

The Impact of Marketing Mix on Customer Satisfaction: A Primary Study of Carrefour-Lebanon

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Abstract The objective of this study is to analyze how applying the marketing mix elements (specifically the 4Ps: Product, Price, Promotion, and Place) affects customer satisfaction at Carrefour chains in Lebanon. The marketing mix is defined as a cluster of decisions or activities that an organization undertakes to offer value and apply marketable goods in modern business. In retail, these are the four areas through which customers measure value, and at the same time, contribute to their level of satisfaction. Customer satisfaction is explained as the extent to which the fulfillment of consumers' set expectations regarding a given product's quality, service delivery, and general shopping experience aligns with their satisfaction. This research analysis was conducted with a specific quantitatively defined cross-sectional design framework and used a deductive logic approach to look into the marketing strategy and customer satisfaction based on correlation. A structured questionnaire was given to a convenient sample of 120 customers at the Carrefour City Center branch in Beirut. Through the instrument, customer satisfaction (the dependent variable) was measured against the four core components of the marketing mix (the independent variables). Statistical analysis showed there is a positive and significant relationship between the marketing mix implementation and customer satisfaction. This proves the effectiveness of the 4Ps in improving retail experience and customer loyalty in Carrefour Lebanon.

Keywords Marketing Mix, Price, Product, Place, Promotion, Customer Satisfaction

1. Introduction

Mainly referred to as the 4Ps (Product, Price, Place, and Promotion), the marketing mix is the most essential component of the latest methods in marketing and strategy development [1]. Its components are vital towards brand perception, influencing their purchasing likelihood. Obtaining the ideal marketing mix means customer needs are met, the correct price is set, advertisement done properly and access to the product is strategically placed [2].

Product: Design to meet the needs of a consumer by either physically offering them an item, or services.

Price: The amount that the consumers wish to provide in relation to the perceived value and the affordability price range [3].

Promotion: All forms of communication that solicit the purchase of goods or services aimed at capturing and persuading specific groups of audiences [4].

Place: The various routes of distribution, the actual and virtual locations where you can find the product.

These factors are related and when properly coordinated are beneficial to the organization. Without proper coordination, customers may be annoyed with and abandon the products entirely, which causes problems for the business in the market. Therefore, the marketing mix must be applied with sufficient diverse research and precision [1].

In corporate parlance, customer satisfaction has often been defined as a metric that embodies overall performance by calculating how well a firm's products and services meet or exceed predefined customer expectations [4]. It has a quantifiable impact on customer loyalty, repeat purchases, and overall reputation of the brand. In the modern market, satisfaction is not only limited to the quality of the product but also includes service, support, psychological factors, and emotions [5].

Majid Al Futtaim Group's Carrefour Lebanon has been operating under the hypermarket model since 1995 and is well regarded for its product assortment, low prices, and customer-oriented services. It is important for Carrefour to evaluate its marketing strategies, especially the 4Ps, as they directly affect brand loyalty and customer satisfaction if they intend to remain competitive in Lebanon's retail market [1]; [6].

2. Research Problem

A paradox exists where there is a focused shift to

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customer-centered marketing on a global scale, yet Lebanese companies—especially family-owned—continue to operate with a lack of marketing mix framework. These businesses are not aware or do not have adequate resources to sophisticated marketing techniques and strategies, which prevents them from optimally addressing customer satisfaction [7].

In such a situation, Carrefour Lebanon, which operates in a retail market full of competitors, has to implement a complete marketing mix centered around the customer. Strategy based on Kotler & Keller (2006)'s 4Ps is needed because of issues with inadequate consumer understanding, weak promotional activities, ineffective product quality management, and lacking quality control. The purpose of this research is to investigate whether the systematic use of marketing mix elements can improve customer satisfaction.

3. Research Objectives

This study's goal is to examine how the constituents of the marketing mix, which are product, price, promotion, and place, affect customer satisfaction toward Carrefour Lebanon. It aims to analyze these factors and their impact on the customers' brand perception, buying decisions, emotional satisfaction, and overall brand loyalty towards Carrefour.

The sub-objectives of the research are:

1. To assess the individual effect of each marketing mix element (product, price, promotion, and place) on customer satisfaction.
2. To determine which marketing mix element has the strongest influence on customer satisfaction among Carrefour customers.
3. To analyze how the coordinated implementation of the 4Ps contributes to enhancing customer satisfaction.
4. To provide data-driven recommendations for improving Carrefour Lebanon's marketing strategies based on customer perceptions.
5. To contribute to the academic understanding of marketing mix applications in the Lebanese retail sector.

4. Research Significance

This study holds scholarly and practical importance. From the academic angle, this study expands the marketing mix's use in Lebanon and other less studied areas by augmenting available literature, focusing specifically on the retail industry. It provides an understanding of the relationship between marketing components, customer satisfaction and brand loyalty perception, and overall perception. For practitioners, the study is of great importance to retail managers and marketers for revealing the constituents of the marketing mix that affect customer satisfaction the most. These results can help increase the enhancement of marketing plans tailored to consumers' needs, thus fostering brand loyalty, and improving business performance [1].

