

## RESEARCH ARTICLE

# The Impact of Logistics Management on Supply Chain Performance in the Syrian Food Products Sector

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**Abstract:** The purpose of this paper is to investigate the impact of logistics management on supply chain performance in the Syrian Food Products Sector. In addition, it aims to assessing the level of awareness and understanding of logistics and supply chain management concepts in the Syrian context. The research methodology involved the adoption of a survey as a research strategy and quantitative approach, utilized a self-administered questionnaire, to arrive at the major findings of the study. The type of research is a single cross-sectional design in which the collection of data from the respondents was carried out only once. Data was analyzed using the statistical package for social sciences (SPSS). The paper revealed that there is an impact of logistics management on supply chain performance in the Syrian Food Products Sector. It also revealed that there is a high level of awareness among the respondents about the logistics and supply chain management concepts. As far as the researcher is aware, this paper is the first to investigate the impact of logistics management on supply chain performance in the Syrian food products sector; thus its finding will be an original contribution to the field of logistics and supply chain management. In addition, as there has been a shortage of research in the field of logistics and supply chain, generally in the Middle East countries, the researcher hopes that this paper will establish a foundation for further research in the region.

**Keywords:** *Logistics Management, Supply chain management (SCM), Supply chain Performance (SCP), Supply Chain Management Concepts (SCMC), Syrian Food Products Sector.*

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## Introduction

The world is witnessing many challenges, represented by intensive competition, lack of available resources, increasing societal needs. This requires dynamic changes in all aspects of the organization to ensure survival and continuity in the light of these rapid changes. Therefore, the organization has to continuously explore and identify the potential markets for its products, obtaining a distinct competitive position, expanding its market share, and accessing geographical places far from the organization's location whether within the borders of the country or outside.

Hence comes the importance of supply chain management and logistics, which has become a bond, linking the production sites with market and consumption sites, which is why the management of supply chains and logistics is considered as one of the vital

factors in achieving the competitive advantage of the organization.

Based on the above, the need for supply chain management and logistics emerged, due to its ability to enable the organization to achieve competitive advantages, through its role in the relationships between the organization, suppliers and customers. The supply chain management and logistics represents a mixture of science and art to improve the ways how the organization obtains the raw materials needed to provide the service, produce the products and deliver or ship it to customers, which achieves the continuity and distinction for the organization in the market.

## Research Problem & Question

The problem of the study goes back to the fact that industry in Syria are affected by

many challenges, and the great damage in the Food Products sector which has been affected by political and economic factors in Syria and the region.

As most organizations operate in a work environment characterized by intensive competition, change in the needs and desires of customers and changing market conditions, Therefore the organization is required to build strong relationships with suppliers and customers through efficient and effective management of the supply chain, and work to secure the best types of logistics support to achieve the set goals.

In light of the above, the problem of research can be identified by the following main question: To what extent does logistics management affect the supply chain performance in the Syrian food products sector?

## Literature Review

### Definitions of Logistics

After understanding the definition of supply chain management, it is natural to present the definition of logistics management as well. Logistics includes all the work necessary to physically move and position raw materials and products in a supply chain. Whilst SCM recognizes that internal integration by itself is not sufficient, logistics management is primarily concerned with optimizing flows within the organization [1]. Council of Supply Chain Management Professionals [2] stated the definition of logistics management as follows:

“Logistics management is that part of Supply Chain Management that plans, implements and controls the efficient, effective forward and reverse flow and storage of goods, services and related information between the point of origin and the point of consumption in order to meet customer’s requirements.”

As the definition states, the fundamental idea of logistics management is to meet customer requirements. Therefore, logistics is managing the whole value-creating process. However, this definition is not completely in line with the idea Christopher has about logistics management, as the definition from CSCMP does not take into consideration whether the logistics management happens inside a company or inside a supply chain.

The logistical activities are therefore an integrated part of the supply chain; the concept of SCM could be seen as an extension from the concept of logistics management, these internal logistical activities are at least as complex to manage as the external SCM. They both require a lot of information [3].

The different departments of a company need both horizontal and vertical information. Without the information, internal logistics can go wrong and erode trust between the departments. Ultimately, the perceived customer value will be inflated. For example, if a retail chain’s marketing department is launching a new product campaign, the information has to reach all the way to the stores and the personnel in question.

If the personnel in the stores do not know about the special campaign, it is evitable that stock-outs will follow and instead of boosting the sales, the campaign results in dissatisfying the customers, communication problems like these are too usual and can deteriorate the relations both internally and also between the company and its customers [4].

