The Impact of Elastic Logistics on Brand Loyalty and Customer Satisfaction

Zainab Abdulhameed BEIROUTY
Ph.D. Student at Yeditepe University
Istanbul, Turkey
ORCID: 0000-0002-0167-3499

Abstract

Each business seeks a competitive advantage to win the market race and build a strong brand value that leads to customer satisfaction and loyalty. In logistics, flexibility in customization to the maximum customer preferability can make a difference. Consumer's demand for customization in shipping, tracking cargo, prices, and shipping quantity have pushed logistics companies to invent the concept of elastic logistic. This study aims to examine the impact of elastic logistics on customer loyalty and customer satisfaction depending on service quality and pricing strategy on elastic logistics. The relationship between elastic logistics services, satisfaction, and customer loyalty in the courier sector will be hypothesized to be positive. To identify factors that affect customer loyalty of elastic logistic services; a conceptual model is developed to test the hypotheses using quantitative research methods by conducting a survey and distributing it on a convenience sample. The service quality in the elastic logistics industry is given special consideration in a matter of responsiveness, reliability, customer service, support, and network quality. The study shows excellent support for the proposed hypotheses, especially in the Asia region.

Keywords: Elastic Logistics Systems, Efficiency Of Distribution, Customer Satisfaction, Quality Of Services, Customer Loyalty, Flexibility, Agile Systems.

INTRODUCTION

Elastic Logistics means flexibility in aligning logistics capabilities with customer needs. Alternatively, it is the ability to provide the customer with his preferences in shipping through a flexible cloud-based supply chain fixes adjusting companies to market alterations to meet the consumer's demand at lower costs enhancing the customer's experience through digitalizing the supply chain process offering a real-time visibility option.

The definition of supply chain management was already stated in business literature as early as (Forrester 1958-1961), which indicated that industrial firms' performance relied on 'interactions between knowledge flows, resources, manpower, and capital equipment.' However, given its informative conceptualization, the actual term supply chain management did not materialize until the early 1980s (Oliver & Webber 1). Several scholars have proposed that we are now moving into a new phase where firm efficiency and competitive advantage can be related to supply chain effectiveness (Lambert, *et al.,* 1998; Gun-asekaran, *et al.,* 2001). According to recent studies, the field

of elastic logistics and resilience is still new, and the researchers are emerging in this field, which opens the space to contribute to this field by studying this paper. Customer satisfaction has attracted growing interest in recent literature on e-commerce (Burt & Sparks, 2003). Several reports have demonstrated the importance of diverse organizational factors in assessing the satisfaction and engagement of consumers and, eventually, the effectiveness of companies (e.g., Collier & Bienstock, 2006; Hsiao, 2009). All of these studies have concentrated on the relationship between company success and logistics success. Through literature; logistics efficiency has been analyzed as a single factor or as part of a group of organizational variables

This paper's objective is to study the impact of elasticity in logistics on customer loyalty and satisfaction. Studying the relationship between the service's quality and the pricing policy affects the customer's satisfaction. The results might help companies develop a long-term strategic plan that can assure sustainable business success and higher competitive advantage for the companies in the market and see if customer satisfaction leads to more loyalty.

The potential of a company to attract and maintain clients is critical to its growth. Consumer loyalty requires a deep preference on the part of the consumer for a company for which many component providers are available (Dick & Basu, 1994; Otim & Grover, 2006). It is also influenced by a customer's positive experience of buying it. A variety of factors relate to service – flexibility, product quality, distribution, return policy, etc. Naturally, some of these elements are concentrated on the company's efficient logistic efficiency. The reason behind these hypotheses comes from the increasing demand for logistics, which creates the need to find a competitive advantage increasing customer satisfaction and loyalty depending on the quality of the service, cost, or efficiency. Deciding which factor is more critical to the customer will define the shape of the relationship between the customer and the logistics company, and the ability to customize the customer's preferences and demands will probably lead to more customer satisfaction and increase brand loyalty.

1. Literature Review

● Theoretical Background

(Sarkis, 2001) described agility as the capacity of continuous and sometimes unpredictable transition in an environment of productivity. (DeVor *et al.*, 1997) considered agility as a provider of products and services to function profitably in an ongoingly and volatile competitive climate while (Sharifi & Zhang, 1999) described agility as a capacity to overcome sudden changes, to withstand unforeseen market challenges, and to maximize the opportunities of transition. (Dove, 1994, 1999) provided a detailed description of agility that also came into being through (Yusuf *et al.,* 1999), which was used to understand and explain agility as a means of effectively leveraging competitive foundations (speed, versatility, constructive creativity, efficiency, profitability). This description stresses the need to combine resources as a prerequisite for agility. (Yusuf *et al.,* 1999) responded to Dove's concept of agility by defining some preconditions to agility, which added to the research base. Recent definitions conceive of agility as a framework enabling companies to adapt rapidly to the diverse demands of customers (Brown & Bessant, 2003; Vinodh, 2010).

