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Araştırma Makalesi ● Research Article

The Impact of Supply Chain Strategies on Logistics Performance: A Study in the Post Covid-19 Pandemic Period[1]

Tedarik Zinciri Stratejilerinin Lojistik Performansına Etkisi: Covid-19 Pandemi Sonrası Dönemde Bir Çalışma

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ÖZ

Tüm dünya, çalışma koşullarını etkileyen ve dolayısıyla tedarik zincirlerinde belirsizliklere ve aksamalara yol açan bir pandemi geçirdi. Salgın sonrası dönemde (2021-2022) bazı sektörlerin önemli ölçüde yavaşladığı, bazı sektörlerin ise hızla yükselişe geçtiği görülmüştür. Bu dönemde lojistik performansı daha da önem kazanırken uygulanan tedarik zinciri stratejisi de firmalar için önemli bir rol oynamaktadır. Bu nedenle çalışmanın amacı, Gaziantep sanayi bölgesinde faaliyet gösteren üretim işletmelerinde, tedarik zinciri stratejilerinin lojistik performans üzerindeki etkisini belirlemektir. Covid-19 salgını, tedarik zincirinde aksamalara neden olan tüm sektörlere birçok belirsizliği beraberinde getirmiştir. Bu aksaklıklar, bu çalışmanın bağımsız değişkenleri olarak da değerlendirilen yalın ve çevik tedarik zinciri stratejileri ile kontrol altına alınabilmektedir. Bu iki tedarik zinciri stratejisinden etkilenmesi beklenen lojistik performansı, kalite, esneklik, maliyet ile hız ve güvenilirlik gibi dört boyutta ele alınmıştır. Anket yöntemiyle154 işletmeden veri toplanarak analiz yapılmıştır. Analizin sonuçları, çevik tedarik zinciri stratejisinin tüm lojistik performans boyutları (kalite, esneklik, maliyet ile hız ve güvenilirlik) üzerinde etkisi olduğunu göstermiştir. Ancak yalın tedarik zinciri stratejisi bu boyutların hiçbirine etki etmemiştir. Böylelikle, Covid-19 salgını sonrası gibi tedarik zinciri aksamaları ve belirsizliklerin yoğun olduğu dönemlerde daha yüksek lojistik performansı elde etmek için üretici firmaların yalın tedarik zinciri stratejisi yerine, çevresel değişimlere daha hızlı yanıt verme amacı olan çevik tedarik zinciri stratejisini benimsemeleri gerektiği önerilmiştir.

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ABSTRACT

The whole world passed a pandemic that affected working conditions and so lead to uncertainities and disruptions in supply chains. Nowadays during the post pandemic period (2021-2022), some industries slowed down significantly, while some sectors moved up. In this period, logistics performance gains more importance and the implemented supply chain strategy plays a significant role for companies. Therefore, the study's objective is to determine the impact of supply chain strategies on logistics performance in production companies operating in Gaziantep industrial zone. The covid-19 pandemic brought a lot of uncertainties to all industries which caused supply chain disruptions. These disruptions could be controlled with lean supply chain (LSC) and agile supply chain (ASC) strategies which are also considered as independent variables of this study. Logistics performances that are expected to be affected by these two supply chain strategies are considered in four dimensions such as quality, flexibility, cost, and speed and reliability. Data were collected from 154 businesses by surveys and analyzes were made. The results of the analysis showed that an ASC strategy affects all logistics performance dimensions (quality, flexibility, cost, and speed and reliability). But the LSC strategy did not affect any of these dimensions. It has been concluded that manufacturers should adopt an ASC strategy, which aims to respond more quickly to environmental changes, instead of a LSC strategy, in order to achieve higher logistics performance during periods of intense supply chain disruptions and uncertainties, such as after the post Covid-19 pandemic.