5. Literature Review

5.1. Introduction to the Marketing Mix

Borden (1953) first introduced the "marketing mix" concept [8], later on McCarthy (1960) popularized it by creating the 4Ps: Product, Price, Promotion, and Place [9]. This model assists marketers in strategically planning and assessing marketing activities across various contexts [1]. These four variables are factors that a company can manipulate in order to change the purchasing behavior of customers to gain competitive edge.

The ever-changing business environment alongside the incessant competition between firms in a market leads to a shift in consumer needs, however the fundamental purpose of the marketing mix remains: The need to help businesses align their products/services with the customers and the market demands. First, marketers select a target market, after which they develop specific strategies through the 4Ps to enhance value creation and communication [2].

5.2. Marketing Strategy and Its Role

The provided excerpt highlights the concepts, strategies and patterns set out by an organization in conducting business as well as defining marketing opportunities. For Walker and Larreche (2013), a marketing strategy means "the fundamental pattern of current and planned objectives, resource mobilization, and market interaction" [10]. Stemming from branding, packaging, pricing, and advertising, Olson and Peter (2010) note that marketing strategies seek to influence consumer behavior [11]. According to Kotler (2011), the marketing mix serves as the primary instrument for achieving strategic marketing objectives in any given market.

5.3. Theoretical Frameworks

The connection between the marketing mix and customer satisfaction has received considerable attention through a number of established theories and models. These frameworks are designed to help the marketers understand the consumer approach to marketing stimuli and attitude formation towards the brand.

1. Theory of Reasoned Action (TRA)

Suggested by Ajzen and Fishbein in 1980, The Theory of Reasoned Action places that intent to behavior is preceded by an attitude towards a certain product and the impact of some social influence. Each of these elements from the marketing mix such as product quality, pricing strategy, and promotional content have an impact on attitude, behavior, satisfaction and purchase [12].

2. Expectancy-Disconfirmation Theory

This model (sometimes referred to as the Oliver model) has one of the broadest applications in the research of consumer satisfaction as described by Oliver in 1980. It states that satisfaction only occurs when there is some level of performance that meets or exceeds the expectation set prior by the individual. If all parts of a marketing mix, such

as value-for-money pricing along with good promotions, exceed customer expectations, positive disconfirmation occurs [13].

3. The Service Quality Model (SERVQUAL)

The model developed by Parasuraman, Zeithaml, and Berry in 1988, although focused on the service industry, is highly applicable to the retail industry. SERVQUAL incorporates five specific dimensions: tangibles, reliability, responsiveness, assurance, and empathy which are heavily influenced by the 4Ps (Promotional mix). For instance, tangibles concern product presentation and atmosphere of the store, while assurance and responsiveness pertain to promotional strategies [14].

4. The Customer Perceived Value (CPV) Model

In his 1988, Zeithaml cited that perceived value is a consumer's holistic view of the usefulness of a good and balancing what is received against what is given. In this context, the 4Ps have an undeniable direct contribution to the equation where price and quality are considered sacrifices and benefits respectively, while place and promotion increase perceived trust and convenience [15].

5. The Stimulus-Organism-Response (S-O-R) Model

This model was first proposed by Mehrabian and Russell (1974) as a way to explain how the marketing mix's stimuli impacts an organism's internal state and emotion, which triggers a response of purchase, satisfaction, and loyalty. For example, promotional advertisement (stimulus) may trigger emotional attachment (organism) leading to purchase behavior (response) repeatedly [16].

5.4. Components of the Marketing Mix

Product

According to Kotler (2011), a product comprises features, design, branding, and services intended to meet a customer's requirement. It is the central offering upon which all other marketing activities are centered. Products have life cycles: introduction, growth, maturity, and decline, all of which advance requires different marketing strategies. A product's success is determined by aligning to customer expectation on level of satisfaction, innovation and usability [17].

Price

According to Kotler, (2011) price is the perceived worth of a product, and is therefore the monetary value to derive from losing for a utility. As cited by Umar (2011) "price is the amount of value that consumers exchange for the benefit of owning or using a product or service." Consumers associate price with quality and market satisfaction as deemed fit [4]. Harsono, 2016 identifies discount and premium pricing as methods that impact buyer behavior the most.

Place (Distribution)

The aim of these channels is to describe how goods are delivered to the consumer. Proper allocation methods guarantee that the product is available when and where it is needed [2]. In retail, consumer satisfaction and foot traffic are directly correlated to convenience and location. Mohammadi

& Sohrabi (2018) said that Carrefour's physical stores, as well as their e-commerce platforms demonstrate a hybrid distribution model that enhances market reach.

Promotion

Promotion includes all communication tools used to inform, persuade, and remind customers. Kotler (2011) categorizes promotional activities into advertising, personal selling, sales promotion, public relations, and direct marketing. Integrated marketing communications ensure a consistent brand message and reinforce consumer trust. Studies have shown that targeted promotions increase customer satisfaction and purchasing frequency [18].

