

The Magic of Product Quality, Price, and Customer Satisfaction on Customer Loyalty

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ABSTRACT

Keywords:

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Kesetiaan Pelanggan

The primary objective of this study is to examine how product quality and price influence customer loyalty using customer satisfaction among Madame Gie Official Shop's Shopee consumers. The research methodology employed is quantitative to establish the significance of relationships between the variables under investigation. The population for this study consists of all customers of Madame Gie Official Shop on Shopee. The sample size is 100 individuals selected through purposive sampling. The respondents are females aged at least 17 years, who have made a minimum of 2 purchases on Madame Gie Official Shop's Shopee page. Data was collected using observation, questionnaires, analyzed through path analysis. Results show significant partial impacts of product quality and price on customer satisfaction and customer loyalty, with product quality and price affecting customer loyalty through customer satisfaction.

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SARI PATI

Studi ini menyelidiki pengaruh kualitas produk dan harga terhadap loyalitas pelanggan melalui kepuasan pelanggan yang telah diteliti pada pelanggan Madame Gie Official Shop di Shopee. Penelitian ini mengadopsi metodologi kuantitatif dan melibatkan populasi pelanggan Shopee dari Madame Gie Official Shop. Ukuran sampel adalah 100 responden perempuan, berusia minimal 17 tahun, yang telah melakukan minimal 2 pembelian di halaman toko tersebut. Data dikumpulkan melalui observasi dan kuesioner, diolah menggunakan perangkat lunak SPSS 26, dan dianalisis menggunakan metode analisis jalur. Penelitian tersebut menemukan pengaruh yang signifikan antara kualitas produk dan harga terhadap kepuasan pelanggan, yang gilirannya mempengaruhi loyalitas pelanggan.

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INTRODUCTION

For some women in Indonesia, using cosmetics is essential before daily activities. Numerous cosmetic businesses are competing in the Indonesian market, including both foreign and local companies. The cosmetics industry, part of the chemical, pharmaceutical, and traditional medicine sectors, grew by 9.61% in 2021 (BPS statistics). The Indonesian National Agency of Drug and Food Control (BPOM) recorded a 20.6% growth in cosmetics businesses from 2021 to 2022. As of July 2022, there were 913 companies, with SMEs dominating the growth, showing continuous development in the cosmetics industry

Globalization has led to increased competition, with many producers selling similar products, providing customers with more choices. Customers are becoming more discerning and carefully select beauty products that suit their needs and desires. Brands like Madame Gie, Emina, Viva, Wardah, Make Over, Maybelline, Revlon, LT Pro, and others are available in the market.

The cosmetics industry in Indonesia is experiencing continuous growth, with intense competition from various local and foreign companies. To maintain a competitive edge, companies must offer high-quality and affordable products that meet customer demands. Building brand loyalty heavily relies on achieving customer satisfaction, and companies should strive to understand customer desires to create products that fulfill their expectations. By meeting customer needs effectively, companies can ensure long-term benefits from loyal relationships with customers. Due to the observed phenomenon, the significance product quality, price, and customer satisfaction clearly affect customer loyalty. Consequently, the purpose of this research is to investigate:

1. Understanding that product quality and

price have notable influence on customer satisfaction.

2. Understanding that product quality, price, there is a notable impact of customer satisfaction on customer loyalty
3. Understanding that Product quality and price significantly impact customer loyalty through satisfaction mediation.

Marketing Mix

The marketing mix represents a strategic method applied across all marketing activities to identify the most effective combination that delivers favorable results (Alma, 2016). (Philip Kotler & Armstrong, 2018) describe the marketing mix as a tactical tool that integrates product, price, place, and promotion, skillfully utilized by companies to generate the desired response from the target market. Comprising four key components – product, place, price, and promotion – the marketing mix transforms marketing strategies into tangible value for customers.

Product Quality

Kotler & Armstrong in (Indrasari, 2019) define products quality as offerings characteristic that satisfy customer needs and demands. Product quality encompasses several dimensions. Complementary attributes include branding, packaging, and labeling. (Tjiptono, 2020) in (Sarwini & Rismawati, 2021) provides indicators to measure product quality, including product performance, reliability, durability, perceived quality, and aesthetics.

