

THE IMPORTANCE OF LOGISTICS SERVICES FOR THE ECONOMICAL EFFICIENCY IN THE GARMENT INDUSTRY

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ABSTRACT

The paper deals with the problem of the importance of the performance of logistics processes and services for the economic efficiency of sourcing strategies (local or global) in the garment industry. It presents the results of the research studies conducted by the authors in the Polish companies from the garment industry. Based on the results of the studies the electronic model of a supply chain has been made in order to estimate, what are the structure of the logistics costs what is the share of them in sales. The simulations conducted with the use of the model shown, that in present conditions, the sourcing strategies have strong impact the logistics costs. Yet relatively higher level of logistics costs in global sourcing (from low cost countries) don't make it less profitable than in sourcing locally. However even small change of purchase costs can make global supply chains unprofitable.

Introduction

Logistics is considered an important factor of economic efficiency of enterprises. The costs of logistics processes (transport, warehousing, inventory management) and logistics services can be high. Not only costs are important but also logistics performance, which influence other areas in enterprises like production or sales.

So efficiency of logistics influence overall costs of a company and incomes through a level of logistics customer service (e.g. time of delivery, punctuality) and costs of lost sales.

The garment industry is especially confronted with challenges in logistics. The demand in this market is difficult to forecast and many big companies use the strategy of ordering goods in the low costs countries, which are located far from sales markets. The question here arise, why, despite high logistics cost it has been profitable to use the strategy of global sourcing. That's why the intention of the Authors of the paper was to investigate how important in sourcing decisions logistics efficiency is. One of the goal of the study was also to investigate is the structure of logistics costs and their share in incomes and compare them with the results of the studies of other authors.

Based on the results of the studies the electronic model of a supply chain has been made in order to conduct simulations of the economic efficiency of sourcing strategies.

Literature review

The share of total costs presented in the literature vary from 7.50 to 17.08% turnovers (Table 1) and depends on a type of activity, a company size, country, what probably depend among others on geographical conditions. According to the data The Establish Davis Logistics Cost and Service Database (Table 2), transport costs are the largest share (3–4%) in incomes and the total logistics costs stand for 8–9% of sales.

Table 1. The structure of logistics costs in different countries (%)

Country	Logistic costs of production in relation to turnover	Share in turnover				
		transport	warehousing	inventories	administration	other
Finland	12.10	4.60	2.60	3.00	1.20	0.70
USA	7.50	3.79	1.73	1.79	0.19	
Poland	17.08	6.16	3.47	4.15	3.30	
Norway	14.20					

Source: own elaboration based on: Solakivi et al. (2015), Ślusarczyk, Kot (2013), Karri, Ojala (2012), Inger, Wiljar (2010).

Table 2. Logistic costs as percent share in sales

The type of cost	2010	2011	2012	2013	2014	2015
Transport	4.08	3.79	3.44	3.66	4.43	4.62
Warehousing	1.75	1.76	1.89	2.04	1.99	2.16
Customer Service	0.43	0.3	0.3	0.37	0.41	0.37
Administration	0.23	0.19	0.19	0.22	0.30	0.22
Inventory Carrying	1.79	1.73	2.05	2.11	0.22	2.19
Total logistics costs	8.28	7.77	7.87	8.41	9.34	9.56

Source: Establish Davis Database (2018).

Above data although interesting have some drawbacks. First they are aggregated data.

Second these costs are probably only estimated.

And third the so called "opportunity costs" (costs of capital tied up in inventories and lost sales) are the economic category are not identified in the traditional accounting systems.

The logistics affect the economic efficiency not only through cost but also through good logistics customer service and, consequently, higher sales and in fact the logistics customer service can be more important than costs optimization for profitability of a company (Stank, Goldsby, Vickery, Savitskie, 2003; Fugate, Mentzer, Stank, 2010).

The economical efficiency in the garment industry

Garment business has its own specificity – first of short product lifecycle, high volatility, low predictability (Marufuzzaman, Ahsan, Xing, 2009; Battistoni, Fronzetti Colladon, Mercorelli, 2013; Nenni, Giustiniano, Pirolo, 2013), long production lead time, forecasting errors (Bruce, Daly, Towers, 2004). Commercial success or failure in fashion markets is largely determined by the organisation's flexibility and responsiveness (Rayman, Burns, Nelson, 2011). In fact the difficulties in predicting demand has led big clothing companies like H & M and Zara to focus on the improvement of responsiveness in their supply chains (De Carlo, Tucci, Borgia, 2013).