### Supply Chain Management Definitions

The Council of Supply Chain Management Professionals (CSCMP) [2], (formerly The Council of Logistics Management (CLM)), a leading professional organization promoting SCM practice, education, and development, defines SCM as:

SCM encompasses the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities, including coordination and collaboration with suppliers, intermediaries, third-party service providers, and customers. Thus, the supply chain encompasses all activities involved in the production and delivery of a final product or service, from the supplier’s supplier to the customer’s customer.

In essence, supply chain management integrates supply and demand management within and across companies (www.cscmp.org), CSCMP emphasizes that SCM encompasses the management of supply and demand, sourcing of raw materials and parts, manufacturing and assembly, warehousing and inventory tracking, order

entry and order management, and distribution and delivery to the customer.

Cooper define SCM as the management and integration of the entire set of business processes that provides products, services and information that add value for customers [5].

Several authors have defined supply chain management, Christopher [1], New and Payne [4], define supply chain management as “the integration of key business processes among a network of interdependent suppliers, manufacturers, distribution centers, and retailers in order to improve the flow of goods, services, and information from original suppliers to final customers, with the objectives of reducing system-wide costs while maintaining required service levels” [6].

The Global Supply Chain Forum (GSCF) defines supply chain management as “the integration of key business processes from end user through original suppliers, that provides products, services, and information that adds value for customers and other stakeholders” [7].

The APICS dictionary (1995) describes SCM as – “the processes from initial raw materials to the ultimate consumption of the finished product, linking across supplier-user companies” [8].

### **Supply Chain Management versus Logistics**

Cooper et al., stated that supply chain management relative to logistics can be viewed in four different ways: Traditionalist, Re-Labeling, Unionist and Intersections, some authors do not distinguish between supply chain management and logistics, they just interchange the names [5].

Christopher defines supply chain management as an extension of logistics. Logistics is essentially a planning orientation and framework that seeks to create a single plan for the flow of products and information through a business. Supply chain management builds upon this framework and seeks to achieve linkage and coordination between processes of the entities in the pipeline [1].

Schary & Skjott-Larsen also see supply chain as more than logistics. It includes the flow of material and products to customer and more than that, it includes also the organizations that are part of these processes crossing organizational boundaries to link their internal operations as part of this system. The scope of supply chain spans the entire set of organizations from procurement of material and product components to delivery of completed product to the first customer [9].

### **Supply Chain Performance Indicators**

Supply chain performance is a two dimensional definition which consists of effectiveness & efficiency, Effectiveness is about “doing the right things” & efficiency is about “doing things right”. Supply chain effectiveness relates to the preference of the end-consumer & the sole indicator is consumer satisfaction [10].

Conversely, supply chain efficiency relates to the objective performance of processes. Efficiency indicators measure an output level against an input level [11]. The supply chain operations reference (SCOR) model was introduced in 1996 by the Supply-Chain Council, which is a global organization of firms interested in SCM. The SCOR model advocates hundreds of performance metrics used in conjunction with five performance attributes: reliability, responsiveness, flexibility, cost, and asset metrics [12].

Sabry states that in modern SCM, quality is taken as a given and that factors in quality management and improvement are somewhat separate from those in SCM development [13].

Supply Chain Council presents five attributes of SC performance as quoted by (Sillanpää) [14]

- SC reliability: The performance of the SC in delivering the correct product to the correct place, at the correct time, in the correct condition and packaging, in the correct quantity, with the correct documentation, to the correct customer.
- SC responsiveness: The speed at which a SC provides products to the customer.
- SC flexibility: The agility of a SC in responding to marketplace changes to gain or maintain competitive advantage.

- SC costs: The costs associated with operating the SC.
- SC asset management: The effectiveness of an organization in managing assets to support demand satisfaction. This includes the management of the both assets: fixed and working capital.

### Research Hypothesis, Variables & Model

In light of the research problem and its question, the hypothesis is formulated as follows:

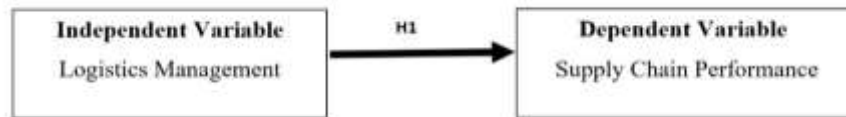


Figure 1: Research model

## Research Methodology

### Study Population and Sample

The population of this study is the food products sector in Syria, Aldurra Company as a case study.

