



# Effects of Brand Image, Product Quality, Price on Telkomsel SIM Card User Loyalty Among Students

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## Abstract

**Purpose:** This study examines the effects of brand image, product quality, price, and customer satisfaction on Telkomsel SIM card user loyalty among undergraduate students of the Faculty of Economics and Business, Universitas Labuhanbatu.

**Research Methodology:** A quantitative survey was conducted using convenience sampling involving 100 Telkomsel SIM card users. Data were collected through an online questionnaire with a five-point Likert scale. Classical assumption tests confirmed the suitability of the regression model, and multiple linear regression analysis was performed using SPSS.

**Results:** The regression model was formulated as  $Y = 2.459 + 0.267X_1 + 0.122X_2 + 0.355X_3 + 0.280X_4$ . Brand image ( $p = .029$ ), price ( $p < .001$ ), and customer satisfaction ( $p < .001$ ) positively and significantly influenced user loyalty, whereas product quality ( $p = .057$ ) showed no significant effect. Simultaneously, all independent variables significantly affected loyalty ( $F = 50.321$ ,  $p < .001$ ). Price was the strongest predictor ( $\beta = 0.338$ ), followed by customer satisfaction ( $\beta = 0.324$ ), brand image ( $\beta = 0.179$ ), and product quality ( $\beta = 0.152$ ).

**Conclusions:** Brand image, price, and customer satisfaction are significant determinants of student loyalty toward Telkomsel SIM cards, while product quality does not significantly influence loyalty.

**Limitations:** The study was limited to a convenience sample from one faculty at a single university and employed a cross-sectional design.

**Contributions:** The findings provide practical guidance for Telkomsel's marketing strategy and enrich the literature on customer loyalty in Indonesia's telecommunications sector.

**Keywords:** Brand Image, Customer Satisfaction, Loyalty, Price, Product Quality

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## 1. Introduction

The Indonesian telecommunications industry is one of the most dynamic and competitive markets in Southeast Asia. With smartphone penetration exceeding 70% of the population and mobile data consumption growing rapidly, SIM card operators face continuous pressure to attract and retain subscribers through superior network quality, competitive pricing and strong brand positioning (Rahmawati et al., 2020). Among the major operators competing in this market — Telkomsel, Indosat Ooredoo, XL Axiata, Hutchison Tri, and Smartfren — Telkomsel maintains the largest subscriber base nationally, attributable to its extensive network coverage, established brand reputation, and diverse product portfolio (Aziz, 2015; Ramadhan, 2025).

For university students, SIM card selection is a particularly important consumer decision because mobile connectivity directly supports academic activities, social communication, and digital learning (Iqbal & Indradewa, 2021; Sudjono, 2021). The student segment is simultaneously brand-conscious, price-sensitive, and quality-responsive: they seek reliable network performance for academic applications, carefully evaluate price structures against limited budgets, and are significantly influenced by peer recommendations and brand image perceptions formed through social media and word-of-mouth networks. Understanding which marketing factors most effectively drive loyalty in this segment is, therefore, both theoretically important and practically valuable for telecommunications marketers (Bo et al., 2025; Natajiwa, 2025).

Customer loyalty, defined as the consumer's committed disposition to repurchase or repatronize a preferred product or service consistently in the future, is recognized as the ultimate marketing outcome that determines long-term revenue sustainability (Rachman & Ariyanti, 2025; Suwarsito & Aliya, 2020). In the SIM card context, loyalty manifests as the continued use of the same operator's services, resistance to competitor switching, and willingness to recommend the service to peers (Fatiha et al., 2025; Romadhoni et al., 2025). Prior research has identified brand image, product quality, price, and customer satisfaction as the four most consistently documented loyalty determinants in telecommunications and consumer product contexts (Ahmudin & Ranto, 2023; Nababan & Alamanda, 2022; Saputri et al., 2021).