The organization of the logistics processes in the garment industry depends to a great extent on the geographical localization of production of clothes. The largest Polish clothing companies, such as LPP SA and Redan Capital Group as well as their foreign competitors operating in Poland (eg H & M or Grupa Inditex) order production mainly in Far East (Bangladesh and China). But for several years there has been a tendency to increase the share of locally or regionally ordered production of clothes.

The Global Fashion Industry's average EBITA was apx. 9.8% in 2014 (McKinsey & Company, 2015). The average Retailer's Gross Margins in American companies on clothing are estimated on the level of apx. 47.02%, and Net Margins – 5% – 7.6% in 2013. In 2013, the average net profit margin amongst the 44 largest Apparel & Accessories Retailers world-wide was 7.6% (National Retail Federation, 2015). Similar financial results are achieved by Polish clothing companies among by LPP SA (Table 3).

Table 3. Financial results of LPP SA

Years	2013	2014	2015	2016	2017
Sales revenues	4 116 302	4 769 288	5 130 353	6 019 046	7 029 425
Own cost of sale	1 707 151	1 976 788	2 387 524	3 085 236	3 335 184
Own cost of sale/sales (%)	41.5	41.4	46.5	51.3	47.4
Gross profit (Loss) on sales	2 409 151	2 792 500	2 742 829	2 933 810	3 694 241
Sales costs	1 604 796	1 942 937	2 012 420	2 405 007	2 783 033
Cost of sale/sales (%)	39.0	40.7	39.2	40.0	39.6
Overall costs	154 409	205 411	179 247	203 799	241 804
Other operating cost	68 116	80 938	72 704	138 007	130 395
Profit (loss) from operating activities	615 627	609 103	502 689	226 421	578 434
Operating profit margin (%)	15.0	12.8	9.8	3.8	8.2

Source: own elaboration based on reports on the materials of the LPP SA Capital Group.

The biggest share of costs were the “own cost of sale” (41.5–47.4%) and “sales costs” (around 40,0%). Similar cost and margins structure also occurs in many of other companies listed on the Warsaw Stock Exchange (Table 4). Basing on these data the simulations have been conducted, which show, that even 5% increase of “costs of sales” have considerable impact on margin netto (reduction 14–56%). Costs of logistics are included in the “Cost of sales”, which are the costs of distribution of goods.

Table 4. Decrease of the margin as a result of 5% increase of cost of sales of chosen listed companies from garment industry

Name of a company	Sales revenues	Own cost of sale/sales (%)	Margin netto (%)	Reduction of margin (%)
Esotiq & Henderson SA	124,224	45	4.0	-56.4
Primamoda	35,838	74	24.9	-14.8
Bytom SA	152,911	38	8.3	-23.0
Gino Rossi	284,748	42	4.5	-46.9
Monnari Trade SA	231,773	41	9.3	-22.1
Vistula	598,602	34	8.5	-20.2
LPP	6,019,046	40	3.8	-53.1

Source: own elaboration on the basis of data from the financial statements of companies

In order to estimate importance of the efficiency of logistics processes and services on the financial performance of companies from garment industry an electronic model of a supply chain has been elaborated by the authors of the paper.

The economical efficiency of supply chains in garment industry

The model allows to calculate profitability of two strategies: global sourcing (sourcing from countries of low costs of production like Bangladesh) and local sourcing in Poland.

Maladjustment of production volume to demand results in the costs of the lost sales when an actual demand would be higher than the forecasted or when it is lower and some part of the goods have to be sold in outlets for lower prices. The model takes into consideration both of these scenarios.

Data used for calculations were partly collected from companies during a research conducted by the Authors of the paper, from transport and logistics operators, from the scientific literature and publicly available data on rates for logistics services (transport, warehousing).

The data concerning parameters of deliveries have been obtained mainly from LPP SA (joint-stock company). The yearly number of items sold by this company is 14 mln pcs., and daily to a logistics centre in Poland 20–22 containers come from Far East in which there are about 20,000 pieces of clothes per container (Table 5). The yearly incomes in 2017 it was 7 bln PLN, what means that one item has a retail value on average of over 50 PLN.