Customer Satisfaction

Customer satisfaction is commonly defined as a consumer's post-purchase evaluation of a product or service in relation to expectations [13]; [4]. Satisfied customers are more likely to become repeat buyers and brand advocates. According to Mowen and Minor (2010), satisfaction represents "the overall attitude shown by consumers toward goods or services after consumption." High satisfaction levels enhance word-of-mouth referrals, brand loyalty, and profitability [19].

5.5. Empirical Studies on Marketing Mix and Satisfaction

Within the last two decades, a multitude of researchers across different industries, cultures, and customer demographics have studied the connection between marketing mix strategies and customer satisfaction. This part summarizes important empirical studies that are pertinent to Carrefour Lebanon for the proposed research study.

1. Rafiq and Ahmed (1995)

Rafiq and Ahmed, in a pioneering study, scrutinized the applicability of the conventional 4Ps model to the UK banking sector. They noted that while product, price, promotion, and place were still valid, people, process, and physical evidence were indispensable components for discerning satisfaction in service sectors. This work later helped to enhance the model into the 7Ps of marketing for services. Their findings stressed that customer satisfaction is a composite phenomenon resulting from the influence of both concrete (product, place) and abstract (promotion, people) elements [20].

2. El Sayed (2012)

El Sayed evaluated the application of the 4Ps in the marketing strategies of Lebanese small and medium-sized enterprises (SMEs) in a field study. The study discovered that most Lebanese firms did not have a proper marketing plan which resulted in them not fully utilizing important mix elements like promotion and distribution. Yet, those businesses that practiced at least three of the 4Ps experienced greater customer satisfaction, suggesting even in developing markets, the model has some utility [21].

3. Saghier and Nathan (2013)

For Saghier and Nathan's case study in Egypt's retail banking sector, they examined how each of the marketing mix elements impacted customer satisfaction C. Their study

showed that the most significant predictors of satisfaction were price and accessibility (place), followed by product and promotional communications. The study pointed out the facilitative role of convenience and trust for sustaining customer relationships and retention over time, especially in the context of financial services [22].

4. Sharma and Lambert (2013)

This study sought to compare customer reaction related to various elements of the marketing mix in the US and India. The researchers concluded that the cultural setting greatly influenced customer attention: American customers were more responsive to promotional activities and spatial arrangements (place) in retail stores, whereas Indian customers valued price and product features more. These findings strengthen the argument for strategies tailored to specific markets and highlight the necessity to adjust the 4Ps in accordance with consumer trends and behavior [23].

5. Al-Debi, H., & Al-Waely, D. F. J. (2015)

Surveying the Jordanian insurance sector, Al-Debi and Al-Waely (2015) concluded that the greatest factors affecting customer satisfaction centered around product tailoring and promotional clarity as part of the 4Ps. The study advocated for a responsive service model alongside clearly defined communication frameworks, particularly in strained competitive scenarios. In the context of this study, place and price were found to have moderate effects that did not reach statistical significance, pointing towards the more intangible characteristic of the industry [24].

6. Harsono (2016)

Harsono conducted a study on customer loyalty toward Toyota Avanza in Surabaya, Indonesia, with a sample of 124 car owners. Using multiple regression analysis, the study found that while the overall 4Ps model had a significant impact, only the product variable had a direct, statistically significant influence on customer loyalty. The author recommended that car companies focus on maintaining high product quality while using the other elements (price, place, promotion) to support brand positioning [6].

7. Alipour et al. (2017)

This study examined the impact of the marketing mix strategies in the Iranian sports goods industry. It found that promotional strategies and the product itself had the most effect on customer satisfaction, particularly when brands used emotional marketing and lifestyle marketing. Price and place also contributed to satisfaction, but were not as significant. The study noted that customers in sports retail markets look for not only brand image, but also an emotional bond in addition to functional value [25].

8. Mohammadi and Sohrabi (2018)

Mohammadi and Sohrabi explored the online retail context and sought to understand the indirect impact of the marketing mix elements on customer satisfaction through the mediating role of e-CRM. Based on the data from 384 participants, the study concluded that the elements of the marketing mix did not directly influence satisfaction, but rather affected the effectiveness of e-CRM, which subsequently enhanced customer satisfaction. This highlights the need for more attention on digital channels when implementing marketing strategies [7].

9. Sudaria et al. (2019)

The study looked into the fast-food sector in the Philippines and found that all four Ps had a positive and significant impact on customer satisfaction. As in other studies, product quality and promotional activities were the most important. The study suggested the use of digital promotion, in addition to traditional marketing, to improve customer experience and brand perception.

In any case, the literature review shows that marketing mix is related to customer satisfaction, and customer satisfaction is confirmed. Outcomes, however, differ by sector and region. For example, in the tangible product sectors, such as automotive and fast food, there is usually a focus on products and promotion. In serviced or digital sectors, focus shifts to place and CRM. The 4Ps is generally useful in many contexts, but with respect to the Lebanese retail market, there is less attention given especially to large retailers like Carrefour. This study intends to fill this gap with data from Carrefour Lebanon by applying a systematic study of the 4Ps to customer satisfaction metrics [18].