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Introduction

Due to Covid-19 pandemic, the demand priorities of customers has changed. These complicated the supply chain planning. The post pandemic period brought a lot of uncertainties to all industries which caused supply chain disruptions. These disruptions could be controlled by developing new supply chain strategies. Supply chain strategies aim to develop a value flow from supplier to customer in order to increase efficiency in production to provide a stable schedule and to eliminate all excess costs in the supply chain. Supply chain strategy is a demand based strategy characterized as faster response to customers, mass customization and diversified product groups (Roh et al., 2014: 200-202).

The real impact of the Covid-19 outbreak on business activities is felt more in the post period which consist 2022-2023. In this period, companies are fighting with instability, uncertainty, danger and supply disruptions (Karabag, 2020: 2). So, the competitive pressure and uncertainties in the markets due to the Covid-19 pandemic pushed manufacturers to reconstruct their supply chains. This can lead to an increase in performance indications such as operational or logistics performance (Chavez et al., 2013). Logistics performance is a key function as it is more important to respond effectively to changing demand during the post pandemic. The way to respond more effectively is to use a supply chain strategy which would be more suitable for this period. There are many supply chain strategies that can be used to improve logistics performance. However, agile supply chain (ASC) and lean supply chain (LSC) strategies that seem to be more effective in uncertainties (Qi et al., 2011) such as the post Covid-19 pandemic period, have been analyzed in this study. The study starts with explaining the concepts of supply chain strategies and logistics performance and continues with the literature review where the hypotheses are developed. Further, the hypotheses were testet by establishing a structural equation model.

Supply Chain Strategies

A strategic supply chain is the development of a constant long-term agreement established by two or more companies in a supply chain and the loyalty and commitment to this commercial relationship. Supply chain is responsible for activities including; sourcing, purchasing, transformation and logistics management (Mentzer et al., 2001:160).

Fisher (1997) stated the type of product determines the better supply chain strategie. Companies producing functional products have a relatively predictable demand and therefore should apply a LSC. Businesses that produce innovative and unpredictable products should design an ASC. As a result of the unforeseen demand due to the Covid-19 pandemic, the question “how firms should design their supply chains, lean or agile?” become important.

The term "lean" refers to companies finding solutions by reducing non-value-added operations and eliminating a range of activities or wastes, as well as improving value-added operations (Wee & Simon, 2009: 336). LSC reduces waste and non-value-added operations to optimize and streamline supply chain processes (Akben & Güngör, 2018:1). The primary objective of any lean method is the elimination of waste. Waste is anything that has no value or adds no value to it. Successful LSC strategies can only be implemented when they are accepted by all employees of the company (Yıldız & Sayin, 2020:121). In any process or product, companies should eliminate all types of waste till they find what remains valuable. The key is to spot waste and then stop waste (Domingo, 2003: 1).

The ASC, which is used more often when the demand is more uncertain, aims to respond effectively and quickly to changing customer needs. ASC is used for a quick restructuring of production and supply processes and the rapid introduction of new and modified products to the market (Nagel, 1991: 16).

Agility is an important and convenient strategy in supply chains that ensures companies' success in unpredictable markets and allows them to react quickly to fluctuations (Vázquez-Bustelo et al., 2007: 1310).

Pacheco (2019) has summarized the ASC principles in five key principles:

- Internal and external cooperation to increase competitiveness
- Value-based strategy not only in products but also in solutions to enrich the customer
- The company's ability to restructure itself for the opportunities created by changes and uncertainties
- Encouraging the effect of people and knowledge by using their collaborations
- Reducing the life cycles of processes and using temporary online companies

Agility as a strategy in supply chains is mostly confused with flexibility. An ASC would respond faster, more dynamically and continuously to changing customer needs. Agility is about the speed of response to changes that may occur in the market, whereas flexibility is about the ability and capacity of the response to these changes.

Logistics Performance

It has been very difficult for researchers to come up with a single definition for the multifaceted concept of performance. Because some firms set their goals as profit, while others may set up objectives such as customer service or sales maximization (Chow et al., 1994: 17). Logistics performance, which refers to the delivery activities, is another part that should be included in the targets of the manufacturers.