Two scenarios concerning predictability have been taken into consideration in the model – the actual demand was: 1 – 10% lower, 2 – 10% higher than the forecasted.

The assumptions for the first scenario are in the Table 5. Apart from this it is assumed, that in case of a local supply goods are delivered on a daily basis, and when globally sourced twice a week, but time of a delivery (by ship) – 45 days.

Table 5. Parameters of purchased goods used for simulations (90% predictability of demand)

Average retail price (PLN/pcs.)	55.0
Purchase price in global supply (PLN/pcs.)	17.0
Purchase price in local supply (PLN/pcs.)	29.0
No of products in a unit (items/unit)	20,000

Source: own study based on market data.

Results

The results of the simulations in both scenarios (actual demand 10% lower and 10% higher than the forecasted) are as follow (Tables 6 and 7):

- the total logistics costs are much higher in the global supply than in the local one – 13.4% of sales, when actual demand is lower and 3.7%, when it is higher, while in local supply – 0.5% in both scenarios;
- despite this total costs of supply (including logistics and purchase costs) are lower in case of the global supply because the main factor are purchase costs (43.1–53.1%);
- the costs of lost sales stand for very big share of total logistics costs in scenario 2 (10,0%), what confirm, that logistics performance and the logistics customer service are very important factor of the economic efficiency, when sales are difficult to predict;
- on the second place there are costs of transport (about 3% of sales), which agrees with the results of other authors' research.

They may explain, why despite high logistics costs in global supply chains it is profitable to source in the low costs countries. The costs of production in this countries are so low, that even if actual demand is lower than forecasted (–10%) and goods have to be sold at a discounted price this is strategy still will be profitable.

On the other hand however, they also may explain, why presently the production is coming back to Europe and to Poland – even a small increase of the costs of production in the Far East decrease considerably the profitability of this strategy. In case of lower margins, the share of logistics costs is increasing and have greater impact on profits.

It must also be emphasized that simulations have been conducted for two scenarios, in which a actual demand differs from the forecasted demand only by 10%. Demand fluctuations can be even greater and then the impact of the logistics performance on the profitability would also be greater.

Table 6. Costs of supply of supply strategies

Predictability – actual demand	90%		110%	
Strategy of supply	local supply	global supply	local supply	global supply
Costs (PLN/year)	1,000	1,000	1,000	1,000
Purchase costs	3,654,000	2,380,000	4,466,000	2,380,000
Fees and duties	–	911,376	–	911,376
Lost sales	–	11,200	–	764,400
Transport from a supplier	9,265	199,144	11,324	199,144
Transport in distribution	18,529	18,529	22,647	22,647
Inventories	1,514	30,512	1,851	30,512
Warehousing	1,902	4,235	2,082	4,235
Total logistics costs	31,211	263,621	37,903	1,020,938
Total supply costs	3,685,211	3,543,797	4,503,903	3,547,914
Margin of net profit (%)	4.1	8.2	9.0	12.4

Source: own calculations based on the market data.

Table 7. Share of logistics for different values of goods (%)

Predictability – actual demand	90		110	
Strategy of supply	local supply	global supply	local supply	global supply
Purchase costs with fees and duties	53.1	46.8	53.1	43.1
Lost sales	0.0	0.2	0.0	10.0
Transport	0.4	3.1	0.4	2.9
Inventories	0.0	0.4	0.0	0.4
Warehousing	0.0	0.1	0.0	0.1
Total logistics costs	0.5	3.7	0.5	13.4

Source: own calculations based on the market data.

Conclusions

The conducted simulations confirmed opinions expressed by some authors, that logistics performance is important factor of economic efficiency in the garment industry. Possibility to react quickly to demand in this market plays vital role, more than possibility to decrease logistics costs. This can be a surprise because of the distances are long and value of clothes is low (high share of logistics costs in the value of purchased goods). The explanation are big differences between retail price of clothes and production costs in the low costs countries.

Results of calculations conducted by Authors of the paper partly agrees and partly differs from the ones presented in the literature. It has been confirmed that, if the costs of the lost sales are not included, transport costs are the largest share of total logistics costs. What's more the share of the transport costs is similar to the share of these costs in different publications. The other costs – warehousing and inventory management and lower than in the literature.

The authors of the paper contributed also by estimating possible costs of the lost sales, usually don't identified in the literature.

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