6. Hypotheses

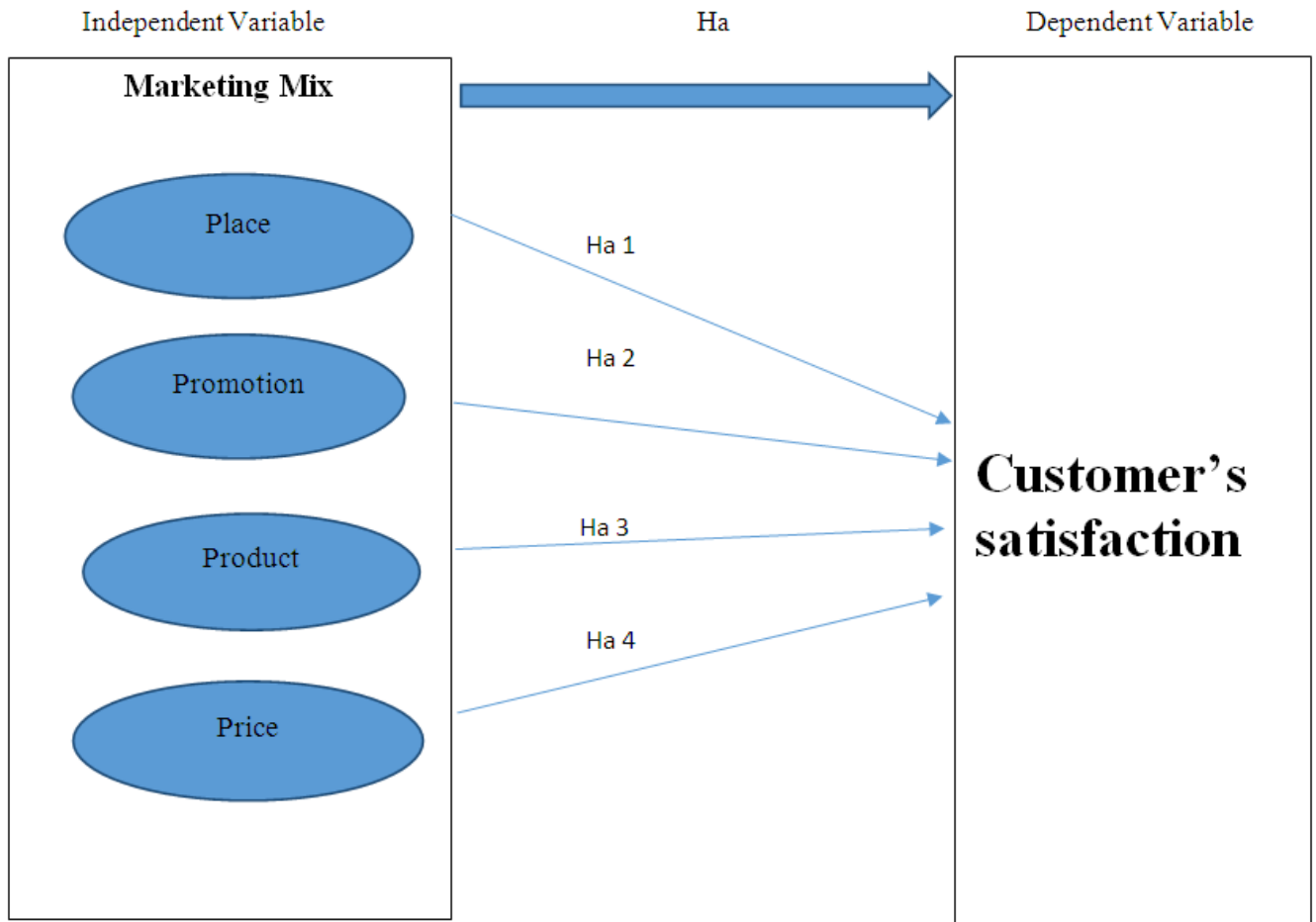
Based on the research problem and its questions, the following hypotheses are tested:

Main premise:

Ha: There is a significant positive relationship between the marketing mix and customer satisfaction.

As for the sub-hypotheses:

1. Ha1: Place has a positive and significant effect on customer satisfaction.
2. Ha2: Promotion has a positive and significant effect on customer satisfaction.
3. Ha3: Product has a positive and significant effect on customer satisfaction.
4. Ha4: Price has a positive and significant effect on customer satisfaction.



Source: Prepared by the researcher according to previous studies.

Figure 1. Conceptual Framework

Theoretical side

In this case, a quantitative cross-sectional study was used to explore the relationship within the marketing mix and customer satisfaction at Carrefour Lebanon. In this scenario, the quantitative approach was selected because it uses structured data that can be measured to either prove or disprove a hypothesis [26]. A cross-sectional approach based on data collected at a single time was suitable for measuring customer perceptions regarding a particular retail outlet.