Universitas Labuhanbatu, located in Rantauprapat, North Sumatra, serves a student population for whom Telkomsel is a primary operator choice due to its strong network coverage in the Rantauprapat area. A preliminary observation among FEB students identified both strong Telkomsel brand familiarity and price sensitivity as the dominant consumption considerations. No published study has empirically examined the combined effects of brand image, product quality, price, and customer satisfaction on Telkomsel loyalty among FEB Universitas Labuhanbatu students, which constitutes the specific gap addressed by this research.

This study examines the following five research questions: (H1) Do brand image, product quality, price, and customer satisfaction jointly influence loyalty? (H2) Does brand image significantly influence consumer loyalty? (H3) Does product quality significantly influence customer loyalty? (H4) Does price significantly influence customer loyalty? (H5) Does customer satisfaction significantly influence the loyalty?

## 2. Literature Review

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### 2.1 Customer Loyalty: Definition and Dimensions

Customer loyalty is defined as the customer's willingness to continue purchasing a specific product or using a specific service because they have experienced its quality and remain loyal in the absence of barriers to switching (Ahmudin & Ranto, 2023; Suwarsito & Aliya, 2020; Zerine et al., 2025). Ahmudin and Ranto (2023) describes loyal customers as those willing to re-establish their relationship with a service provider in the future, representing a significant strategic and financial asset to the firm. Loyalty yields multiple organizational benefits: reduced customer acquisition costs, more predictable revenue streams, and positive word-of-mouth effects that generate organic new subscriber acquisitions at no additional promotional cost (Saputri et al., 2021; Syahputra & Nugroho, 2025; Yansah et al., 2025). For Telkomsel, maintaining student loyalty during university years is particularly valuable because this cohort will carry their operator preferences into professional life with higher data consumption and purchasing power (Edwina & Wandebori, 2025; Saputri et al., 2021).

### 2.2 Brand Image and Loyalty

Brand image is defined as the perceptions and beliefs that consumers hold about a brand, reflected in the associations stored in their memory (Kotler & Keller, 2009). Brand image functions as a cognitive and

affective shortcut that shapes consumers' evaluations of product quality, trust, and value, reducing the information search and deliberation burden in consumer decision-making. A consistently positive brand image builds consumer confidence that future purchases will meet expectations, directly strengthening loyalty intentions (Venessa & Arifin, 2017; Winata, 2020). Telkomsel's position as Indonesia's largest and oldest mobile operator by subscriber base confers inherent brand equity that supports loyalty among consumers who associate market leadership with reliability.

**H2:** Brand image has a positive and significant partial effect on Telkomsel SIM card user loyalty.

### **2.3 Product Quality and Loyalty**

Product quality in the SIM card context encompasses network coverage, connection speed (3G/4G/5G availability), call clarity, data service reliability, service diversity (number of available packages), and ease of customer service interaction (Cahaya et al., 2023; Nababan & Alamanda, 2022; Permatasari & Tjahjaningsih, 2022). Quality is the fundamental determinant of whether the product delivers on its core functional promise, enabling reliable digital communication and data access (Gök et al., 2019; Grace et al., 2021). Consumers who experience consistent product quality that meets or exceeds their expectations are more likely to remain loyal; those who experience quality failures (dropped calls, slow data, poor coverage) face the strongest switching incentives (Hsu et al., 2024; Naini et al., 2022; Winata, 2020).

**H3:** Product quality has a positive and significant partial effect on Telkomsel SIM card user loyalty.

### **2.4 Price and Loyalty**

In the SIM card context, price encompasses both absolute price levels (cost of call minutes, data packages) and perceived price fairness — the consumer's assessment of whether the price paid is commensurate with the value received (Ahmudin & Ranto, 2023; Ali et al., 2024; Todea et al., 2022). Price is a particularly salient loyalty determinant for student consumers, whose household budgets are constrained by limited income and for whom mobile expenditure competes with academic supplies, food and transportation (Saputri et al., 2021). When students perceive Telkomsel's pricing as competitive and value-aligned, the price driver reduces their switching motivation. However, when pricing is perceived as excessive relative to competitor offerings, it becomes the primary catalyst for erosion of loyalty (Gómez et al., 2018; Kaushal & Ali, 2020).