Price

Price is a vital element in marketing that determines market share and profitability. It is the price of a product or service and price can change flexibly. Consumers consider price and compare it with the product's value. Price has a fundamental economic system by influencing the distribution of production factors. The four price indicators, according to (P. Kotler &

Armstrong, 2017), include price affordability, price-quality fit, price-benefit fit, and price matching ability or competitiveness.

Customer Satisfaction

Customer satisfaction is the emotional response from comparing perceived product or performance. If the performance falls short, customers are disappointed; if it meets their expectations, they are satisfied; and if it exceeds expectations, they are extremely happy (Phillip Kotler & Keller, 2016). Understanding customer sentiments is crucial for enhancing satisfaction. Each customer has expectations for how they wish to be served. Satisfaction involves comparing expectations with actual experiences when using the product. It represents the emotional level after evaluating performance against expectations (Salman Farisi & Qahfi Romula Siregar, 2020). Oliver, in (Saidani et al., 2019), emphasizes its critical role in understanding and fulfilling customer needs. Customer satisfaction depends on perceptions, influenced by desires, past experiences, and advertising when purchasing a product. The indicators that contribute to customer satisfaction, as mentioned by Hawkins and Lonney in (Sarwini & Rismawati, 2021), include the suitability of expectations, the intention to return, creating repeat business, and generating positive word-of-mouth recommendations about consumed products.

Customer Loyalty

Loyalty is a valuable brand asset, involving repeat purchases driven by strong internal preference (Benito et al., 2019). Loyal customers, emotionally attached and committed to a brand, are less swayed by other offers. Oliver, in (Dam & Dam, 2021), defines customer loyalty as a strong commitment to repurchase preferred products, leading to repetitive purchases (Molinillo et al., 2022). Customer loyalty benefits companies through repeat business, brand preference, and word-of-

mouth advocacy. Loyal customers consistently increase their consumption from a specific company. Attributes to measure loyalty include positive expressions, recommendations, considering the company as the first choice, and engaging in repeat purchases. Customer loyalty's importance lies in defending against competitors and ensuring a company's financial performance and sustainability, making it a priority for attracting and retaining customers. (Tjiptono, 2020) discusses six indicators used to assess customer loyalty include: repeat purchases, brand consumption habit, brand preference, brand as the first choice, perceiving it as the best brand, and recommending the brand to others when satisfied with its product.

Previous Research

(Zulkarnain & Ramadansyah, 2018) conducted research using 93 muamalah customers as samples and analyzing data with the SEM-PLS method. The results indicated product quality significantly affects customer loyalty and satisfaction, along with customer satisfaction, with a 37.5% mediation effect. The study differed from previous research in the independent variable (Price vs. Service Quality) and the object of research and year, but shared common variables: Product Quality, Satisfaction, and Loyalty.

In (Bali, 2022) conducted using path analysis with 85 respondents and SPSS assistance. The study found significant impacts of product quality and price on customer satisfaction and loyalty. It used similar analytical tools to previous research, despite focusing on different variables.

In (Hakim, 2021) conducted a study with 220 participants. Using SEM path analysis, the study found that product quality significantly impacted satisfaction and loyalty, with satisfaction also influencing loyalty. It differed from previous research by using price instead

of service quality as an independent variable, while sharing other variables as mediating factors.

(Titin Herawaty et al., 2022) conducted research using SEM with 100 respondents. The study found that price significantly impacted satisfaction but not loyalty. Similarly, satisfaction did not significantly influence loyalty, and no significant mediation was observed between service quality, price, and loyalty. The research differed from previous studies in the research object and the use of one independent variable (Product Quality) compared to previous studies' use of Service Quality, while both studies shared Customer Satisfaction as a mediating variable.

Hypotheses

- H1: Product quality significantly affects customer satisfaction among Madame Gie Official Shop's consumers on Shopee.
- H2: Price significantly affects customer satisfaction among Madame Gie Official Shop's consumers on Shopee.
- H3: Product quality significantly affects customer loyalty among Madame Gie Official Shop's consumers on Shopee.