Flexibility is commonly used as an appropriate response to environmental vulnerability (Gerwin, 1993). In particular, this represents a system's ability to adapt or to respond on time, commitment, expense, or results with low penalties. (Crowe, 1992; Upton, 1994; Morlok & Chung, 2004). Flexibility is thus seen as a constructive trait that is intended to shape a structure rather than a reactive action, which can, in turn, lead to a risk to time, energy, expense, and efficiency. Flexibility in range refers to conditions or attitudes, while reactions refer to the ease at which a system will change, often

articulated as regards expense or time (Naim *et al.,* 2006). (Lummus *et al.,* 2003) suggest that flexibility in the logistics refers to the punctuality of the supply chain in responding to consumer demand and the degree of its speed and destination changes.

The growing perceptions of consumers are one of the most significant external influences that affect businesses. In order to be successful, companies need to understand clearly the requirements and constraints of the marketplace and then develop a strategy that meets the needs of both logistics system requirements and customers (Landis, 1999). One of the main objectives of logistics management is to meet customer requirements while reducing costs. There has recently been some significant debate about the "lean" and "agile" paradigms as key enablers (Steele, 2001). In order to differentiate between the lean and agile concepts, (Naylor *et al.,* 1999) propose:

"Agility means using industry information and a virtual organization to take advantage of the growth in a competitive marketplace."

"Leanness means creating a value chain to minimize all waste and to maintain a consistent plan."

The area of flexibility in the supply chain is still at an early stage, and consensus has not been reached as regards meanings, scope, significance, and implementation. (De Toni & Tonchia, 1998), Bernardes & Hanna, 2009), argue that the lack of research into supply chain flexibility may be focused on the limited theoretical framework to explain what specifically needs to be included in supply chain flexibility in system terms, but also the calculation of how it should be done. Authors, such as (Slack, 1983), (Parnaby, 1987), and (Stevenson & Spring, 2007), have highlighted the challenge of quantifying flexibility earlier. The former argued against efforts to create a standardized flexibility metri

Based on the scarce literature on supply systems flexibility and elasticity, we simplify supply chain flexibility by using two main concepts: supplier flexibility and service flexibility. Supplier flexibilities refer to the ability of the supply chain organizer to link a network of supply chain vendors by choosing and changing vendors (Duclos *et al.,* 2003; Gosain *et al.,* 2005), which helps the supply system to respond to customer demands. Work in the supply chain management has, over the last two decades concentrated in pursuit of strategic advantage on the need to establish better ties between consumers, manufacturers and related players (Dwyer *et al.,*1987; Lamming, 1993; Kanter, 1994; Handfield & Bechtel, 2002). In this sense, Lean emphasized the need to establish supplier relationships, decrease suppliers' number, upstream transition, and empowerment (Sako *et al.,* 1995; Rich & Hines 1997; Ikeda, 2000). However, increasing market dynamics and higher levels of volatility has increased the need for companies to become flexible and to adapt to consumer demands while concentrating on operating within a complex and continuous state of transition as part of a collaborative literature thread on agility (Childerhouse & Towill, 2000; Lee, 2004). (Swafford *et al.,* 2006) stressed that it was primarily the supply chain structure that described the flexibility of the supply network as the adaptability of its nodes, indicating a narrow perception of supply chain flexibility that is in line with the notion of linear flexibility and the principle of resilient networks. In comparison, the truth of sourcing flexibility is that, indeed, not a single supplier's sensitivity is the primary cause of the Supply chain, but the leading company's capacity to organize the entire supply chain easily and reinvent the network.

The elastic logistics represents first, fast and best growth. (Christopher,2000) describes elasticity as "a company's ability to respond quickly to shifts in volume and complexity demand" in order to meet competitive and unpredictable markets. The elastic approach increases the performance capabilities to even more than historically established methods, and strategies are feasible. Elasticity is no longer

enough simply to respond quickly, and at the right time, so lean, responsive is not enough, but the argument goes much further.

According to (Vonderembse *et al.,* 2006), Elastic logistics can respond to customer demands through virtual clouds and IT-based systems to ensure efficient and fast customer's response and quickly able to solve any problem that customers can face and adapt to any market change. In the corporate environment, the knowledge of demand is obtained from automated networks rather than from inventory-based information; the timely exchange of information decreases management sophistication. The information infrastructure should be up-to-date and accurate and should be able to connect quickly. In the ideal case, a shared information system would connect both participants in a virtual supply chain.

Supply Chain Management (SCM) seeks to improve profitability by tightly combining internal operations within a company and connecting them with vendors, consumers, and other channel participants' external activities (Kim, 2009). The business can achieve superior supply chain efficiency through cross-functional alignment and collaboration with vendors or consumers (Swink *et al.*, 2007). Many companies have recognized the advantages of incorporation with supply chain suppliers, and convergence of the supply chain has been seen as one of the critical performance enhancement drivers. Further systematic work on the interaction between integration and efficiency has been done by (Min & Menzer, 2004; Rodrigues *et al.,* 2004; Stank *et al.,* 2001).

Much integration was associated with performance; a considerable amount of work was also done into the relationship between customer satisfaction and efficiency. The results show that customers satisfied have a positive correlation with performance (Lambert *et al.,* 1998; Narayanan *et al.,* 2011). One goal of optimizing the supply chain is to enhance customer satisfaction and customer loyalty, we believe the missing element is customer satisfaction.