#### *About Aldurra Company*

Al Durra International for Food Products Co .Ltd, The history of the company goes back to the 1940's and began with one product Kamardene (apricot sheets) which were all handmade it wasn't until 1979 the company began to introduce different products in which to satisfy the local market, as it realized that the consumer had changed their eating habits and were ready for something The Al-Durra factory now occupies 15.000 sq mt which includes our laboratory fully new equipped with the latest technology to meet with food standards and holds all the necessary certificates including haccp ISO 22000 and the ISO 9001 certificates. Al-Durra remained and will remain the leader of food products industry and recently opened new factories in the Middle East equipped with the latest technology.

The volume of the sample was determined by using the form of Krejcie & Morgan as the following [15].

$$n = \frac{p(1-p)}{\frac{p(1-p)}{N} + \frac{E^2}{SD^2}}$$

n: sample volume.

N: community volume.

P: 0.5

E: 5%

SD: 1.96

### Hypothesis H1

"There is a statistically significant impact of logistics management on supply chain performance at the level of significance ( $\alpha \leq 0.05$ )".

The present study relied on logistics management as an independent variable (X), and on supply chain performance as a dependent variable (Y). In light of the above, the model of the study will be as follows:

Since N=93 which is the total number of the workers in Aldurra Company, so by using the above formula we find that n=75.

The questionnaire had been administrated personally, (90) questionnaires were distributed, (75) returned and analyzed with a (84%) response rate.

### Instrument Validity and Reliability

**Validity:** The questionnaire was reviewed by four experts from the Faculty of Economics at Damascus University, whose knowledge and experiences were sufficient in this scope and to make sure that each item is measuring exactly what is intended to be measured. Furthermore, a pilot study was conducted on 30 respondents to test the research instrument before distributing it to the whole sample. Upon the feedback of the experts and the pilot study the questionnaire had been amended taking into consideration their suggestions, comments, and directions to achieve the validity of the instrument.

**Reliability:** Reliability is the extent to which a variable (or set of variables) is persistent in what is intended to measure (Hair et al., 2005). The Cronbach's Alpha value used to test the reliability of the items measuring each variable. A reliability measure coefficient reflects how well items in a set are positively correlated to one another. Accordingly, the internal consistency method was used in this study to examine the reliability of each variable. Table 1 below shows that all the values of alpha are above 0.60, which are considered to be acceptable.

**Table 1: Summary of reliability analysis**

Components	Cronbach's Alpha	Number of Items
Logistics Management	0.807	5
Supply Chain Performance	0.728	5
<b>Total</b>	<b>0.835</b>	<b>10</b>

### Pearson Correlation

*For Logistics Management*

**Table 2: Pearson correlation for logistics management**

Sentences	Pearson Correlation	Sig. (2-tailed)
Our company purchases the required materials through tenders and quotations.	.808**	.001
Our company offers a fair competition to the suppliers and chooses the best offers.	.859**	.001
Our company bears losses due to improper storing.	.881**	.001
Our company purchases the required materials in a timely manner to ensure the continuity of production & reduce the warehousing costs.	.882**	.001
Our company has an expert fleet to ensure safe and quick delivery of products to market.	.845**	.001

The Pearson Correlation value for all sentences are more than 0.5, which can be considered moderately correlated.

### For Supply Chain Performance

**Table 3: Pearson correlation for supply chain performance**

Sentences	Pearson Correlation	Sig. (2-tailed)
Our company's Supply chain response time is very good.	.829**	.001
Our company conforms to customer specifications.	.809**	.001
Our company delivers customer orders on time.	.781**	.001
Our company provides flexible delivery.	.832**	.001
Our Suppliers provide a reliable delivery to our organization.	.865**	.001

The Pearson Correlation value for all sentences is more than 0.5, which can be considered moderately correlated.

### Test of Normality

Based on table 5 we find that **Sig** for all variables is more than (0.05), so all data are subject to normal distribution.

**Table 4: Test of normality for the variables**

Statistics		Logistics Management	Supply Chain Performance
N	Valid	75	75
	Missing	0	0
Mean		3.8533	3.7289
Std. Deviation		.95741	1.08039
Skewness		-1.389	-.845
Std. Error of Skewness		.277	.277
Kurtosis		1.732	-.048
Std. Error of Kurtosis		.548	.548

### Descriptive Statistics of the Data

#### Logistics Management

Table 5 below depicts the Mean and Standard Deviation for logistics management; the values were calculated based on the answers from the respondents.