Logistics performance is expressed as the delivery of the products to customers at the final delivery point, at an affordable cost and on time. The capacity to respond flexible and agile to changes in the market and to cut costs through the effective implementation of logistical activities are two key components of logistics performance (Bayraktutan & Özbilgin, 2015: 98). The uncertainties in the markets caused by Covid-19 pandemic, force companies to respond faster to changing demands with high logistics performance.

Logistic performance has been analyzed by researchers in various dimensions. For example, McCarthy (1981) argues that the dimensions of logistics performance can be treated are the four P's (promotion, place, price, product) of the marketing mix, while Kotler (1991) refers to the four Cs (convenience, communication, customer value and cost to the customer) emphasizing the importance of the customer. Garvin (1992) stated that value creation with quality and innovation is as important as efficiency. The dimensions of logistics performance used in our study were determined by Yeung (2006). These are the timing of services, customized additional services, pricing, and delivery quality. It was taught that these dimensions of logistics performance can be varied by supply chain strategies.

Literature Review and Hypotheses Development

This section discusses several studies on supply chain strategies and performance to support and explain the hypothesis.

LSC and Logistics Performance

Lean is a term that refers to the elimination of unprofitable activities from the supply chain. The main aim of the lean supply chain is expressed as, eliminating waste in manufacturing and post-manufacturing processes and improving the performance of industrial firms by revealing people's capabilities (Singh & Pandey, 2015: 35). Drohomeretski et al. (2014) stated the objectives of lean supply chain as eliminating waste, effective participation of the partners and improving cooperation between suppliers and customers.

Al-Tit (2016) analyzed the effect of lean supply chain dimensions on productivity. Dimensions such as supplier relationships, customer relationships, cost reduction and waste elimination have affected productivity performance. On the other hand, Agus and Hajinoor (2012) analyzed the effect of lean supply chain on product quality and business performance but could not find any significant effects. Hallgren and Olhager (2009) proved an impact of lean supply chain on quality, delivery, cost and flexibility performance. Chavez et al. (2013) have proved that lean applications affect the quality and delivery performance but not flexibility and cost performance. Another study is that of Ghosh (2013) who analyzed the impact of lean supply chain on logistics performance and found that lean supply chain affects the dimensions such as low cost, increased quality, confidence, customer satisfaction and delivery time. Swink et al. (2005) investifated the relationship between lean supply chain applications and logistics' flexibility, quality, cost and delivery dimensions. They found that quality was the only dimension that was affected by supply chain applications.

Many researchers found that lean supply chain effects different types of performance (Al Tit A, 2016; Hallgren & Olhager, 2009), especially logistics performance (Swink et al., 2005; Chavez et al., 2013; Ghosh, 2013). Based on previous studies, the first aim of this study is to investigate the impact of LSC on logistics performance. Since logistics performance is considered as a multidimensional variable, the impact of LSC on all dimensions was analysed with the following hypotheses:

H1: LSC strategy will increase quality performance.

H2: LSC strategy will increase speed and reliability performance.

H3: LSC strategy will increase flexibility performance.

H4: LSC strategy will increase cost performance.

ASC and Logistics Performance

Due to its importance in managerial practice, the concept of agility has experienced a growing interest in production and supply chain management research. Supply chain agility can be thought as a complex ability that enables firms to adapt to changes and respond quickly throughout the entire supply chain. Thus, supply chain agility is a strategy that includes coordination with large customers and suppliers (Sanchez & Leo, 2018: 266). According to Sharifi and Zhang (2001), there are two main components of agility: responding to changes on time and in an appropriate way, and taking advantages of changes using them as opportunities.

In order to evaluate the impact of the ASC on logistic performance, Mehralian et al. (2013) determined seven key logistics performance dimensions which are delivery speed, cost, quality, flexibility, market research, reliability and environmental pressure. They proved that ASC affects all the logistic performance dimensions. Hallgren and Olhager (2009: 980) found that ASC effects quality performance but do not effects cost performance. Vaźquez-Bustelo et al. (2007) revealed a positive and significant relationship between integrated agile manufacturing applications and cost, flexibility, quality, delivery, service and service performance.