**H4:** Price has a positive and significant partial effect on Telkomsel SIM card user loyalty.

### **2.5 Customer Satisfaction and Loyalty**

Customer satisfaction is conceptualized as the consumer's emotional response to the comparison between perceived product/service performance and prior expectations (Chen et al., 2023; Kotler et al., 2000; Riswanda & Millanyani, 2025). Satisfaction operates as the proximate antecedent of loyalty in most consumer behavior models: consumers who are satisfied with a brand's performance form positive attitudes that motivate repurchase intention and resistance to competitor switching. The satisfaction-loyalty chain is well established in telecommunications literature (Amegayibor & Korankye, 2022; Ngaliman et al., 2024). Ahmudin and Ranto (2023) identified satisfaction as the primary direct predictor of loyalty to Telkomsel, while Sari et al. (2026) confirmed price and service quality as significant satisfaction antecedents for Telkomsel digital card users.

**H5:** Customer satisfaction has a positive and significant partial effect on Telkomsel SIM card users' loyalty.

**H1:** Brand image, product quality, price, and customer satisfaction jointly and simultaneously influence Telkomsel SIM card user loyalty.

## 2.6 Prior Empirical Studies

Table 1. Summary of Prior Studies on Loyalty Determinants Among Telkomsel and Comparable SIM Card Users

Author(s)	Setting	Method	Key Finding on Loyalty Determinants
Nababan and Alamanda (2022)	Telkomsel SIM users, Labuhanbatu University	MLR	Product quality, price, brand image, and customer satisfaction significantly influence loyalty; this is the closest study to the present research.
Saputri et al. (2021)	Telkomsel student users, Lampung	MLR	Price, product quality, and service quality significantly influence loyalty; price is the strongest predictor.
Ahmudin and Ranto (2023)	Telkomsel users, Yogyakarta	MLR	Price, word-of-mouth, and customer satisfaction significantly influence loyalty; satisfaction is the primary determinant.
Rahmawati et al. (2020)	Telkomsel users, Tulungagung	MLR	WOM, brand image, brand trust, product quality, and promotion significantly influence customer satisfaction; brand image also supports loyalty.
Sopacua and Hasan (2023)	By.U Telkomsel users, West Java	MLR	Price and service quality significantly influence customer satisfaction, confirming its mediating role in loyalty.
Winata (2020)	Simpatel Telkomsel users, Medan	MLR	Product quality, price, and brand image significantly influence repurchase decisions; product quality has the largest coefficient.
Permatasari and Tjahjaningih (2022)	Telkomsel data package users	MLR	Brand awareness, price perception, and product quality significantly influence purchase decisions.
Venessa and Arifin (2017)	Telkomsel users, Universitas Brawijaya	MLR	Brand image and price significantly influence purchase decisions; brand image shows a strong coefficient.
Present Study (2025)	FEB Universitas Labuhanbatu ( $n = 100$ )	MLR	Brand image ( $p = .029$ ), price ( $p = .000$ ), and customer satisfaction ( $p = .000$ ) significantly influence loyalty, whereas product quality is insignificant ( $p = .057$ ); jointly, all variables significantly affect loyalty ( $F = 50.321$ , $p = .000$ ).

Table 1 summarizes previous studies examining the determinants of customer loyalty among Telkomsel and comparable SIM card users. Overall, the literature consistently identifies brand image, product quality, price, and customer satisfaction as the primary factors influencing customer loyalty, providing the theoretical foundation for the present study.

## 3. Methodology

### 3.1 Research Design

A quantitative survey design employing multiple linear regression (MLR) analysis was used to test the partial and simultaneous effects of the four independent variables on loyalty. MLR is appropriate for simultaneously estimating the individual and joint contributions of multiple predictors to a single dependent variable (Ghozali, 2018).