H4: Price significantly affects customer loyalty among Madame Gie Official Shop's consumers on Shopee.

H5: Customer satisfaction significantly influences customer loyalty among Madame Gie Official Shop's consumers on Shopee.

H6 and H7 state that product quality and price significantly impact customer loyalty through satisfaction mediation in Madame Gie Official Shop's Shopee customers

METHODS

This research follows an associative causal design, utilizing survey and questionnaire methods, which belong to the realm of quantitative research. Quantitative research involves numerical data and statistical analysis to explore the relationships between variables (Stockemer, 2019).

The research involves conducting surveys at a specific natural location, using data treatments like tests, questionnaires, and structured interviews (Sugiyono, 2017), enabling the determination of the significance of relationships between the studied variables.

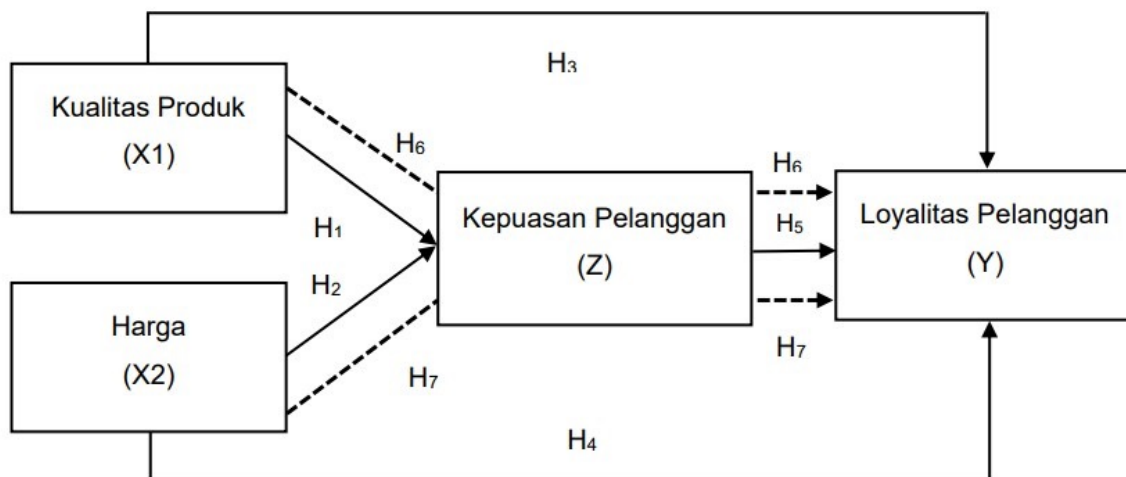


Figure 1. Conceptual Framework

The population under investigation comprises all customers of Madame Gie Official Shop on the Shopee platform, with an unknown precise number (Stockemer, 2019). As the population is extensive, a sample is used to represent it due to resource, financial, and time constraints (Sugiyono, 2017).

The study employs nonprobability sampling, specifically purposive sampling, to select respondents based on certain criteria. These criteria include female respondents aged 17 years or older, as they are considered responsible individuals with a sense of self-identity. Additionally, respondents should have made at least two purchases of Madame Gie cosmetic products on the Madame Gie Official Shop Shopee page, indicating satisfaction with the products.

To determine the sample size, the Lemeshow formula is applied due to the uncertainty and variability in the number of Madame Gie Official Shop customers on Shopee over time. The calculation results in a minimum sample size of 96 respondents, rounded up to 100 for ease of calculating respondent characteristics as percentages.

Operational Definition of Variables

1. Product Quality (X_1)

Product quality refers to meeting customer needs. The indicators in this study, according to Tjiptono as cited in (Sarwini & Rismawati, 2021), include:

- a. Product performance
Representing how well a product meets customer expectations and functions effectively. It reflects the product's reliability, efficiency, and ability to fulfill its intended tasks.
- b. Reliability
Reflecting the product's consistent performance and dependability over time. A reliable product meets customer

expectations and operates without issues, contributing to customer satisfaction and brand loyalty.