● **Quality of service and customer satisfaction**

Marketing experts and analysts have successfully controlled consumer experience quality and improved client engagement (Rust & Chung 2006, Zeithaml *et al.,* 1996). Specific research finds that greater consumer satisfaction resulted in a higher degree of customer engagement and word-of-mouth reviews (Guo *et al.,* 2009; Lai *et al.,* 2009). The increasing competition in brand marketing has driven businesses to find differentiating approaches to attract and retain consumers. The individualization of goods to fulfill consumer demands is among the differentiation techniques used by corporations (Beatty *et al.,* 2015; Tam & Ho, 2005). The idea that customizations enable customers to decide which goods are tailored to their needs has, in particular, become more and more common compared to standardization. In their research, for example, (Jin *et al.,* 2012) illustrate how packing tours frequently customize trips according to the personal needs of travelers. Standardization has been used to make the economic indicators more consistent and accurate, to decrease costs, and to improve profitability. The degree of product customization in recent years has risen and is projected to continue in the future. For example, after-sales car services, the hotel industry studies. (Sandoff, 2005; Wang *et al.,* 2010) and Dell Computers. Some of these services incorporate customization with standardization. For example, "standardization" lets workers prevent errors and anomalies in delivering "customized" services in the hotel industry.

Many studies have connected service quality to consumer satisfaction, such as they study (Cronin *et al.,* 2000). However, there has been little work to determine whether customization and standardization have an immediate effect on service quality and indirectly influence customer loyalty. This distance is addressed in the present report. The key to customer satisfaction and loyalty

is the development of customization strategies that offer customers superior service and ensure that operations are operating smoothly and efficiently; this is what elastic logistics are trying to provide.

(Lundahl *et al.,* 2009) were investigating the impact on customer loyalty of bank-SME relations in theoretical and practical aspects in service management. The analysis reveals a strong connection between the theoretical and practical aspects of service development and customer satisfaction. (De Keyser & Lariviere, 2014) argue that the quality of service both technically and functionally has a positive effect on consumer satisfaction. The new work indicates that practical and technological values play a significant role in ensuring customer loyalty in offering high-quality services. Hence, it is essential to evaluate the impact of each strategy on specific facets of service quality and use multiple approaches and improve the efficiency of the service.

Satisfaction is characterized by contrasting the perceived quality of a service and its precedent (Oliver, 1981) as the feeling of gratification or deception. Consumer satisfaction is an experience following decision-making. Quality of service and customer satisfaction are similarly associated, but can not be interchanged, as both definitions require a distinction between quality requirements and the provided service.

Throughout the age of extreme competition, improved service quality can be a vital consideration to differentiate and boost organizational performance (Namukasa, 2013). Some researchers have explored the dimensions and calculating challenges of the subjective essence of service quality. Researchers have given significant attention to the conceptual and empirical relationship between service quality and customer satisfaction, making it a key marketing instrument (Gustafsson *et al.,* 1999). While the quality of service has been calculated very well, the quality is still unexplored. It involves a close analysis of the service efficiency of elastic logistics. The special and substantially different design of the elastic logistics industry from other providers allows further studies to examine the freight companies' level of operation and their effect on customers' overall satisfaction. This research is, therefore, aimed at evaluating the consumer expectations of the service level and the resulting customer loyalty on a SERVQUAL scale. (Parasuraman *et al.,* 1988 a,b) which proposed five measurement scales for quality as reliability, assurance, tangibles, empathy, and responsiveness.

● **Customer Loyalty**

In addition to the repeated procurement of the service, the consumer loyalty corresponds to a friendly disposition to an individual and conduct of repeat patronage (Dick & Basu, 1994); a condition in which repeat transactions are followed by a relational association and repeated purchasing expectations and actions—corresponding to a constructive attitude towards the brander. Consumer loyalty was often introduced as a behavioral mechanism and often as a mental attitude.

In order to boost its sustainable practices, globalization stresses on various sectors were applied. Besides, the rise in legislation applicable to a significant number of manufacturing facilities, including social restrictions on environmental protection, highlights the value of environmental policies as a strategic gain. Furthermore, a product or company customer loyalty system must be built, which will help goods, facilities, and marketing efforts for sales and transactions regularly and word of mouth for the retention of the customer base and continual growth. The previous study has shown that perceived quality and customer loyalty have relationships (Aydin & Özer, 2005), which justify this research hypothesis of the impact of service quality on customer and brand loyalty.

Marketing research has been developed as behavior or attitudinal tests of consumer satisfaction (Oliver, 1999) acknowledged that the buying habits (compliance) would no longer differentiate between real loyalty and artificial loyalty, resulting in a lack of preference or pure convenience, They

first presented these two aspects of loyalty. From this argument in the literature, what appears to have prevailed is that behavioral and commitment interventions are both important and significant. Both attitudinal and behavioral tests have been used in recent research to gather relevant consumer satisfaction signals (McMullan, 2005). Such two dimensions of loyalty as present interpersonal loyalty and future expectations have been conceptualized from a new angle by (Baumann *et al.,* 2011), and this research reflects this line of reasoning. The two dimensions of allegiance are modeled independently for this article's purposes, as the goal is to analyze the implications of predictors on both dimensions (Zeithaml *et al.,* 1996).

