

CUSTOMER SATISFACTION IN THE COFFEE SHOP BUSINESS: THE INTERPLAY OF PRODUCT AND SERVICE QUALITY

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Abstract: Customer satisfaction in the coffee shop industry is influenced by both product quality and service quality, yet limited studies have quantitatively examined their simultaneous impact in emerging markets. This study aims to investigate the effect of product quality and service quality on customer satisfaction in coffee shops. A quantitative approach was employed, with data collected from 96 regular coffee shop customers through structured questionnaires. Descriptive statistics show that respondents perceive product and service quality at moderate to high levels, reflecting a generally positive experience. Classical assumption tests—including normality, heteroscedasticity, and multicollinearity confirmed that the data met the requirements for multiple linear regression analysis. Regression results reveal that product quality ($\beta = 0.353$, $t = 3.202$, $p = 0.002$) and service quality ($\beta = 0.525$, $t = 4.760$, $p < 0.001$) significantly enhance customer satisfaction. The coefficient of determination ($R^2 = 0.724$) indicates that 72.4% of customer satisfaction variance is explained by these two factors, while simultaneous F-test results confirm their combined effect ($F = 122.074$, $p < 0.001$). The study concludes that both superior products and high-quality service are critical drivers of customer satisfaction in coffee shops.

Keywords: Customer Satisfaction, Product Quality, Service Quality, Coffee Shops, Multiple Linear Regression

1. Introduction

The changing lifestyle of modern society has driven significant growth in the food and beverage industry, particularly in the coffee shop business, over the past decade. Coffee shops are no longer merely places to consume beverages; they have transformed into social spaces, work and study venues, as well as leisure destinations. This phenomenon is strongly influenced by the rise of coffee culture among young people and young professionals, making coffee shops an essential part of urban lifestyles (Susanty & Kenny, 2015; Ratnasari et al., 2020).

In the service industry, customer satisfaction is a key indicator of business success. Kotler and Keller (2016) define it as the evaluation consumers make regarding their overall consumption experience, especially the extent to which the actual performance of a product or service meets or exceeds their prior expectations. In the coffee shop sector, two primary factors strongly influence customer satisfaction: product quality and service quality. Product quality encompasses characteristics such as taste, aroma, consistency, and presentation, which serve as the main criteria for consumers' assessments (Parasuraman et al., 1988; Ryu & Han, 2010). Meanwhile, service quality includes elements like the friendliness of staff, speed of service, employee competence, and the comfort of the environment, all of which shape customers' perceptions and experiences (Zeithaml et al., 2018).

Previous research has shown that both product and service quality have a significant impact on customer satisfaction in service-oriented businesses, including cafés and restaurants. For example, Ryu, Lee, and Kim (2012) reported that the combination of food quality and service

quality enhances customer satisfaction and loyalty in restaurants. In coffee shops, Handriana and Wisandiko (2017) found that excellent coffee quality paired with attentive service substantially boosts customer satisfaction. Likewise, Ratnasari et al. (2020) highlighted that certain dimensions of service quality, particularly responsiveness and assurance, are crucial for creating positive customer experiences in coffee shop settings.

However, most prior research tends to examine product quality and service quality separately or highlight only one dominant factor. Furthermore, many studies have focused more on restaurants or general food service establishments, while specific research on coffee shops especially within local consumption culture remains relatively limited (Suhartanto et al., 2019; Putra & Yuliati, 2021). Coffee shops, in fact, possess unique characteristics compared to other food and beverage industries: they integrate *product experience* (coffee taste) with *service experience* (service and ambiance), which together construct overall customer satisfaction.

Therefore, this study seeks to address this research gap by comprehensively analyzing the interplay between product quality and service quality on customer satisfaction in the coffee shop business. This research not only strengthens the existing literature on these relationships but also provides new empirical evidence within the rapidly growing Indonesian coffee shop industry, which faces increasingly intense competition. Practically, the findings are expected to serve as valuable input for coffee shop owners in enhancing competitiveness through better management of both product and service quality.

