexity is not concerned only with the spatial network characteristics, kind and number of parties involved, etc. ardly predicted demand, a relatively short end-of-life-cycle, and increasing sales via e-channels create an ever increasing need to develop and efficiently manage reverse flows, especially on the retail side.

According to the literature, demand uncertainty and a need for a highly respon-sive supply chain strategy are the main characteristics of direct flows in the garment and, particularly, fashion industry. Demand uncertainty is even higher in reverse flows, mostly due to unpredictable customers' wishes. The literature research reveals that, for many reasons, return rates on the retailer tier may be higher than in other industries. Therefore managers should be aware of the real significance of reverse channels to manage them appropriately.

Some experts highlight that SMEs are drivers of economic development. Due to their potential flexibility, they could better hedge with market uncertainty in the clothing industry during the economic crisis than big enterprises in Serbia [11]. Therefore the empirical research was focused on SMEs. The main outcome regarding the empirical research conducted in the Serbian city of Novi Sad is that the retail SMEs do not pay enough attention to their reverse flows. In the conversation with respondents before or after they filled in the questionnaires, they related the importance of returns in their contracts with suppliers (i.e. shared risks and return of investment). However, we feel that negotiating contracts about returns with suppliers are rather based on the

respondents' intuition than on calculation. Almost half of respondents declared that they either have not conducted any appropriate analysis, or that the return quantities are insignificant. The most important common reason for return for both retailers and end-customers (slightly more than 40% in both cases) was a damaged product. This result is compatible with the literature [7]. Yet the most important reasons identified for returns are different in inbound and outbound reverse flows; in the latter case, competition and customer satisfaction prevail. Respondents mostly use own-account (62.12%) small vehicles and backloads for returns. A large number of retailers (42%) retain goods up to three months and an additional quarter of them retain them even longer; the reason may be that retailers avoid returning products, which certainly impact their turnover. However, in this case it would be interesting to explore more in-depth why they hesitate to return products. Internet sales are not much developed among the SMEs, but if it exists, it could take a significant share in returns.

The final destination depends on the reasons why the goods are returned. In that sense, the retail stores in Novi Sad use all four types of networks identified in the literature (Section 2). However, the prevailing type of network is type 4, where most of the stores return goods to the suppliers. For retailers, this is the best solution, given that they have some responsibility in the management of returns, which may be related with the high rate of defects. However, this result also indicates the power of SME retailers in negotiating contracts with suppliers.

Our research has many limitations as it answers some questions while many new ones are raised. Further research should include a larger sample and other players involved in the extended supply chain to check results obtained . It would also be interesting to extend the research scope geographically and compare results obtained with appropriate ones in other countries, especially in Europe. Regarding the prevailing type of network identified (type 4), further research may also reveal the reasons for retailers' power and the related nature of contracts in a given environment. Although it was one of the initial research goals, it is hard to estimate the rate of returned quantities, the share of reverse logistics costs in the total logistics costs, or the value of returns regarding purchasing costs. The results obtained show that the retail man-

agers mostly were not able to give a precise answer to such questions. Last but not least, it would be valuable to obtain a better insight into the relative impact of identified sources of uncertainty (product, market, and environment characteristics) on the time of returns and spatial characteristics in the future.

■ Conclusions

Some recent researches reveal that the garment industry is among those with high return rates. In that sense, exploring and understanding extended supply chains in such a context is of particular importance.

This paper contains both a theoretical and practical contribution. In most of the economic and supply chain management literature concerning the garment and fashion industry, the focus is on direct flows and supply chain strategies. Having done our best, we still could not find an article where a comprehensive extended supply chain is depicted and explored in the context of an unstable garment market. In the future, more research should be directed towards exploring the role and complexity of garment reverse chains. The high rate of returns in the garment industry is related with different sources of uncertainties. The main sources of uncertainties, identified as important for the nature of return flows, are products, industry and market characteristics. Besides the global economic crisis, the unstable economic environment, such as in countries with have passed economies transition, additionally impact demand and the relationship uncertainty of partners forwards and backwards.

In a practical sense, this paper contributes the fact that retail managers, particularly in SMEs, better understand the importance of reverse flows in the garment industry, thus helping them to better cope with returns. SMEs particularly face more limited financial resources, lack of understanding of the importance of reverse flows and a lack of highly skilled professional staff. A long-term, comprehensive database about the nature and rate of returns is a precondition for effective reverse logistics management and appropriate contracts with suppliers. It is particularly important in Balkan and Southeastern Europe countries, whose textile and clothing industry has overcome, and will overcome many challenges. Moreover there is also the increased

pressure of market uncertainty compared with enterprises in developed countries, which is combined with more limited resources and an increasing awareness of customers' rights.

References

1. Christopher M, Lowson RH, Peck H. Creating agile supply chains in the fashion industry. *International Journal of Retail and Distribution Management* 2004; 32(8): 367–376.
2. Beamon BM. Designing the Green Supply Chain. *Logistics Information Management* 1999; 12(4): 332-342.
3. Kumar S, Putnam V. Cradle to cradle: Reverse Logistics strategies and opportunities across three industry sectors. *International Journal of Production Economics* 2008; 115(2): 305-315.
4. Cammet M. Development and the changing dynamics of global production: Global value chains and local cluster in apparel manufacturing, *Competition and Change* 2006; 10(1): 23-48.
5. Rogers D, Tibben-Lembke R. *Going backward: reverse logistics trend and practices*. RLEC Press, Pittsburg, 1999.
6. CILT, The Efficiency of Reverse Logistics, The Chartered Institute of Logistic and Transport (UK), Northants, 2003, http://www.ciltuk.org.uk/download_files/reverselogfull.pdf (accessed 06.06.2012).
7. Blumberg DF. *Introduction to Management of Reverse Logistics and Closed LoopSupply Chain Processes*. CRC Press, New York, 2005.
8. Christopher M, Peck H. Managing Logistics in Fashion Markets. *The International Journal of Logistics Management* 1997; 8(2): 63-74.
9. Bruce M, Daly L, Towers N. Lean or agile: A solution for supply chain management in the textiles and clothing industry. *International Journal of Operations & Production Management* 2004; 24(2): 151-170.
10. Priest A. Uniformity and Differentiation in Fashion. *International Journal of Clothing, Science and Technology* 2005; 17(3/4): 253-263.
11. Urošević S, Stamatović M. Role of Small and Medium-Sized Enterprises in the Enhancement of the Serbian Textile Industry in Times of Crisis. *Fibres & Textiles in Eastern Europe* 2011; 19, 4(87): 14-19.