● **Customer satisfaction and customer loyalty**

(Hallowell, 1996) has identified a positive link between satisfaction and loyalty; (Moutinho & Smith, 2000) have found a positive correlation between satisfaction and retention; (Veloutsou *et al.,* 2004) have found that there is a positive relation also. The association between satisfaction and loyalty is well known both within and beyond retail banking, for example. A recent study found that customer satisfaction and loyalty have a non-linear association. Unmet customer loyalty is disproportionately low, and increased satisfaction will not result in greater customer loyalty (Baumann *et al.,* 2012b). This result indicates that while consumers' satisfaction determines consumer loyalty, it is possible to improve customer loyalty modeling so that more responsive drivers can be detected. Therefore, in this research, the impact of customer satisfaction on the loyalty of customers in the logistics sector and courier services mainly will be hypothesized to have a relation.

● **Price Fairness and cost Impact**

The price fairness or cost determination in customer's conception is known as what is given up or exchanged to receive the service from the customer perspective (Zeithaml, 1988). The price is often used to assess the quality of the product in an alien reference for customers. Price fairness is conceptualized as a vital criterion assessment parameter as "the consumer's evaluation and the associated emotions of whether a supplier has a fair, rational and justifiable difference (or lack of gap) between the quality and that of the comparatives of another group" (Xia *et al.*, 2004). Price fairness emerges as a 'price as of right, equitable or legal, subjective meaning by the consumer versus wrong, unfair, or unlawful' (Campbell, 2007).

Referring to the equity theory and principle of dual entitlement, from the customer viewpoint; the given price for the service menu provided will be perceived as fair and acceptable if this level of price meets their demands and customizations. Additionally, according to the S–O-R (stimulus organism response) theory, customers' internal evaluation for acceptable and fair prices of cargo services menus may determine customers' assessments, which may enhance their revisit and word of mouth intentions towards elastic logistic services. Empirical evidence in previous hospitality studies indicates a positive linkage between perceived quality and price fairness (Jin *et al.,* 2016). Therefore, it is pleasurable to expect that, when service is perceived as having high quality, customers perceive the cost of service to be fair and can be increased. In line with this prediction, the hypotheses of cost and pricing strategy impact on customer satisfaction and loyalty were proposed.

2. Research Question and Model

Due to the tremendous advances in technologies of all business sectors. The research question to be investigated is, "What is the effect of elastic logistics in a matter of quality and pricing on customer satisfaction and brand loyalty?"

The quality is divided into different aspects that will test quality and give a clearer indication of its impact on the satisfaction and loyalty of the customer. The measurement is done by testing the reliability, responsiveness, perceived service quality, assurance, and tangibles. The other factor of the cost will be tested using the pricing strategy, convenience, and added value by the companies' elastic logistics services. The model was developed based on these variables to test the impact of these independent variables on the dependent variables of loyalty and satisfaction. The impact of satisfaction on the customer's loyalty will also be tested to see if there is a correlation between these two variables. The developed research model is shown in figure 1.
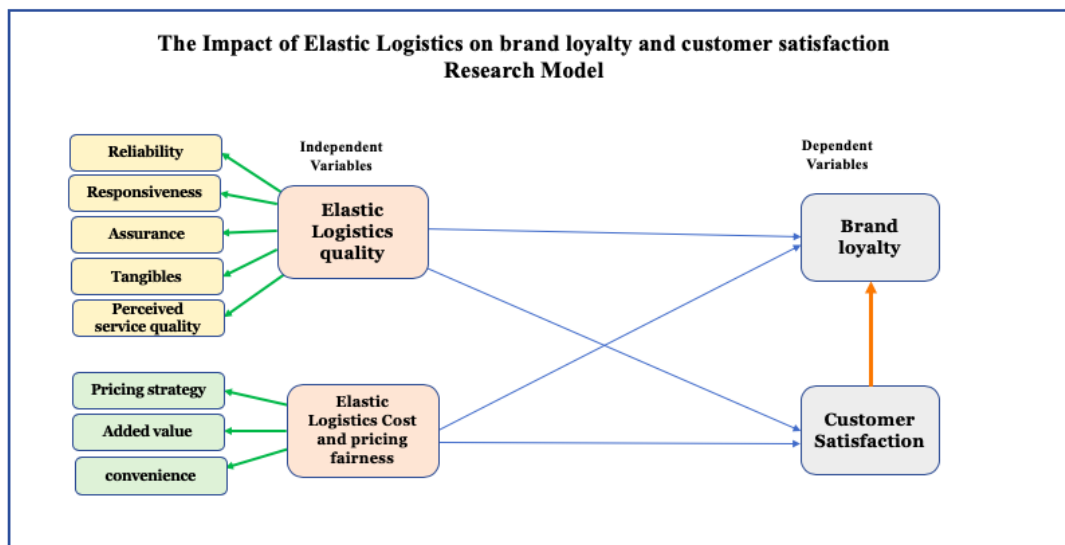

Figure 1. The Developed Research Model

3. Theory and Hypotheses

Globalization and advances in technology in all business sectors are increasing the competitiveness and speeding the race between companies to fight for their sustainability and maintain the largest base of loyal customers that will help these companies to keep going and growing. It is also influenced by a customer's positive experience of buying it. Flexibility in customization to meet the customers' demands and requirements are known as agility or elasticity in logistics services, especially in courier and supply chain services. Which led to the theory of this research that is "The elasticity in logistics and supply chain services are believed to increase the customer's satisfaction and loyalty". Based on the theory there are central and sub hypotheses that were developed to be tested.