2. Literature Review

Customer Satisfaction

Customer satisfaction is considered a key indicator for assessing the effectiveness of service-based businesses. According to Kotler and Keller (2016), it reflects the level of contentment or dissatisfaction that arises when customers evaluate the performance of a product or service against their prior expectations. In the context of coffee shops, satisfaction is shaped not only by the quality of the coffee itself but also by the overall experience, including the ambiance, staff interactions, and the comfort provided by the environment.

Product Quality

Product quality indicates how well a product fulfills the needs and expectations of consumers. Key aspects of product quality include flavor, aroma, consistency, and visual presentation (Parasuraman et al., 1988; Ryu & Han, 2010). Empirical research has confirmed that higher product quality positively affects customer satisfaction. For example, Handriana and Wisandiko (2017) observed that customers often regard coffee with superior taste and aroma as a primary contributor to their satisfaction in coffee shops.

Service Quality

Service quality is a concept with multiple dimensions, including reliability, responsiveness, assurance, empathy, and physical aspects (Parasuraman et al., 1988; Zeithaml et al., 2018). In the context of coffee shops, perceived service quality is largely influenced by the friendliness, attentiveness, and professionalism of the staff. Studies by Ryu, Lee, and Kim (2012) as well as Putra and Yuliati (2021) indicate that excellent service quality not only improves customer satisfaction but also contributes to building long-term customer loyalty.

Relationship Between Variables

Prior studies emphasize that both product quality and service quality are crucial drivers of customer satisfaction. High-quality products enhance the intrinsic value of consumption, while excellent service creates a favorable emotional and experiential response (Ryu et al., 2012). When both factors are present simultaneously, customer satisfaction tends to increase significantly, which may lead to repeat purchases and loyalty (Suhartanto et al., 2019). However, most previous research tends to investigate these variables separately. This study contributes by examining the interplay of product and service quality together in the context of coffee shops, providing empirical evidence on their joint influence on customer satisfaction.

Hypothesis

Drawing from the theoretical framework and prior research, the study proposes the following hypotheses:

- H1: Product quality positively and significantly influences customer satisfaction in coffee shops.
- H2: Service quality positively and significantly influences customer satisfaction in coffee shops.
- H3: Product quality and service quality together have a positive and significant impact on customer satisfaction in coffee shops.

3. Method

This study employs a quantitative approach using a survey to investigate how product quality and service quality affect customer satisfaction in coffee shops. The study population comprises coffee shop patrons in Bandung, with a purposive sample of 96 respondents selected based on specific criteria: individuals who had visited and purchased from a coffee shop at least once within the past three months and agreed to complete the questionnaire.

The study examines two independent variables is product quality (X1), which includes taste, aroma, consistency, and presentation, and service quality (X2), which covers service speed, friendliness, professionalism, and comfort and one dependent variable, customer satisfaction (Y), measured by the comparison between expectations and experiences, customer loyalty, and overall impression. Data were gathered using a structured questionnaire consisting of closed-ended items measured on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). The questionnaire was first tested for validity and reliability before the analysis.

The data were analyzed using SPSS version 26 with multiple regression techniques. The analysis steps included:

1. Descriptive statistics to summarize respondent characteristics and provide an overview of the variables, including mean, standard deviation, minimum, and maximum values.
2. Classical assumption tests, including:
 - Multicollinearity (VIF < 10 and tolerance > 0.1),
 - Normality (Kolmogorov-Smirnov test or P-P plot),
 - Heteroscedasticity (Glejser test).
3. Multiple regression analysis to examine the influence of X₁ (product quality) and X₂ (service quality) on Y (customer satisfaction), represented by the model:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$$
4. F-test to determine whether the independent variables jointly have a significant effect on customer satisfaction.

5. t-test to evaluate the individual impact of each independent variable.
6. Coefficient of determination (R^2) to measure the proportion of variance in customer satisfaction explained by product quality and service quality.

This method is expected to provide empirical evidence regarding the interaction between product and service quality in shaping customer satisfaction in coffee shops.