### 3.2 Population, Sample, and Sampling

The study population comprised Telkomsel SIM card users enrolled as students in the Faculty of Economics and Business (FEB) at Universitas Labuhanbatu, Rantauprapat, North Sumatra, Indonesia. A sample of 100 respondents was selected through convenience sampling, an appropriate technique for exploratory research where the target population has a distinctive shared characteristic (Telkomsel use) and accessibility constraints apply (Sugiyono, 2012). All 100 respondents were active Telkomsel users at the time of the data collection.

### 3.3 Measurement Instrument

Primary data were collected using an online questionnaire distributed through social media channels. The instrument measured five constructs using a five-point Likert scale (1 = Strongly Disagree; 5 = Strongly Agree): brand image ( $X_1$ ), product quality ( $X_2$ ), price ( $X_3$ ), customer satisfaction ( $X_4$ ), and loyalty ( $Y$ ).

### 3.4 Classical Assumption Tests

Three classical assumption tests were conducted: (1) normality, assessed via P–P Plot visual inspection of residual distribution; (2) heteroscedasticity, assessed via scatterplot of standardized residuals; and (3) multicollinearity, assessed via Variance Inflation Factor (VIF) and tolerance (VIF < 10; tolerance > 0.10 indicates no multicollinearity) (Ghozali, 2018).

### 3.5 Hypothesis Testing

Partial effects (H2–H5) were tested using a *t*-test at  $\alpha = 0.05$ . The simultaneous effect (H1) was tested using the *F*-test at  $\alpha = 0.05$ . The regression equation is as follows:

$$Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon \quad (1)$$

## 4. Results and Discussion

### 4.1 Classical Assumption Tests

#### 4.1.1 Normality Test

Normality was assessed using the P-P Plot of the standardized regression residuals. The plot shows that the data points are distributed closely around the diagonal reference line without systematic deviation, indicating that the regression residuals are approximately normally distributed. The normality assumption was satisfied.

#### 4.1.2 Heteroscedasticity Test

The Scatterplot of standardized residuals against standardized predicted values shows data points distributed randomly across the plot area without a discernible pattern, with points spread both above and below the zero line without systematic clustering. These characteristics confirm the absence of a heteroscedasticity. The homoscedasticity assumption was satisfied.

#### 4.1.3 Multicollinearity Test

Table 2. Multicollinearity Test: VIF and Tolerance Statistics ( $n = 100$ )

Variable	Tolerance	VIF	Decision
Brand Image ( $X_1$ )	0.518	1.929	No multicollinearity
Product Quality ( $X_2$ )	0.534	1.843	No multicollinearity
Price ( $X_3$ )	0.546	1.832	No multicollinearity
Customer Satisfaction ( $X_4$ )	0.531	1.883	No multicollinearity

Based on Table 2, all four independent variables yielded VIF values below 10 (range: 1.832–1.929) and tolerance values above 0.10 (range: 0.518–0.546), confirming the absence of multicollinearity. The predictors were sufficiently orthogonal to permit independent estimation of their respective regression coefficients without distortion from inter-predictor correlation.

## 4.2 Multiple Linear Regression Results

Table 3. Multiple Linear Regression Results: Partial Effects on Customer Loyalty ( $Y$ )

Variable	B	Std. Error	Beta ( $\beta$ )	$t$ -count	Sig.
(Constant)	2.459	1.352	—	1.819	.072
Brand Image ( $X_1$ )	0.267*	0.121	0.179	2.214	.029
Product Quality ( $X_2$ )	0.122	0.063	0.152	1.927	.057
Price ( $X_3$ )	0.355**	0.083	0.338	4.295	.000
Customer Satisfaction ( $X_4$ )	0.280**	0.069	0.324	4.063	.000

Note: \* $p < .05$ ; \*\* $p < .01$ . Dependent Variable: Customer Loyalty ( $Y$ ).

Source: Primary data processed with SPSS, 2024.