The increasing demand for customization in logistics created the need to investigate the most affecting factors that will lead companies to maintain their sustainability and ensure customer satisfaction and loyalty.

(Heikkila,2002) says that knowing the condition of the consumer and their needs along with the correct product deal helps strengthen the Chain's distribution Chain, leading to greater productivity in the supply chain and more excellent service with its consumers. The theory of learning and others say the correlation between integration and customer satisfaction can be supported empirically (Homburg & Stock, 2004; Kouphteros et al., 2005; Song & DiBenedetto, 2008). So, this leads to the

hypotheses of the study that link internal processes with external services and customers' feedback and attitudes toward this integration, which will be tested through this research.

On the bases of the objectives of this study; the main hypotheses will be:

H1: Elastic logistics quality will have a positive impact on brand loyalty.

H2: Elastic logistics quality will have a positive impact on customer satisfaction.

H3: The elastic cost and price fairness formulas in logistics will have a positive impact on customer satisfaction.

H4: The elastic cost and price fairness formulas in logistics will have a positive impact on brand loyalty.

H5: The increased customer satisfaction of elastic services is believed to affect brand loyalty.

This research study investigates the impact of the internal processes and how the business strategies adapted to meet customer's requirements by analyzing the internal quality effect and cost and price fairness strategies on the customer's satisfaction and loyalty to the service company. Elastic logistics, or what is also known as agile logistics, is a broad definition that covers transportations, operations, supply chain, and even the delivery process. The courier services companies are going to be investigated as most of the cargo companies these days are providing agility in services. High customization of cost and shipping dates with the ability to track the shipment and make a complaint or chat with the support directly to solve any shipping problem that customers might face. The study is intending to investigate how these services impact on the satisfaction and loyalty of people to the service company by evaluating the assurance, reliability, network and support quality, convenience, pricing strategy, value-added and tangibles. The hypotheses will be tested by adapting to the SERVQUAL model, which was developed by (Parasuraman *et al.*, 1988), to evaluate customer perceptions of service quality based on five dimensions (reliability, responsiveness, assurance, empathy, tangibles). Moreover, the loyalty variable will be tested by adapting the scale that was developed by (Narayandas, 1996).

4. Methodology and Data Collection

5. For evaluating the research variables, a multi-scale model was used to improve the credibility and accuracy of measurements. Likert scale of 5 stages was used from strongly agree to strongly disagree, which was adopted from previous research done on the effect of switching cost, Service quality and customer satisfaction on customer loyalty of Cellular Service Providers in Indian Market. (Chadha & Kapoor,2009) Furthermore, adjusted to meet the research objectives and variables. Data were analyzed using SPSS 26 to measure regressing, correlation, and reliability tests of variables. The hypotheses will be tested by adapting to the SERVQUAL model, which was developed by (Parasuraman *et al.,* 1988) to evaluate customer perceptions of service quality based on five dimensions (reliability, responsiveness, assurance, empathy, tangibles, and perceived service quality). And the loyalty variable will be tested by adapting the scale that was developed by (Narayandas, 1996)

- **Sampling**

For obtaining this research results, a survey was designed and distributed to a convenient sample of 600 respondents throughout the world; the questions were designed to test the opinions of customers [online shoppers and small business owners, and business suppliers who use shipping services]of different international and domestic courier elastic services in meeting their needs and measure their loyalty to these companies. The survey was designed and obtained using an online

survey platform (SurveyMonkey). Only 427 responded to the survey with a response rate of %71. The respondents were divided as 201 females, and 213 males and nine persons preferred not to declare their gender. And ages were between 18 and 55 years old; the majority of responses were between the ages of 25-35 years old. The majority of responses were from Asia, with a percentage of %81.73, which might make this study the result apply only to countries of Asia.

● **Measurement of Variables**

For the validation of the hypotheses, two primary measurement variables were tested based on the literature and were divided into a multi-item scale. The adopted scale of the SERVQUAL instrument included assurance, reliability, tangibles, perceived quality, and responsiveness to measure service quality of elastic logistics. The Likert scale was added up by three additional dimensions to test cost variables based on the added value, convenience, and pricing strategy. The measurement scales were adopted from the previous study conducted to test the impact of Indian carrier services on customer satisfaction and loyalty (Chadah, S.K., & Kapoor, D., 2009). Each of the items was evaluated on a five-point Likert scale, ranging from one: 'strongly disagree' to five: 'strongly agree.' Table 1 shows the measures of each scale as they will be presented in this study.