There were also some studies which compared LSC and ASC strategies. Yusuf and Adeleye (2002) classified firms as agile and lean and found that agile firms showed higher performance. Naylor et al. (1999) also classified companies as lean and agile and found that cost is a key metric for lean strategie and quality for agile strategies. Based on previous studies, the second aim of this study is to examine the asossiation between ASC and logistics performance. Thus, the following hypotheses were established.

H5: ASC strategy will increase quality performance.

H6: ASC strategy will increase speed and reliability performance.

H7: ASC strategy will increase flexibility performance.

H8: ASC strategy will increase cost performance.

Methodology

In this study were qualitative research methods used. Before starting to analyse the model, reliability and validity of the scales were tested. Exploratory factor analysis (EFA) were used to determine the factors of the scales and confirmatory factor analysis (CFA) were used to ensure construct validity (Aksu, Eser & Güzeller, 2017). To test the hypotheses, a structural equation model was developed and analyzed. SPSS 23 and AMOS 23 programs were used for the applied analysis in this study.

Research Model

The research model established as a result of the theoretical study and literature review is given in Figure 1.

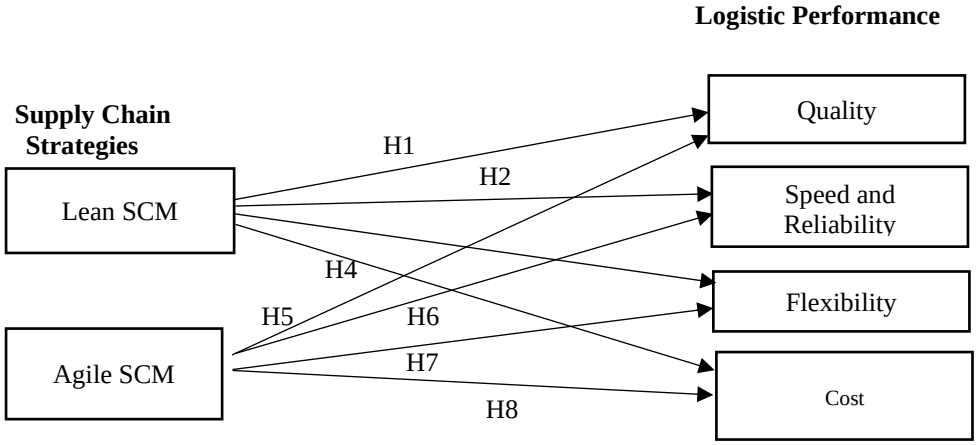

Figure 1: Research Model

As shown in the model, the impact of LSC and ASC on logistics performance dimensions such as, quality, speed and reliability, flexibility and cost is evaluated.

Sampling and Demographic Characteristics

The population of the research includes 463 mid-size and big-size manufacturing companies registered in Gaziantep Industrial Zone. According to Boomsma (1982,1984) a minimum amount of data about 100-200 will be enough for SEM. Thus, the sample of the research consists of 154 manufacturing companies which are selected randomly from the population. Ethical approval was obtained for the study by the decision of Hasan Kalyoncu University Social and Human Sciences Research Ethics Committee, dated 27 July 2020 and numbered 804.01-E.2007270010. Table 2 states the sample summaries.