4. Result and Discussion

Descriptive Analysis

The descriptive analysis in this research provides an overview of respondents' views regarding product quality, service quality, and their level of customer satisfaction. The research involved 96 respondents. Product quality scores ranged from 12 to 25, with a mean of 18.31 and a standard deviation of 3.47, indicating that respondents generally view product quality as moderate to high, although individual assessments differ. Service quality scores varied between 24 and 48, averaging 36.95 with a standard deviation of 6.11, suggesting that respondents generally perceive service quality as fairly high and responses are relatively consistent. Customer satisfaction scores ranged from 7 to 15, with an average of 11.08 and a standard deviation of 2.33, showing a moderate level of satisfaction among participants. In summary, the descriptive results demonstrate that both product and service quality are positively regarded, yet the variation in responses points to potential areas for further enhancement.

Table 1. Result of Descriptive Statistics

Variable	Minimum	Maksimum	Mean	Standard Deviation
Service Quality	24	48	36.95	6.11
Product Quality	12	25	18.31	3.47
Customer Satisfaction	7	15	11.08	2.33

Source : Processed Data, 2025

Classical Assumption Test

Before regression analysis, it is essential to ensure that the data meet the classical assumptions of multiple linear regression. These assumptions include normality, heteroscedasticity, and the absence of multicollinearity, which guarantee that the regression results are valid, unbiased, and reliable.

Normality Test

The normality of residuals was assessed using the Kolmogorov-Smirnov test and visually examined with a Normal P-P plot. The Kolmogorov-Smirnov test produced a statistic of 0.059 with a p-value of 0.200, exceeding the 0.05 significance level, which indicates that the residuals are normally distributed. Additionally, the Normal P-P plot showed that most points align closely with the diagonal line, supporting the assumption of normality. Satisfying this assumption is important to ensure that the results of t-tests and F-tests are valid and that the confidence intervals for the regression coefficients are reliable.

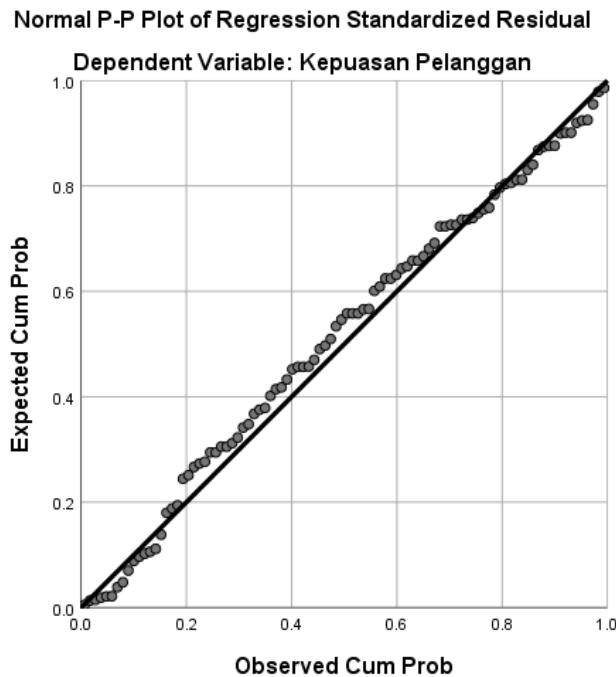


Figure 1: Normal P–P Plot of Regression Standardized Residual
 Source: Processed Data, 2025

Table 2. Result of Normality Test

Unstandardized Residual	Sig.
Kolmogorov Smirnov Test	0.200

Source : Processed Data, 2025

Heteroscedasticity Test

Heteroscedasticity arises when the residuals' variance is not consistent across different values of the independent variables, potentially causing biased and inefficient regression estimates. In this study, the Glejser test was applied to identify heteroscedasticity by regressing the absolute residuals on the independent variables. The results showed that neither service quality ($t = -0.363$, $p = 0.717$) nor product quality ($t = 0.553$, $p = 0.581$) had a significant relationship with the residuals, indicating the absence of heteroscedasticity. Consequently, the regression model meets the assumption of constant variance.

Table 3. Result of Heteroscedasticity Test

Variable	t	Sig.
Service Quality	-0.363	0.717
Product Quality	0.553	0.581

Source : Processed Data, 2025

Multicollinearity Test

Multicollinearity refers to a situation where independent variables are strongly correlated, which can lead to distorted regression coefficients and inflated standard errors. In this research,

multicollinearity was evaluated through the Variance Inflation Factor (VIF) and tolerance metrics. Both product quality and service quality had a VIF of 4.108 and a tolerance value of 0.243, which are within the acceptable limits (VIF < 10 and tolerance > 0.1), indicating that multicollinearity does not pose a problem. This confirms that each independent variable provides distinct information to the model, allowing the regression coefficients to be interpreted with confidence.