Table 1: Measuremenr Variables	
Measurement Scale	
Elastic Logistics Quality	
Reliability	
	When the company promises to do something by a certain time, it does so. (e.g., promised delivery times).
	When you have a problem, company shows a sincere interest in solving it.
Resposiveness	
	Employees of company are always willing to help you.
	Employees of company are never too busy to respond to your request.
	Employees take your queries seriously
Assurance	
	The behavior of employees in company instills confidence in you
	Logistics services are more compatible to your needs and meet your customizations prefernces.
	The elastic logistic understand my specific needs.
Tangibles	
	The packaging and safety of the product are visually appealing. (e.g., fragile items, hard covering, logos).
	The tracking systems is very neat and friendly use.
	Materials associated with service (such as pamphlets, etc.), are visually appealing.
	The return policy is very sufficient and easy.
Perceived quality services	
	Elastic logistics provides sufficient geographical coverage
	Your call gets connected during first attempt.
	The online chat support is very sufficient and support different languages.
	You are able to call to the customer support at peak hours.
Service cost and pricing	
Pricing Strategy	
	Your current service provider charges reasonable prices.
	Your service provider has honest pricing structure (no hidden cost, etc.)

	You are able to get variety of price schedules (different recharge denominations).
	Refund policy is made easy by delivering money back to my bank account or giving voucher option.
Value added Services	
	Your service provider offers you different value-added services.
	It's convenient to use the value-added service provided by company.
	VAT provided at reasonable rates.
Convenience	
	There is ease of subscribing/recharging (recharges available easily at different locations).
	Convenient business hours.
	Ease of lodging complaints/queries.
	Different customer support system
Customer satisfaction	
	Your current service provider meets all your logistics expectations.
	You are overall satisfied with your service provider.
	The flexibility in customization is exactly what I need in logistics.
Customer Loyalty	
	You want to continue with the current service provider.
	If you wish to have one more connection, you would prefer your current service provider.
	You would continue with the current logistic company even if other companies provide cheaper services.
	You would recommend this service provider to your friends/relatives.

6. Validity and Reliability of variables

For the validity of the research measurement variables, A component factor analysis has been done using the Kaiser-Olkin-Mayer (KMO) Test for Sampling Adequacy. The minimum level required for any given scale to pass this test is 0.5. The results in the following table 2 shows the values of KMOs values which indicate good adquete fort he research and the analysis can be run. Furthermore, Bartlett's Test of Sphericity shows a significant value of (p<0,05), which means that factor analysis can be carried out for both the research scales.

Table 2: KMO and Bartlett's test				
	Quality Scale	**Price Faireness and Cost**	**Satisfaction Scale**	**Loyalty Scale**
Kaiser-Meyer-Olkin measure of sampling of Adequacy	**0.923**	**0.921**	**0.665**	**0.760**
Bartlett's Test of sphericity				
Chi Square	**2295.922**	**1957.083**	**306.320**	**468.730**
Df	**78**	**55**	**3**	**6**
Sig.	**.0000**	**.0000**	**.0000**	**.0000**

Having proved that the research can be carried out, the factor analysis has been done for each scale starting with the quality scale that has 16 measurement scalesv which showed that there are three

factors of total variation, the first factor accounts for %46.412 of the variance the second one is %8.235 and the third one is %7.983. The factor loading analysis shows that the variables of assurance Q2, Tangibles Q4 and service quality Q1 should be omitted to give better results and the final values ar shown in table 3.

Table 3. Factor loading analysis for quality Scale			
Measurement variables	Factor Loading Value		
Reliability Q1	0.619		
Reliability Q2	0.752		
Responsiveness Q1	0.790		
Responsiveness Q2	0.671		
Responsiveness Q3	0.735		
Assurance Q1	0.519		
Assurance Q3		0.612	
Tangibles Q1		0.814	
Tangibles Q2		0.701	
Tangibles Q3		0.703	
Service Quality Q2			0.812
Service Quality Q3			0.764
Service Quality Q4			0672
Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization			

The second factor analysis has been made to Price fairness and cost impact that included 11 measurement scales which shows that the items have been grouped around one factor explaining %50 of the variance and the factor loading tables showed that all the items have values above 0.5 so all the items will be expected without deleting any factor as shown in Table 4.

Table 4. Factor loading analysis for price fairness and cost impact scale	
Measurement variables	Factor loading value
Pricing Strategy Q1	0.692
Pricing Strategy Q2	0.737
Pricing Strategy Q3	0.704
Pricing Strategy Q4	0.725
Added Value Q1	0.716
Added Value Q2	0.696
Added Value Q3	0.700
Convenience Q1	0.749
Convenience Q2	0.656
Convenience Q3	0.740
Convenience Q4	0.687
Note: Extraction Method: Principal Component Analysis. a) 1 Components extracted.	

For the satisfaction Scale, the three items were grouped in one group that explains %66.726 of the total variation. And the factor loading analysis of all three items were more than 0.5 so none of them will be deleted and all three of them will be used in analysis as shown in Table 5.

| Table 5. Factor loading analysis for satisfaction ||
Measurement variables	Factor loading value
Satisfaction Q1	0.825
Satisfaction Q2	0.861
Satisfaction Q3	0.762
Extraction Method: Principal Component Analysis. 1 Components extracted.	

The last factor analysis for Loyalty scale which has four items grouped as one indicating a %60.648 of total variation. All factor loading values were above 0.5 therefore no item will be deleted and all of them will kept for analysis as shown in table 6.

| Table 6. Factor analysis for Loyalty Variable ||
Measurement variables	Factor Loading Value
Loyalty Q1	0.685
Loyalty Q2	0.832
Loyalty Q3	0.774
Loyalty Q4	0.816
Extraction Method: Principal Component Analysis. a)1 Components extracted.	