**Table 5: Descriptive statistics of the data for logistics management**

Logistics Management	N	Mean	Std. Deviation	Test Value = 3		
				t	df	Sig. (2-tailed)
Our company purchases the required materials through tenders and quotations.	75	3.8400	1.12754	6.452	74	0.000
Our company offers a fair competition to the suppliers and chooses the best offers.	75	3.8267	1.10739	6.465	74	0.000
Our company bears losses due to improper storing.	75	3.8233	1.10659	6.452	74	0.000
Our company purchases the required materials in a timely manner to ensure the continuity of production & reduce the warehousing costs.	75	3.899	1.10521	6.219	74	0.000
Our company has an expert fleet to ensure safe and quick delivery of products to market.	75	3.8933	1.14577	6.752	74	0.000
<b>Logistics Management</b>	<b>75</b>	<b>3.8533</b>	<b>0.95741</b>	<b>7.719</b>	<b>74</b>	<b>0.000</b>

Based on the data collected from the respondents the mean of the data after the calculation was 3.8533, which is more than 3.4 and less than 4.2, and Sig is 0.000 less than 0.05, so the workers agree to the content of the sentences.

This means the respondents demonstrate optimal level of attitude towards logistics management.

In other words, the respondents show positive attitude towards logistics management.

### Supply Chain Performance

Table 6 below depicts the Mean and Standard Deviation for supply chain performance; the values were calculated based on the answers from the respondents.

**Table 6: Descriptive statistics of the data for supply chain performance**

Supply Chain Performance	N	Mean	Std. Deviation	Test Value = 3		
				t	df	Sig. (2-tailed)
Our company's Supply chain response time is very good.	75	3.7333	1.25562	5.058	74	0.000
Our company conforms to customer specifications.	75	3.7733	1.36137	4.919	74	0.000
Our company delivers customer orders on time.	75	3.6800	1.40616	4.188	74	0.000
Our company provides flexible delivery.	75	3.5432	1.42154	4.195	74	0.000
Our Suppliers provide a reliable delivery to our organization.	75	3.4869	1.43215	4.1756	74	0.000
<b>Supply Chain Performance</b>	<b>75</b>	<b>3.7289</b>	<b>1.08039</b>	<b>5.843</b>	<b>74</b>	<b>0.000</b>

Based on the data collected from the respondents the mean of the data after the calculation was 3.7289, which is more than 3.4 and less than 4.2, and Sig is 0.000 less than 0.05, so the workers agree to the content of

the sentences. This means the respondents demonstrate optimal level of attitude towards supply chain performance. In other words, the respondents show positive attitude towards supply chain performance.

## Hypotheses Tests

### Main Hypothesis H1

"There is a statistically significant impact of logistics management on supply chain performance at the level of significance ( $\alpha \leq 0.05$ ) ".Table 7 below explains the impact of logistics management on supply chain performance, the correlation coefficient (R) is

0.453, which is greater than zero, that indicates to a positive relationship between logistics management and supply chain performance. The square of the correlation (R Square value) is 0.205, which indicated that 20.5 % of the volatility and variability in supply chain performance is explained by logistics management.

**Table 7: Model summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.453 <sup>a</sup>	.205	.194	.96621

Table 8 below indicates that calculated **F** is 18.828 with Sig 0.000, which is less than 0.05, that means that there is a significant

impact of logistics management on supply chain performance.

**Table 8: ANOVA<sup>b</sup>**

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	17.577	1	17.577	18.828	.000 <sup>b</sup>
Residual	68.150	74	.934		
Total	85.727	75			

Table 9 below shows that Beta is 0.531, meaning that any increase in logistics management will cause an increase the supply chain performance multiplied by

0.531.The Regression model can be formulated as the following: supply chain performance = 1.750 + 0.531 (logistics management).

**Table 9: Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.750	.477		3.667	.000
logistics management	.531	.122	.453	4.339	.000

Based on the above tables, we find that: "There is a statistically significant impact of logistics management on supply chain performance at the level of significance ( $\alpha \leq 0.05$ ) ".

## Conclusion

The correlation analysis and regression analysis show a significant positive correlation between logistics management and Supply Chain Performance, meaning that there is a statistically significant impact of logistics management on supply chain performance at the level of significance ( $\alpha \leq 0.05$ ).The workers of Aldurra Company demonstrate optimal level of attitude (positive) towards logistics management.

However, additional tests and data collections will be needed to come to a more conclusive result as to whether logistics management is an important factor in analyzing supply chain performance.

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