Table 4. Result of Multicollinearity Test

Variable	VIF	Tolerance
Service Quality	4.108	0.243
Product Quality	4.108	0.243

Source : Processed Data, 2025

Overall, the classical assumption tests confirm that the regression model meets the necessary criteria for valid statistical inference. Meeting these assumptions strengthens the credibility of subsequent analyses, including multiple linear regression and hypothesis testing.

Multiple Linear Regression Analysis

A multiple linear regression analysis was carried out to examine how service quality and product quality influence customer satisfaction. The resulting regression model is formulated as:

$$Y = -0.665 + 0.200X_1 + 0.237X_2$$

Where:

- Y = Customer Satisfaction
- X₁ = Service Quality
- X₂ = Product Quality

The results indicate that service quality and product quality each exert a positive and significant influence on customer satisfaction. Specifically, a one-unit increase in service quality is associated with a 0.200-unit increase in customer satisfaction, while a one-unit improvement in product quality results in a 0.237-unit rise, holding other factors constant. This demonstrates that both superior products and efficient service are key contributors to improving customer satisfaction in coffee shops.

Table 5. Regression Coefficients

Model	Unstandardized Coefficients	
	B	Std. Error
I		
(Constant)	-0.665	0.778
Service Quality	0.200	0.042
Product Quality	0.237	0.074

Source : Processed Data, 2025

Coefficient of Determination

The coefficient of determination (R²) reflects how much of the variation in the dependent variable can be explained by the independent variables. In this study, the R² value of 0.724

indicates that 72.4% of the variability in customer satisfaction is accounted for by service quality and product quality together, while the remaining 27.6% is influenced by other factors not included in the model, such as pricing, brand image, or personal customer preferences. This relatively high R^2 value indicates that the regression model has substantial explanatory power, confirming that both product quality and service quality are significant contributors to customer satisfaction.

Table 6. Result of Correlation and Coefficient of Determination

Model	R	R Square
1	0.851	0.724

Source : Processed Data, 2025

Simultaneous Significance Test (F-Test)

The F-test assesses whether the independent variables in a regression model simultaneously have a significant effect on the dependent variable. In this research, the F-test produced a value of $F = 122.074$ with a significance level of $p < 0.001$, indicating that service quality and product quality together significantly influence customer satisfaction. This finding highlights that the combined effect of these two variables is essential in improving customer satisfaction, confirming the robustness and validity of the regression model.

Table 7. Result of ANOVA Test (F-Test)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	373.182	2	186.591	122.074	0
Residual	142.151	93	1.529		
Total	515.333	95			

Hypothesis Testing (t-test)

The t-test was applied to evaluate the individual influence of product quality and service quality on customer satisfaction.

- H1: Product quality has a positive effect on customer satisfaction. The findings indicate that product quality significantly and positively impacts customer satisfaction ($t = 3.202$, $p = 0.002$). This suggests that improvements in the quality of coffee and related products directly enhance customer satisfaction, highlighting the role of product excellence in fostering customer loyalty and positive experiences.
- H2: Service quality has a positive effect on customer satisfaction. Service quality was also found to significantly and positively affect customer satisfaction ($t = 4.760$, $p < 0.001$). This underlines the importance of aspects such as staff attentiveness, responsiveness, and the overall service experience in shaping customer satisfaction.
- H3: Product quality and service quality jointly affect customer satisfaction. The F-test results ($F = 122.074$, $p < 0.001$) confirm that the combination of product quality and service quality has a significant influence on customer satisfaction. This demonstrates that focusing on both high-quality products and excellent service is crucial for achieving overall customer satisfaction.

Overall, the analysis shows that while both factors contribute positively, service quality exerts a slightly stronger effect ($\text{Beta} = 0.525$) than product quality ($\text{Beta} = 0.353$). This emphasizes that beyond offering superior products, delivering outstanding service is vital for enhancing customer satisfaction in coffee shops, supporting previous research on the combined impact of product and service quality in service-oriented industries (Ryu et al., 2012; Suhartanto et al., 2019).