Through measuring the value of Cronbach alpha, the reliability of elements was evaluated. The internal consistency of objects is calculated by Cronbach alpha. To test the validity of the measures used in the analysis, the alpha coefficient were independently calculated for the purpose of this investigation. Table 7 displays the findings of a reliability analysis. It is called reliable if the alpha-coefficient is greater than 0.5. All the alpha coefficients vary between 0,71 and 0,89 suggesting that the objects within each dimension and scale have a strong consistency.

No.	Name of the scale	Cronbach Alpha
	Table 7. Cornbach Alpha Coeffecients	
1.	**Elastic services quality**	**0.867**
	Reliability	**0.719**
	Assurance	**0.624**
	Responsiveness	**0.797**
	Precieved Quality of Service	**0.765**
	Tangibles	**0.751**
2.	**Cost and Price Fairness of Service**	**0.871**
	Pricing strategy	**0.804**
	Convenience	**0.80**
	Value added	**0.705**
3.	**Customer Satisfaction**	**0.750**
4.	**Customer loyalty**	**0.761**

7.   Data Analysis and Findings

Further testing of hypotheses, correlations, and regression tests have been applied using SPSS 26. Preceded by applying a test to prove normality and asymmetric distribution of the variables, the Skewness and Kurtosis Test was applied, and according to (George & Mallery,2010), the values for asymmetry and kurtosis between -2 and +2 are considered acceptable in order to prove normal univariate distribution. The Skewness and Kurtosis results prove normality in the distribution, as shown in table 8.

Table 8: Skewness and Kurtosis Tests

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
QualitySerTotal	423	1.00	4.44	2.2310	.58160	.074	.119	.410	.237
Total cost and pricing	422	1.00	4.56	2.2807	.61111	.039	.119	.382	.237
satisfaction total	420	1.00	4.67	2.2111	.69041	.274	.119	.327	.238
loyalty total	421	1.00	4.25	1.9780	.57548	.695	.119	.834	.237
Valid N (listwise)	420								

For further evidence, multicolicollinearity test has been applied using the variance inflation factor (VIF) and the tolerance value (TV) noting that if VIF exceeded 10, the variable will be deleted or excluded. The tolerance of an independent variable is a further calculation tool for multi-colinearity

effects in a data set. If the value of the factor tolerance exceeds 0.2 then the model does not have multicollinearity problem. Table 9 shows the values of VIF and TV that has been made. The values of inflation factor (VIF) are way below the cut-off of 10. And the tolerance values (TV) are more than 0.2 indicating no multicollinearity in the regression model.

Table 9: Collinearity Statistics		
Variables	Tolerance Value (TV)	Variance Inflation Factor (VIF)
Total cost and pricing	**0.298**	**3.360**
Total Quality	**0.368**	**2.714**
Customer Satisfaction	**0.345**	**2.899**
Customer Loyalty	**0.390**	**2.578**

Durbin-Watson's test has been applied to check the correlation between variables. According to (Field, 2005) values, less than one or greater than three are considered a trigger value of concern. However, values closer or equal to 2 shows no correlation for residuals. The DW value in table 10 model 1 shows a value of 2.055, which indicates that the residuals are uncorrelated and thus fulfills applying the regression model. The regression analysis between customer loyalty and other variables shows a value of 0.700, which indicates a high regression and a significant R square value of 0.490, which indicates a good proportion of explained variance. The adjusted R was found to be significant. In model 2, regression was applied to test the relationship between customer satisfaction with respect to total cost and quality; the Durbin-Watsons value was 2.106 which indicates a good model fit for regression also the R-value was 0.809 that reflects an excellent regression indicator between variables, the R square is 0.655 which shows a significant proportion of explained variance in addition to a significant adjusted R-value which is all shown in table 10.

In model 3, The regression analysis between customer loyalty and Total cost and quality was made without a customer satisfaction factor, and the Durbin-Watson value was also indicating a good fit for a regression model with a value of 2.118 and the R-value was significant indicating a value of 0.679. Also, the R square value was showing a good proportion of explaining variance, as shown in table 10.

Model 4 in Table 10 shows the regression analysis between customer satisfaction and customer loyalty only showing a DW value close to 2 and an R-value of 0.644 that indicate a good fit of regression, a significant value of R square, and good variance explanation.

Table 10: Regression Model Summary					
Model	R	R square	Adjusted R square	Standard error of the estimate	Durbin-Watson
1	0.700ᵃ	0.490	0.486	0.41270	2.055

Note: a) predictors (constants), satisfaction total, total quality, total cost and pricing.

b) Dependent Variables: Total loyalty.

2	0.809ᵃ	0.655	0.653	0.40645	2.106

Note: a)predictors (constants),total cost and pricing, total quality

b) Depenedent Variables: Total satisfaction

3	0.679ᵃ	0.462	0.459	0.42324	2.118

Note: a) predictors (constant), total quality, total cost and pricing

b) Dependent Variables: Total loyalty

4	0.644ᵃ	0.415	0.414	0.44092	1.964

Note: a) predictors (constant), Total satisfaction

b) Dependent Variables: Total loyalty

Regression analysis was applied first to predict the customer satisfaction with respect to service quality and cost and price fairness at a confidence level of %95 showing significant outcomes. F value is highly signifigant showing a value of 395.983. As results in table 11; the value of customer satisfaction is best predicted by the independent variables of quality and cost of service showing a direct impact of quality and cost on customer satisfaction that which each increase by one unit in the quality of service there will be an increase in the satisfaction by 0.359 and the higher effect on satisfaction was measured by the impact of cost and pricing strategy of service that shows one unit increase will cause an increase of 0.642.