The regression equation is:

$$Y = 2.459 + 0.267X_1 + 0.122X_2 + 0.355X_3 + 0.280X_4. \quad (2)$$

Based on Table 3, the constant (2.459) represents the theoretical baseline loyalty value when all the predictors are zero. All four coefficients were positive, confirming the directional alignment with the theoretical predictions across all variables. Among the standardized coefficients, price ( $\beta = 0.338$ ) had the largest relative effect on loyalty, followed by customer satisfaction ( $\beta = 0.324$ ), brand image ( $\beta = 0.179$ ), and product quality ( $\beta = 0.152$ ).

## 4.3 Simultaneous F-Test ( $H_1$ )

Table 4. ANOVA: F-Test for Simultaneous Effect on Customer Loyalty ( $Y$ )

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	180.840	4	45.210	50.321	.000
Residual	85.350	95	0.898	—	—
Total	266.190	99	—	—	—

Note: Dependent Variable: Customer Loyalty ( $Y$ ).

Based on Table 4, the  $F$ -test yielded  $F = 50.321$ , Sig. = .000 < .05.  $H_1$  is supported: brand image, product quality, price, and customer satisfaction jointly and simultaneously exert a positive and significant effect on Telkomsel SIM card user loyalty among FEB Labuhanbatu University students. The model's joint significance confirms that the four-variable set provides a meaningful and comprehensive framework for student loyalty.

#### 4.4 Partial Hypothesis Testing and Discussion

Table 5. Summary of Hypothesis Testing Results

H	Hypothesis Statement	Coefficient	t/F	Sig.	Result
H1	Brand image, product quality, price, and customer satisfaction jointly influence loyalty (simultaneous)	—	50.321	.000	Supported
H2	Brand image significantly and positively influences loyalty (partial)	0.267	2.214	.029	Supported
H3	Product quality significantly and positively influences loyalty (partial)	0.122	1.927	.057	Not Supported ( $p > .05$ )
H4	Price significantly and positively influences loyalty (partial)	0.355	4.295	.000	Supported
H5	Customer satisfaction significantly and positively influences loyalty (partial)	0.280	4.063	.000	Supported

Note:  $t$ -table  $\approx 1.984$  ( $df = 95$ ,  $\alpha = .05$ , two-tailed).  $F$ -table  $\approx 2.47$  ( $df_1 = 4$ ,  $df_2 = 95$ ,  $\alpha = .05$ ).

Table 5 summarizes the results of hypothesis testing. Four of the five proposed hypotheses (H1, H2, H4, and H5) were supported, indicating that brand image, price, and customer satisfaction significantly influence customer loyalty both individually and collectively. In contrast, product quality (H3) did not have a statistically significant effect on customer loyalty ( $p > .05$ ).

##### 4.4.1 H2: Brand Image and Loyalty

H2 is supported: brand image exerts a positive and significant partial effect on loyalty ( $B = 0.267$ ,  $\beta = 0.179$ ,  $t = 2.214$ ,  $p = .029 < .05$ ). This finding is consistent with Nababan and Alamanda (2022), who found brand image to be significant for Telkomsel loyalty among Labuhanbatu management students, and with Venessa and Arifin (2017), who found brand image to be significant among Brawijaya students. Telkomsel's established market leadership brand image — reinforced by national advertising, strong network reputation, and institutional associations with quality and reliability — positively predicts loyalty among FEB students, who associate the brand with dependable academic and social connectivity.

##### 4.4.2 H3: Product Quality and Loyalty

H3 is not supported: product quality does not exert a statistically significant partial effect on loyalty ( $B = 0.122$ ,  $\beta = 0.152$ ,  $t = 1.927$ ,  $p = .057 > .05$ ). The  $p$ -value of .057 was marginally above the .05 threshold, suggesting a borderline result that may achieve significance with a larger sample. Two theoretical explanations account for this result. First, students in Rantauprapat may perceive SIM card product quality as a table-stakes attribute — a prerequisite that must meet minimum standards but does not differentiate among providers once those standards are met. When all major operators offer comparable network coverage and data speed in the local area, product quality ceases to be a discriminating loyalty driver. Second, the limited sample size ( $n = 100$ ) may be insufficient to detect the modest marginal effect of product quality when controlling for the stronger effects of price and satisfaction. This finding contrasts with Nababan and Alamanda (2022)'s results for the same institution, which may reflect year-specific differences in network performance perception or questionnaire instrument sensitivity.