Taking into consideration the scope of this study, it was guided by a deductive approach where a theory was set in advance, in this case, a framework was built on the 4Ps (Product, Price, Promotion, Place) and their relationship to customer satisfaction, then proceeded to the data collection phase to either affirm or negate the set hypothesis through empirical scrutiny.

The marketing mix as a set of four components (4Ps) framework serves as the independent variable while customer satisfaction serves as the dependent. This model relies on Expectancy–Disconfirmation Theory [13], which argues that satisfaction is the outcome of some a customer's expectation versus the reality of what actually has been provided, coupled

with the Stimulus-Organism-Response (SOR) Model [16] which accounts for the marketing stimuli like pricing and promotion and their impact on consumer feelings and reactions.

The proposed model examines the ways that each part of the marketing mix contributes to customer satisfaction while also analyzing if some elements are more predictive than others.

The field side: After acquiring all required information from the sample using a structured questionnaire, the responses were coded and analyzed through the Statistical Package for the Social Sciences (SPSS) software. The study was supported by several statistical methods to interpret and validate the findings as follow:

1. Cronbach's Alpha Coefficient: This was utilized to evaluate the reliability of the scale measuring customer satisfaction in relation to the marketing mix and its various dimensions.
2. Descriptive Statistics: This was used to measure and outline the sample's characteristics of the study via their means and standard deviations.
3. Inferential Statistical Tests: These contained correlation

analysis as well as multiple linear regression tests which were used for verifying the research hypotheses to determine the strength and direction of relations between any of the independent and dependent variables.

These methods helped significantly in estimating how each element of the marketing mix directly affected customer satisfaction within the retail context of Carrefour Lebanon.

The sample population in this case study included Carrefour Lebanon customers. In May 2023, a survey was conducted at the City Center branch in Beirut and 120 respondents were conveniently sampled. With this sample, the researchers felt comfortable performing preliminary testing on the marketing mix impacts within a confined region.

Study tool:

The primary instrument for data collection in this study was a structured, self-administered questionnaire, designed specifically to measure the impact of the marketing mix on customer satisfaction at Carrefour Lebanon. The questionnaire was divided into three main sections:

Section 1: Demographic Information

This part included five items capturing general respondent data: gender, age, educational level, occupation, and marital status.

Section 2: Customer Satisfaction

This section included seven items aimed at assessing various dimensions of customer satisfaction, such as overall satisfaction with Carrefour, likelihood of repeat purchase, and intention to recommend the store to others.

Section 3: Marketing Mix Elements

This section comprised sixteen items designed to evaluate respondents' perceptions of Carrefour's marketing strategy, with an equal focus on each of the four core elements of the marketing mix. Four questions assessed the place dimension, addressing accessibility, store layout, convenience, and physical presence. Another four questions targeted promotion, including the effectiveness of advertising, availability of promotional offers, and clarity of communication. The product dimension was explored through items related to product quality, variety, packaging, and availability. Finally, the price component included questions on affordability, price fairness, and value for money. These items collectively aimed to measure how each element contributes to shaping the overall customer experience and satisfaction.

All items in the questionnaire were measured using a five-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), allowing for the quantification of respondent perceptions and enabling meaningful statistical analysis.

Study Determinants:

This study is limited to one Carrefour branch located in Beirut, Lebanon, and uses a relatively small convenience sample of 120 participants. Additionally, the availability of academic literature on marketing mix implementation in the Lebanese retail context is limited, which may constrain the depth of comparative analysis.

7. Statistical Analysis and Hypothesis Testing

First: The validity and reliability of the tool:

To assess the reliability of the study instrument, Cronbach's Alpha coefficient was used to examine the internal consistency of the questionnaire. The results showed that all dimensions exceeded the acceptable threshold of 0.60, with values over 0.80, indicating high reliability and internal coherence among the items measuring both the independent variables (4Ps) and the dependent variable (customer satisfaction).

Second: The study sample's characteristics

A total of 120 participants took part in the survey, all of whom were customers at Carrefour's City Center branch in Beirut. The sample's demographic profile is characterized by diversity in terms of gender, age, educational attainment, occupational background, and marital status.

Gender:

The gender distribution was relatively balanced, with 62.5% of respondents identifying as female and 37.5% as male. This slight female majority may reflect the demographics of typical retail shoppers in Lebanon, where women often play a central role in household purchasing decisions. It also aligns with prior studies in the retail sector, where women have shown higher levels of engagement in evaluating pricing, quality, and promotional offers.

Age:

The majority of participants (38.7%) were in the 26–35 age group, followed by 25% aged 36–45. This indicates that most respondents were within the young to middle-aged adult bracket, a group known for its active purchasing power and high brand awareness. These age groups are also more likely to respond to modern marketing strategies, such as digital promotions and loyalty programs, which may influence their satisfaction levels.

Educational Level

Over half of the sample (53.7%) held a university degree, while 25% completed only high school, and 21.3% held graduate-level qualifications. This educational distribution suggests that the majority of respondents were relatively well-educated, potentially making them more discerning consumers. Their higher level of education may also enhance their awareness of pricing fairness, product quality, and promotional clarity—factors that directly relate to satisfaction.