Table 2: Basic Informations of Demographics

Industry	Frequency	Percent
Textile	108	70.1
Food	7	4.5
Plastic Packaging	19	12.3
Other	19	12.2
Total	153	99.4

Unanswered	1	0.6
Total	154	100
Position	**Frequency**	**Percent**
General Manager	50	32.5
Marketing Manager	15	9.7
Export Manager	29	18.8
Production Manager	28	18.2
Purchasing Manager	8	5.2
R&D Manager	2	1.3
Quality Manager	6	3.9
Owner/Partner	4	2.6
Human Resources	4	2.6
Other	8	5.2
Total	154	100
Markets	**Frequency**	**Percent**
National	11	7.1
International	29	18.8
National and International	114	74
Total	154	100
Number of Employees	**Frequency**	**Percent**
0-50	33	21.4
51-150	33	21.4
151-250	25	16.2
251 and above	63	40.9
Total	154	100
Year of Activity	**Frequency**	**Percent**
1-5	8	5.2
6-10	26	16.9
11-20	51	33.1
21 and above	69	44.8
Total	154	100

The demographic findings showed that the surveyed companies were mostly from the textile industry, operate more than 10 years and employed more than 150 people. The position of the person filling out the questionnaire were at least a managing position in the production or sales department.

Data Collection Tools

To collect data, a questionnaire consisting of three parts was prepared. In the first part, questions about some demographic characteristics of participating companies were asked. In the second part, questions about supply chain strategies were asked. The supply chain strategy scale which was developed by Yazgan (2017) contains two dimensions: LSC and ASC. In the third part, questions about logistics performance were asked. The logistics performance scale

is based on Cetindas and Celik (2017). The logistics performance scale consists of four dimensions: quality, speed and reliability, flexibility and cost. Scale items were prepared as a 5-point Likert scale.

Reliability and Construct Validity of the Scales

The construct validity and reliability of the scales were tested by applying reliability analysis, EFA and CFA. The results are for the supply chain strategies scale are given in Table 3.

Table 3: Supply Chain Strategies Factor Loadings and Reliability Analysis

Items	Agile SC	Lean SC
ASC1: Our supply chain meets constantly changing demand	.789	
ASC2: Our supply chain responds quickly to changing market conditions	.786	
ASC8: Our supply chain responds quickly to customer requests	.786	
ASC3: Our supply chain has additional capacity to meet demand	.718	
ASC9: We invest continuously to reduce lead time	.653	
LSC8: Our supply chain constantly tries to reduce resource waste		.821
LSC7: We constantly try to reduce costs from supplier to customer at all stages		.781
LSC9: We choose our suppliers mostly based on quality and cost criteria.		.767
LSC1: *Our supply chain reduces costs through mass production*		.547
KMO: .808 Total Variance Explained: 59.54 %		

As indicated in Table 3, the result of EFA showed that the factor loadings of the supply chain strategies scale were determined between 0.653 and 0.789 for the agile supply chain dimension and between 0.547 and 0.821 for the LSC dimension. The value of Kaiser-Meyer-Olkin (KMO) was determined 0.808 which should be up to 0.5 (Dağlı, 2015: 205) and the bartlett sphericity test was significant as $p < 0.01$. It is also found that the supply chain strategy scale is validated in a two-dimensional structure and explains 59.536% of the total variance. The variances of the dimensions are found as %32.228 for ASC and %27.308 for LSC. As a result of the reliability analysis the alpha coefficient for LSC is found as 0.740 and for aggile supply chain 0.816. The factor loads, KMO value and total explained variance of the logistic performance scale are given in Table 4.

Table 4: Logistics Performance Factor Loadings and Reliability Analysis

Items	**Quality**	**Speed and Reliability**	**Flexibility**	**Cost**
LPQ3: Our customer satisfaction is high	.861			
LPQ2: Our product / service performance meets customer expectations	.812			
LPQ7: We offer high quality products / services	.769			
LPQ4: We apply continuous improvement to our product / service quality	.760			
LPQ1: Our quality meets customer expectations	.741			
LPQ6: Our product packaging and handling quality is high	.652			
LPQ5: We have less customer complaints	.565			