Table 8. Result of t-test

	Model	t	Sig.
1	(Constant)	-0.854	0.395
	Service Quality	4.760	0.000
	Product Quality	3.202	0.002

Source : Processed Data, 2025

Discussion

H1: The Effect of Product Quality on Customer Satisfaction

The findings reveal that product quality significantly and positively influences customer satisfaction in coffee shops ($t = 3.202$; $p = 0.002$). This indicates that improvements in product attributes, such as the flavor, aroma, consistency, and presentation of coffee, are associated with higher levels of customer satisfaction. The positive regression coefficient of 0.237 highlights the meaningful role of product quality in shaping how customers perceive their experience.

These findings are consistent with the theories of Parasuraman et al. (1988) and Ryu & Han (2010), which state that product quality is a primary factor in evaluating the consumption experience. Products that meet or exceed customer expectations not only satisfy sensory needs but also enhance the perceived value received by customers.

Previous research by Handriana & Wisandiko (2017) also showed that good coffee quality in terms of taste and aroma is a major determinant of customer satisfaction in coffee shops. In other words, product quality remains the foundation for creating satisfaction, even though service experience is also important.

H2: The Effect of Service Quality on Customer Satisfaction

The regression results demonstrate that service quality significantly and positively influences customer satisfaction ($t = 4.760$; $p < 0.001$), with a regression coefficient of 0.200. This implies that offering prompt, friendly, professional, and comfortable service can meaningfully improve customers' overall satisfaction.

These findings align with the models presented by Zeithaml et al. (2018) and Parasuraman et al. (1988), which emphasize that aspects of service quality, such as reliability, responsiveness, assurance, empathy, and tangible elements play a vital role in shaping customer perceptions. Furthermore, the study by Ryu, Lee, & Kim (2012) indicates that superior service quality not only enhances satisfaction but also promotes customer loyalty, as patrons feel appreciated and enjoy their experiences more fully.

In conclusion, although product quality remains a critical factor, service quality is a strategic element in enriching the customer experience. Within the coffee shop industry, the

quality of interpersonal interactions and overall service delivery serves as a key competitive advantage.

H3: The Simultaneous Effect of Product and Service Quality on Customer Satisfaction

The F-test results indicate that product quality and service quality jointly exert a significant positive effect on customer satisfaction ($F = 122.074$; $p < 0.001$), with a coefficient of determination (R^2) of 0.724. This suggests that 72.4% of the variation in customer satisfaction can be explained by these two variables, while the remaining 27.6% is influenced by other factors, including pricing, location, promotional activities, or the overall atmosphere of the coffee shop.

These outcomes support the findings of Ryu et al. (2012) and Suhartanto et al. (2019), highlighting the critical role of the interplay between product and service quality in shaping the service experience. The synergy of well-prepared products and high-quality service delivers a holistic customer experience, which enhances satisfaction and fosters potential loyalty.

Additionally, this study aligns with Kotler & Keller's (2016) assertion that customer satisfaction emerges from consumers' assessment of their total consumption experience. In coffee shop settings, satisfaction is influenced not only by the quality of the coffee but also by the treatment customers receive, the comfort of the environment, and the degree to which the overall experience meets or surpasses their expectations.

5. Conclusions

The results of this research yield several important conclusions. First, product quality has a significant positive effect on customer satisfaction in coffee shops, with attributes such as taste, aroma, consistency, and presentation strongly influencing customers' perceptions and overall satisfaction. Second, service quality also significantly enhances customer satisfaction, as attentive, friendly, professional, and comfortable service improves the overall experience and encourages customer loyalty. Finally, product quality and service quality together simultaneously affect customer satisfaction, explaining 72.4% of its variation, highlighting the importance of integrating both superior products and high-quality service to optimize customer satisfaction.

Based on these findings, the following recommendations are proposed. Coffee shop managers should continuously monitor and improve product quality, ensuring that coffee meets or exceeds customer expectations. Additionally, staff training should focus on enhancing service quality, emphasizing responsiveness, professionalism, and customer care. Finally, managers are encouraged to maintain a balanced approach that combines excellent product offerings with superior service, as this synergy is key to achieving higher customer satisfaction and fostering long-term loyalty.

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