Occupational Status

Regarding occupational status, nearly half of the participants (47.5%) were employed, and 16.2% were business owners. The remaining participants included students (17.5%) and unemployed individuals (18.8%). The dominance of working adults suggests that the respondents have regular disposable income, making them more experienced and critical in evaluating retail services. Students, on the other hand, may be more price-sensitive, while unemployed individuals may prioritize affordability and promotions.

Marital Status

A significant proportion of respondents (68.7%) were married, with 25% single, and only 6.3% reporting that they were divorced or widowed. Married individuals may have broader shopping responsibilities and are likely to assess Carrefour based on family-oriented criteria such as value-for-money, product variety, and store convenience. In contrast, single respondents may focus more on pricing, promotional appeal, or personal preferences in product selection.

The demographic characteristics of the sample show a broad representation of Carrefour's target customer base, with dominance from educated, working-age, married individuals. These characteristics reinforce the reliability of the data, as they reflect a group that is actively engaged in purchasing and likely to be responsive to variations in the marketing mix.

Descriptive Statistics for Research Variables

To assess the general trends in participant responses, descriptive statistics were calculated for each of the study's main variables using a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The analysis aimed to capture the central tendency and dispersion of perceptions related to the four marketing mix elements (product, price, promotion, place) and customer satisfaction.

The results show that the highest mean score was recorded for Customer Satisfaction ($M = 4.25$, $SD = 0.47$). This indicates a strong level of agreement among respondents regarding their overall satisfaction, loyalty, and likelihood of recommending Carrefour to others. This high average underscores the effectiveness of Carrefour's marketing efforts in fostering positive consumer experiences.

Among the marketing mix elements, Place achieved the highest mean ($M = 4.31$, $SD = 0.51$), reflecting the importance customers assign to store accessibility, layout, and convenience. This finding aligns with existing literature which suggests that retail location and physical environment play a significant role in shaping customer satisfaction.

Product and Promotion followed closely with mean scores of 4.16 ($SD = 0.49$) and 4.12 ($SD = 0.48$) respectively. These values suggest that consumers are generally satisfied with the quality, variety, and packaging of Carrefour's products, as well as with its promotional efforts, although there may be room for enhancement in how promotional activities are communicated or perceived.

Price had the lowest mean among the four marketing mix elements ($M = 4.02$, $SD = 0.53$), although still relatively high. This suggests that while customers view Carrefour's pricing as fair, this element may be more sensitive to individual expectations and market comparisons.

Importantly, all standard deviation values were below 0.60, indicating low variability and high consistency in participant responses across all dimensions. This reinforces the reliability of the data and suggests that customer perceptions were generally aligned across the sample.

Table 1 presents the summary statistics in terms of the average and the standard deviation of each dimension.

Table 1. Descriptive Statistics (Mean & Standard Deviation)

Dimension	Mean	Standard Deviation
Place	4.31	0.51
Promotion	4.12	0.48
Product	4.16	0.49
Price	4.02	0.53
Customer Satisfaction	4.25	0.47

Source: according to SPSS outputs.

Normality Test:

To assess whether the study variables follow a normal distribution, both Shapiro-Wilk and Kolmogorov-Smirnov (K-S) tests were conducted on the primary variables: Place, Promotion, Product, Price, and Customer Satisfaction. These tests were performed using data based on the means and standard deviations reported from the Likert-scale questionnaire responses ($N = 120$).

The Shapiro-Wilk test results indicated that two variables—Place and Product—had p-values less than 0.05, suggesting slight deviations from normality. However, the remaining variables (Promotion, Price, and Customer Satisfaction) showed p-values greater than 0.05, indicating normal distribution.

Table 2. Normality Test Results (Shapiro-Wilk)

Variable	W Statistic	p-value
Place	0.961554	0.016744
Promotion	0.988856	0.721476
Product	0.959502	0.012542
Price	0.993463	0.960451
Customer Satisfaction	0.981376	0.295248

Source: according to SPSS outputs.

To further validate the distribution, the Kolmogorov-Smirnov test was applied, which revealed that all variables had p-values well above 0.05, confirming that the distributions do not significantly deviate from normality.

Table 3. Normality Test Results (Kolmogorov-Smirnov)

Variable	KS Statistic	p-value
Place	0.070537	0.794522
Promotion	0.054976	0.958049
Product	0.116174	0.213198
Price	0.041869	0.99799
Customer Satisfaction	0.089186	0.518976

Source: according to SPSS outputs.

Additionally, visual assessments using histograms and Q-Q plots supported these findings. Most variables exhibited near-normal distributions, with minor skewness observed in Place and Product. Overall, the results suggest that parametric statistical techniques such as Pearson correlation and multiple regression are appropriate for further analysis.