LPSPD&R6: We keep the time for the shipment of orders pretty short	.790		
LPSPD&R2: We respond to requests on time	.773		
LPSPD&R4: We shorten the time between order receipt and delivery as much as possible	.750		
LPSPD&R5: We make urgent deliveries on time	.749		
LPSPD&R1: We fulfill customer demands as promised	.668		
LPSPD&R3: We respond accurately to requests	.624		
LPFLX6: We can respond to different needs and requests of special customers		.853	
LPFLX5: We can respond to customers' different product components		.795	
LPFLX7: We have qualified personnel to meet different demands of customers		.695	
LPFLX2: We offer special services against unexpected demands		.661	
LPFLX1: We develop and deliver creative solutions		.645	
LPFLX4: We can respond to customers' different order quantities		.632	
LPC5: We have low product / service unit costs			.834
LPC4: We offer low total prices of products / services			.727
LPC3: We have low stocking costs			.715
LPC2: We can apply different payment / maturity facilities to our customers.			.501
KMO: .876 Total Variance Explained: 64.12 %			

As predicted, the CFA result showed that the logistics performance scale is validated in 4 dimensions. Factor loadings were obtained between 0.565 and 0.861 for the quality dimension, between 0.624 and 0.790 for the speed and reliability dimension, between 0.632 and 0.853 for the flexibility dimension, and between 0.501 and 0.834 for the cost dimension.

The value of KMO was determined 0.876 and bartlett sphericity test was significant as $p < 0.01$. It is also found that the logistics performance scale is validated in a four-dimensional structure and explains 64.57% of the total variance. The variances of the dimensions are found as %20.519 for quality, %17.508 for speed and reliability, %15.248 for flexibility and %10.848 for cost. Due to cross-loadings, some items such as LPKAL8 and LPKAL9 of the quality scale, LPES3 of the flexibility scale and LPMAL1 and LPMAL6 of the cost scale were excluded from the study (Acar Güvendir & Özer Özkan, 2022). As a result of the reliability analysis the alpha coefficient of the dimensions of the logistic performance scale were obtained as 0.897 for quality, 0.894 for speed and reliability, 0.834 for flexibility and 0.764 for cost, respectively. The AVE and CR values for convergent validity and normality test to determine the distribution of the sample is undertaken and the solutions are given in Table 5.

Table 5: AVE, CR and Normal Distribution Results of Scales

Variable	N	Mean	Std. Deviation	AVE	CR	Skewness	Kurtosis
LSC	154	4.5081	0.615	0.45	0.76	-1.578	1.611
ASC	154	4.2273	0.698	0.51	0.83	-.987	.528
Quality	154	4.618	0.482	0.57	0.9	-1.215	0.626
Speed & Reliability	154	4.582	0.507	0.58	0.89	-1.212	1.139
Flexibility	154	4.15	0.635	0.47	0.71	-0.608	-0.004
Cost	154	3.99	0.786	0.46	0.76	-0.876	1.085

The value of AVE should be over 0.5 and the CR over 0.7 (Kautish & Sharma, 2019: 347). As a result of the analysis, the AVE values of the LSC, flexibility and cost scales were obtained under 0.50. But since the CR> AVE condition is provided, the AVE values are pretty close to 0.50 and some authors stated that AVE value above 0.40 would be enough (Erol, 2019), it is considered as sufficient. Additionaly, since skewness and kurtosis was found between +2 and -2, normal distribution was provided (Bayram, 2013: 109). After EFA and reliability analysis, CFA was performed to see the structural validity of the scales. The goodness of fit values found for the scales are given in Table 6.

Table 6: CFA Goodness of Fit Values

Variable	CMIN	df	CMIN/df	GFI	CFI	RMSEA	SRMR
Supply Chain Strategies	42.395	26	1.631	0.942	0.967	0.064	0.0469
Logistics Performance	387.74	213	1.82	0.852	0.915	0.073	0.0792

As a result of the CFA of supply chain strategies scale, the standardized factor loadings for the LSC dimension were found between 0.46 and 0.85, and for agile supply chain dimension between 0.41 and 0.90. The standardized factor loadings for the dimensions of the logistics perdormance scale were obtained as follow: Quality between 0.60 and 0.88, speed and reliability between 0.70 and 0.85, flexibility between 0.54 and 0.88, Cost between 0.46 and 0.91. The obtained goodness of fit values where enough to prove that the scales are acceptable (Meydan & Şeşen, 2015: 37).