##### 4.4.3 H4: Price and Loyalty

H4 is supported with the largest standardized coefficient: price exerts the strongest partial effect on loyalty ( $\beta = 0.338$ ,  $B = 0.355$ ,  $t = 4.295$ ,  $p = .000$ ). This finding confirms that, among the four loyalty predictors, price is the most influential individual driver of Telkomsel loyalty among FEB Universitas Labuhanbatu students. Price dominance is theoretically consistent with the student consumer profile: constrained

disposable incomes make price-value evaluation the primary consideration in telecommunications choice. When Telkomsel's pricing is perceived as competitive and commensurate with the service received, it generates strong loyalty; when perceived as overpriced relative to competitors, it constitutes the primary motivation for switching. This finding aligns with those of Saputri et al. (2021) and Ahmudin and Ranto (2023), who both found significant price effects in student Telkomsel loyalty models.

#### 4.4.4 H5: Customer Satisfaction and Loyalty

H5 is supported: customer satisfaction exerts a positive and significant partial effect on loyalty ( $\beta = 0.324$ ,  $B = 0.280$ ,  $t = 4.063$ ,  $p = .000$ ). Satisfaction ranked second in the standardized coefficient magnitude, confirming the robustness of the satisfaction-loyalty chain in the telecommunications context. This result is consistent with Ahmudin and Ranto (2023), who identified satisfaction as the primary loyalty driver for Telkomsel users in Yogyakarta, and with the broader service marketing literature, where satisfaction mediates the effects of quality and price on loyalty (Kotler et al., 2000). For Telkomsel's marketing management, this finding underscores the importance of customer experience management beyond product quality and price, ensuring that service encounters, complaint resolution, and customer communication consistently generate satisfying experiences that build affective loyalty commitment driving repurchase behavior.

## 5. Conclusions

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This study examined the effects of brand image (X1), product quality (X2), price (X3), and customer satisfaction (X4) on loyalty (Y) among 100 Telkomsel SIM card users at FEB Universitas Labuhanbatu using multiple linear regression. The regression equation  $Y = 2.459 + 0.267X_1 + 0.122X_2 + 0.355X_3 + 0.280X_4$  produced the following results. H1 is supported: all four predictors jointly and significantly influence loyalty ( $F = 50.321$ ,  $p = .000$ ). H2 is supported: brand image positively affects loyalty ( $B = 0.267$ ,  $p = .029$ ). H3 is not supported: product quality has a positive but insignificant effect ( $B = 0.122$ ,  $p = .057$ ). H4 is supported: price is the strongest predictor of loyalty ( $B = 0.355$ ,  $\beta = 0.338$ ,  $p = .000$ ). H5 is supported: customer satisfaction is the second-strongest predictor ( $\beta = 0.324$ ,  $p = .000$ ).

These findings suggest three managerial implications for Telkomsel's student market. First, competitive pricing and value-oriented service packages should remain the primary retention strategy. Second, customer satisfaction should be strengthened through responsive complaint handling and accessible services. Third, brand image should continue to be reinforced through campus activities, student ambassador programs, and social media engagement to enhance customer loyalty.

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## Author Contributions

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DB conceptualized the research framework, supervised the data analysis, and provided critical revisions. NSH collected, processed, and analyzed financial data and prepared the initial manuscript draft. CWN contributed to the interpretation of results, validated calculations, and assisted in manuscript revisions. All authors approved the final version of the manuscript for submission.

## **Conflicts of Interest**

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The authors declare that there is no conflict of interest regarding the publication of this study. This research was conducted independently, and no financial or personal relationships influenced the results or interpretation of the findings.

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