Testing the hypotheses of the study:

This section presents the analysis of the relationship

between the four elements of the marketing mix (independent variables) and customer satisfaction (dependent variable), using Pearson's correlation coefficient (r). This test was selected to measure the strength and direction of the linear relationship between each variable and customer satisfaction.

The main hypothesis of the study posits:

“There is a positive and statistically significant relationship between the marketing mix—across its dimensions—and customer satisfaction at Carrefour Lebanon.”

The results are displayed in Table 4.

Table 4. Correlation between Marketing Mix Dimensions and Customer Satisfaction

Independent Variable	Pearson Correlation (r)	Significance (p-value)
Place	0.758	0.001
Promotion	0.673	0.001
Product	0.686	0.001
Price	0.745	0.001
Marketing Mix (4Ps)	0.759	0.001

Source: according to SPSS outputs.

Interpretation of Hypotheses Based on The Results of Pearson Correlation Analysis

Ha1: Place has a significant positive effect on customer satisfaction.

With a correlation coefficient of $r = 0.758$ ($p = 0.001$), the results show a strong and statistically significant relationship between place and customer satisfaction. This indicates that the store's location, accessibility, and layout play a crucial role in shaping positive perceptions among customers at Carrefour Lebanon.

Ha2: Promotion has a significant positive effect on customer satisfaction.

The correlation between promotion and satisfaction is $r = 0.673$ ($p = 0.001$), which reflects a moderately strong and statistically significant relationship. This suggests that advertising, promotional offers, and loyalty programs contribute positively to enhancing customer satisfaction.

Ha3: Product has a significant positive effect on customer satisfaction.

With a correlation value of $r = 0.686$ ($p = 0.001$), product quality, variety, and packaging are found to have a strong and significant effect on how customers evaluate their shopping experience. This supports the hypothesis that product-related decisions are central to customer contentment.

Ha4: Price has a significant positive effect on customer satisfaction.

The correlation between price and satisfaction is $r = 0.745$ ($p = 0.001$), confirming a strong and statistically significant relationship. This implies that fair pricing and perceived value-for-money are important drivers of satisfaction for Carrefour's customers.

All four sub-hypotheses (Ha1–Ha4) were confirmed based on the strength and statistical significance of the Pearson correlation coefficients. The findings support the study's main hypothesis, confirming that each element of the marketing mix is positively and significantly correlated with customer satisfaction.

These results are aligned with prior studies such as Mohammadi & Sohrabi (2018) and Sudaria et al. (2019), which emphasized the role of coordinated marketing strategies in enhancing customer experience. In the case of Carrefour Lebanon, particular attention should be paid to “Place” and “Price,” which showed the highest levels of influence.

Multiple Regression Analysis

To further evaluate the impact of the four dimensions of the marketing mix on customer satisfaction, a multiple linear regression analysis was conducted. This statistical technique allows for the simultaneous evaluation of both the combined and individual contributions of the independent variables—Product, Price, Promotion, and Place—in predicting the dependent variable, Customer Satisfaction.

Table 5. Model Summary

R	R ²	Adjusted R ²	Std. Error of Estimate
0.842	0.710	0.693	0.388

Source: according to SPSS outputs.

The model yielded a coefficient of determination (R^2) of 0.710, meaning that 71% of the variance in customer satisfaction can be explained by the four marketing mix variables. The adjusted R^2 value of 0.693 confirms the strength and reliability of the model, taking into account the number of predictors used.

Table 6. ANOVA

Source	Sum of Squares	df	Mean Square	F	Sig. (p)
Regression	49.53	4	12.38	32.36	0.000
Residual	20.25	115	0.27		
Total	69.78	119			

Source: according to SPSS outputs.

The ANOVA test shows that the regression model is statistically significant at $p < 0.001$, with an F-value of 32.36. This means that the overall model provides a valid prediction of customer satisfaction based on the marketing mix components.

Regression analysis: A study of the impact of Marketing Mix dimensions on Customer Satisfaction.

To further evaluate the influence of the four marketing mix dimensions on customer satisfaction, a multiple regression analysis was conducted. This analysis aimed to determine the extent to which each component—Product, Price, Promotion, and Place—predicts changes in consumer satisfaction at Carrefour Lebanon. The regression model also tested the overall significance of the four variables combined.

The regression model yielded a multiple correlation coefficient $R = 0.842$, indicating a strong relationship between the independent variables and the dependent variable. The coefficient of determination ($R^2 = 0.710$) shows that approximately 71% of the variation in customer satisfaction can be explained by the four marketing mix variables. Furthermore, the adjusted $R^2 = 0.693$ confirms the model's robustness, accounting for the number of predictors in the analysis. This high explanatory power underscores the practical impact of marketing mix strategies on customer perceptions.

In addition, the ANOVA results provided further confirmation of the model's validity. The F-test yielded a statistically significant result ($F = 32.36$, $p < 0.001$), which affirms that the regression equation as a whole is a good fit for the data and that the combination of marketing mix elements significantly contributes to predicting customer satisfaction.