After the EFA, CFA, and reliability analysis, correlation analysis was conducted to see the relationships between the variables. Since the data is normal distributed, the Pearson's correlation is used and the results are given in Table 7.

Table 7: Correlation Analysis

	Lean SC	Agil SC	Speed and Reliability	Flexibility	Cost	Quality
Lean SC	1					
Agil SC	.420**	1				
Speed and Reliability	.309**	.513**	1			
Flexibility	.222**	.351**	.353**	1		
Cost	.167*	.517**	.463**	.332**	1	
Quality	.377**	.596**	.612**	.362**	.466**	1

*0.05 significance level, **0.01 significance level

According to the results of the correlation analysis, there are positive significant relationships between the dimensions of supply chain strategies and the dimensions of logistics performance.

Structural Equation Modelling (SEM)

In order to test the research hypotheses, a SEM was developed and analyzed. The model is given in Figure 2, the goodness of fit values of the SEM are given in Table 8 and the analysis results are given in Table 9.

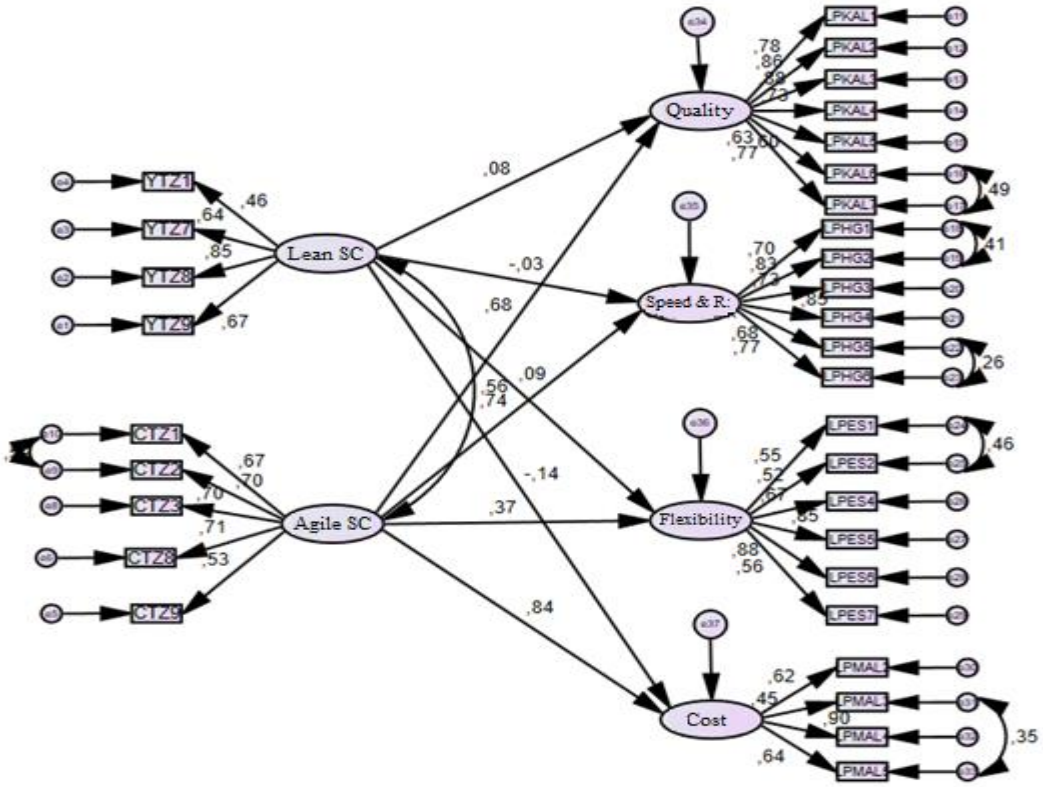

Figure 2: SEM

As seen in Figure 2, the model tested the impacts of LSC and ASC on the logistics performance dimensions such as quality, speed and reliability, flexibility and cost. In order to improve the goodness of fit, some modifications were made which are shown on Figure 2.