Table 11: Regression Analysis: Customer Satisfaction Coefficients

Coefficientsᵃ

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	−.041	.083		−.490	.624	−.204	.123
	QualityTotal	.359	.054	.297	6.593	.000	.252	.466
	Total cost and pricing	.642	.052	.558	12.374	.000	.540	.744

Note: a) Dependent Variable satisfaction Total

The second regression analysis was performed for Customer loyalty with respect to Total cost and price fairness and quality of service and also the impact of customer satisfaction on the loyalty also at confidence level of 95% showing significant outcomes. F-value of 133.310 is highly signifigant and showing a good prediction of the model. The variables have positive impact on the customer loyalty

as shown in table 12 wich the higher impact of quality of service on the customer loyalty. The table of coeffecients shows that with each one unit increase in total cost and pricing services there will be increase in loyalty by 0.169 and one increase in Total quality of service will increase the loyalty by 0.301 also one increase in satisfaction of customers will cause an increase in the loyalty by 0.240.

Table 12: Regression Analysis: Customer Loyalty Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.395	.084		4.679	.000	.229	.561
	satisfaction total	.240	.050	.288	4.836	.000	.143	.338
	QualityTotal	.301	.058	.299	5.184	.000	.187	.416
	Total cost and pricing	.169	.062	.176	2.749	.006	.048	.290

Note: a) Dependent Variables: Total Loyalty

Indepenedent Variables: Satisfaction, quality of service, Cost and pricing strategy.

The third regression analysis was repeated for customer loyalty without the customer satisfaction variable being included in the analysis. The F-value of 179.259 is considered highly significant and gives good prediction to the model. The variables have positive impact on the customer loyalty as shown in table 13.

Table 13: Regression Analysis: Customer Loyalty Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.388	.086		4.484	.000	.218	.558
	QualityTotal	.389	.057	.386	6.870	.000	.278	.501
	Total cost and pricing	.321	.054	.336	5.974	.000	.215	.427
a. Dependent Variable: loyalty total								

Note: a) Dependent Variables: Total Loyalty

Independent variables: Cost and price fairness, Quality

Customer satisfaction impact on customer loyalty was tested alone by applying regression analysis has been done showing an F-value of 296.830, which is considered highly significant and shows a good prediction of the model. The variable of satisfaction has a positive impact on customer loyalty by 0.530 to each increase, as shown in table 14.

Table 14: Regression Analysis: Customer satisfaction Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.789	.072		10.914	.000	.647	.931
	satisfaction total	.538	.031	.644	17.229	.000	.476	.599

Note: a) Dependent Variables: customer loyalty

b) Independent Variables: Customer satisfaction

To further test the research hypotheses, Pearson correlations were computed at a scale level of %95, showing a strong association between quality of service and customer satisfaction and loyalty. Moreover, there is a strong association between cost and pricing of service and customer satisfaction and loyalty, as shown in table 15.

Table 15: Correlation Between Service cost and pricing, Service Quality, Customer Satisfaction and Customer Loyalty

Correlation	Service cost	Service quality	Customer Satisfaction
Customer Loyalty	0.633	0.645	0.644
Customer Satisfaction	0.787	0.727	1
Note:* Correlation is significant at the 0.01 level (two-tailed).			

Based on the correlation and regression results, the research hypotheses are supported and proved to be correct.

CONCLUSION

The study aimed to investigate the impact of elastic logistics service quality and pricing and cost on customer satisfaction and customer loyalty, which was found to be positive. The study showed that the quality of service is the major factor that affects satisfaction and leads to customer loyalty. The more the customer feels that this company is providing a good quality service and can trust their promises, the company can say that this customer can be loyal. This shows that the quality of services is an important factor for elastic logistics business to invest in continuously improve in order to maintain customer satisfaction and loyalty. For this sector, probably the quality of services and pricing strategy and the ability to adapt to customers' needs and market changes can be considered the major factor that ensures the company competitive advantage and its sustainability in the market.

This paper opens the road to the elastic logistics sector to investigate how to increase the quality of services and customer satisfaction in order to make their customers loyal. As a suggestion for future study, elastic service providers can investigate the role of reward programs or loyalty card impact on increasing the loyalty of customers. Moreover, Elastic logistics services can give the customer the options for automated return and refund processing through applications or websites without needing customer support and testing how it affects customer satisfaction.

The limitation of the research was; the scarce information about elastic logistics. It's a new field and researches on the same topic are very limited. Probably in the future years, the same research can be conducted using the service quality metrics of elastic logistics services if it was revealed by the logistics industry and can make the results more accurate and detect more specific and detailed factors affecting customer satisfaction and loyalty. Furthermore, the study did not specify a courier company so a second research could be done testing the same variables on a specific company such as DHL or any other company or it can be a country specific study by using the culture preferences as a moderator variable.

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