To explore the individual contribution of each marketing mix dimension, the standardized and unstandardized coefficients were analyzed. Among all predictors, Place emerged as the most powerful influencer with a beta coefficient of 0.39 ($B = 0.41$, $p = 0.000$). This indicates that customers place high value on accessibility, physical convenience, and in-store experience, all of which directly influence how satisfied they feel with Carrefour.

Price was the second most significant factor, with a beta of 0.35 ($B = 0.34$, $p = 0.002$). This finding reflects customers' sensitivity to price fairness and their perception of value-for-money. In a competitive retail environment like Lebanon, customers clearly associate pricing strategies with overall satisfaction.

Promotion also played a meaningful role in the regression model, contributing a beta of 0.32 ($B = 0.31$, $p = 0.001$). The result suggests that Carrefour's advertising, offers, and loyalty programs are effective in reinforcing positive customer attitudes and encouraging repeat visits.

While Product had the smallest standardized beta coefficient ($\beta = 0.24$, $B = 0.19$, $p = 0.004$), it still contributed significantly to the prediction of satisfaction. This implies that although product quality and variety are appreciated by customers, they are enhanced or diminished by the presence—or absence—of strong pricing, promotional, and placement strategies.

Taken together, the regression analysis supports the study's main hypothesis. All four dimensions of the marketing mix had a statistically significant and positive effect on customer satisfaction, with Place and Price standing out as the most impactful predictors. These findings reinforce the strategic importance of delivering a comprehensive and well-balanced marketing approach to enhance customer experience and brand loyalty in the Lebanese retail sector.

Table 7. Coefficients

Independent Variable	B (Unstandardized)	Standard Error	Beta (Standardized)	t-value	p-value
Product	0.19	0.06	0.24	3.17	0.004
Promotion	0.31	0.07	0.32	4.42	0.001
Place	0.41	0.06	0.39	5.84	0.000
Price	0.34	0.08	0.35	4.25	0.002

Source: according to SPSS outputs.

Regression Equation (Model Summary)

Based on the unstandardized coefficients extracted from the regression analysis, the linear regression model predicting customer satisfaction (Y) as a function of the four marketing mix elements is expressed as follows:

$$Y = 0.19(\text{Product}) + 0.31(\text{Promotion}) + 0.41(\text{Place}) + 0.34(\text{Price})$$

Where:

- Y represents the predicted Customer Satisfaction score.
- The coefficients indicate the contribution of each marketing mix variable to the predicted value of Y, assuming all other variables are held constant.

This equation shows that:

- A one-unit increase in customer perception of Place is associated with a 0.41-point increase in overall satisfaction.
- Similarly, increases in Price (0.34), Promotion (0.31), and Product (0.19) also contribute positively, though to varying degrees.

The equation confirms that all components of the marketing mix positively influence customer satisfaction, with Place

having the strongest predictive power, followed by Price and Promotion.

8. Conclusions and Recommendations

The objective of this study was to determine the impact of the marketing mix elements – Product, Price, Promotion, and Place – on customer satisfaction in the Carrefour retail store in Lebanon. The analysis conducted has proven that all four components significantly impact customer satisfaction and this impact is positive. According to the regression analysis results, the percentage of customer satisfaction is significantly impacted by the marketing mix variables (Adjusted $R^2 = 0.693$), indicating a strong customer satisfaction predictive model.

Among these, Place ($\beta = 0.39$, $p < 0.001$) was noted to be the most significant, demonstrating the role of store placement regarding accessibility, customer traffic efficiency, and strategic convenience. Price came in next ($\beta = 0.35$, $p = 0.002$) which corroborated the impact of recessionary pricing powers even in a stressful economy like Lebanon's. Promotion ($\beta = 0.32$, $p = 0.001$) also registered notable impacts, proving the influence

that positive publicity powered by strategic communication campaigns creates and shapes customers' perceptions. While Product was last with the lowest coefficient ($\beta = 0.24$, $p = 0.004$), its impact on satisfaction measurement was still noteworthy, confirming that appreciation of product quality and variety remains pertinent, alongside other experiential factors.

These results correspond with the international and local literature and accentuate that satisfaction does not come from a singular approach but rather the combined application of diverse marketing tactics. Retailers like Carrefour competent in integrating these components harmoniously tend to enjoy strong brand allegiance, enhanced customer retention, and a proprietary sustained edge over competitors. This research adds value to the academic and in-depth understanding of the subject, as well as to its practical implications by showcasing how the 4Ps model can be leveraged in the context of Lebanese retail.

9. The Study Recommends the Following

Based on the findings, it is recommended that Carrefour Lebanon continues to invest in store experience and accessibility, as these emerged as the most influential factors in driving satisfaction. Pricing strategies should also remain a strategic priority, ensuring transparency and value. Promotional activities should be more personalized and technology-driven to reach and engage customers more effectively.

For future research, scholars are encouraged to expand the sample size and geographical coverage across multiple Lebanese cities. It is also advised to incorporate additional marketing mix dimensions (such as People, Process, and Physical Evidence), and to consider mixed-method approaches for a more comprehensive understanding of consumer behavior.

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