Table 8: SEM Goodness of Fit Values

Variable	CMIN	DF	CMIN/DF	GFI (≥0.85)	CFI (≥0.90	RMSEA (≤0.05)
SEM	656.514	437	1.502	0.802	0.92	0.057

The fit value of GFI was obtained below 0.90. But since the majority of the fit indices were met, it was accepted that the model met the goodness of fit criteria.

Table 9: SEM Analysis Results

Path			Standardized Estimates	Std. Error	C.R	P
Quality	←	Lean SC	0.083	0.085	0.819	0.413
Speed and realibility	←	Lean SC	-0.03	0.09	-0.275	0.783

Flexibility	←	Lean SC	0.094	0.097	0.799	0.425
Cost	←	Lean SC	-0.142	0.136	-1.277	0.202
Quality	←	Agile SC	0.679	0.098	4.756	***
Speed and realibility	←	Agile SC	0.739	0.109	4.608	***
Flexibility	←	Agile SC	0.373	0.092	2.761	0.006
Cost	←	Agile SC	0.843	0.197	4.317	***

The SEM analysis results showes that the agile supply chain strategy positively affects quality, speed and reliability, flexibility and cost performances. The LSC strategy did not significantly affect the logistics performance dimensions. The highest impact of the ASC strategy was on on cost performance with 0.843. The lowest effect was seen on flexibility performance with 0.373. The findings showed that H5, H6, H7 and H8 were supported. H1, H2, H3 and H4 hypotheses were rejected.

Conclusion

This study investigated supply chain strategies and logistics performance in the post Covid-19 pandemic period. A questionnaire was applied to medium and large-scale enterprises operating in Gaziantep. Data were obtained from 154 manufactures.

The results of the SEM analysis proved that the implementation of an agile supply chain strategy positively affects quality, speed and reliability, flexibility and cost performances. These findings correspond with previous studies. The highest impact of agile supply chain strategy was found on cost and the lowest impact was observed on flexibility. The LSC strategy did not affect any of the logistics performance dimensions. Some of the previous studies found an impact of LSC strategy on logistics performance dimensions, whereas some of them did not find any impact (see literature review) as in this study. This study showed that there is no impact of LSC strategy on logistics performance. Thus, H1, H2, H3 and H4 were rejected. The main reason why the hypotheses related to the LSC strategy could not be confirmed may be the period of the study. Since the study reflects the post Covid-19 pandemic period, environmental uncertainities and supply chain disruptions were less suitable to be controlled with a lean strategy. Companies which simplify their supply chain as the lean strategy suggests, do not see an effect of this on their logistics performance. However, companies with an agile supply chain strategy are less affected by rapid changes such as the Covidd-19 pandemic. In disrupted supply chains, companies applying agile supply chain strategies are positively differentiated in the market. That's how this study proved that an agile supply chain strategy positively affects logistics performance dimensions which are considered as speed and reliability, flexibility, quality and cost. Thus, H5, H6, H7 and H8 were supported. Companies that follow the agile supply chain strategy in environments such as the Covid-19 pandemic have reached a higher logistics performance. The sudden and unexpected impact of the pandemic on the whole world has shocked companies and caused them to be unable to act proactively. Agility, which refers to a faster response to change in the environment could be the solution to gain performance. Thus, companies need to construct their supply chain more agile.

In addition, it has been observed that the epidemic caused different reactions on a sectoral basis. Therefore, in the future, it is recommended that researchers investigate these hypotheses in certain sectors and examine the differences between them. There are also other strategies for supply chains that can be explored in uncertain environments which could be flexible supply chain strategy, digitalization in supply chain and integration strategies.

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