- c. Product durability
Product durability is a crucial indicator of quality. Product provides value, reduces the need for replacements, and contributes to customer satisfaction.
- d. Perceived quality
Focusing on how customers subjectively perceive and evaluate the overall excellence and desirability of a product. based on customers' impressions, opinions, and beliefs about the product's features, performance, and value. Positive perceptions enhance satisfaction, loyalty, and purchase decisions.
- e. Aesthetics
Emphasizing the visual appeal and attractiveness of the product's design. Aesthetically pleasing products evoke positive emotions and perceptions in customers, enhancing their overall satisfaction and desire to own the product.

1. Price (X_2)

The cost of a product or service. The indicators in this study, according to (KOTLER et al., 2005), include:

- a. Price affordability
Evaluating whether the cost of a product or service is within the customers' financial means. Affordable pricing attracts customers, boosts sales, and enhances satisfaction, especially in price-sensitive markets.
- b. Price-quality fit
Assessing if the product's cost aligns with its perceived quality. It influences customer satisfaction and trust, ensuring customers feel they receive fair value for their money.
- c. Price-benefit fit

Price-benefit fit is essential, evaluating if the product's cost aligns with the customer's perceived benefits. It influences satisfaction and purchase intent, ensuring customers see a valuable return on their investment.

d. **Price matching ability or competitiveness**

How well the product competes with similar offerings. It considers factors like quality and features. A competitive price appeals to value-conscious customers, helping attract more buyers.

3. Customer Satisfaction (Z)

Customer satisfaction stems from comparing perceived product or performance. If the performance falls short of expectations, customers are disappointed. If it meets their desires, they feel satisfied. If it exceeds their imaginations, they feel highly delighted (Phillip Kotler & Keller, 2016). The indicators in this study, according to Tjiptono as cited in (Sarwini & Rismawati, 2021), include:

a. **The Suitability of Expectations**

Determining whether a product or service meets or surpasses customer expectations. Meeting/exceeding expectations leads to satisfaction, falling short results disappointment. Ensuring expectations are met or exceeded is vital for creating positive experiences and fostering brand loyalty.

b. **The Intention To Return**

Reflecting the likelihood of customers returning for future purchases. Positive experiences lead to higher revisit intention, fostering customer loyalty.

c. **Creating Repeat Business**

Showing customer loyalty and satisfaction. It reflects the company's ability to retain customers and encourage repeat business.

d. **Generating Positive Word-Of-Mouth**

Reflecting satisfied customers sharing positive experiences, which influences the company's reputation and attracts new customers. It acts as a potent marketing tool, indicating high customer satisfaction and exceeding expectations.

4. Customer Loyalty (Y)

Customer loyalty refers to favorable behaviors towards a company, demonstrated through the likelihood of customers engaging in repeated business activities. The indicators in this study, according to (Firmansyah, 2018) include:

a. **Repeat purchases**

Reflecting the frequency of customers engaging in repeated purchases from the same company.

b. **Brand consumption habits**

Assessing the consistent usage of a particular brand by customers.

c. **Brand preference**

Gauging the favorability of a specific brand among customers compared to other alternatives.

d. **Brand as the primary choice**

Showing customers consistently selecting a particular brand as their first choice over others.

e. **Belief that the brand is the best**

Demonstrating customers' strong belief that a specific brand is the superior choice.

f. **Recommending the brand to others**

Indicating customers' willingness to advocate and recommend a brand to others through word-of-mouth.

The study collected primary and secondary data through observation and questionnaires, validated instruments, and used analytical tools like regression and path analysis. Path analysis assesses cause-and-effect relationships, illustrated in a path diagram.

RESULTS AND DISCUSSION

Testing Instruments

A. Validity Test

Validity testing aims to assess the questionnaire's accuracy. In this study, SPSS 26 was used for testing, analyzing the r-value and significance level (5% level). With 100 respondents, the degrees of freedom (df) were calculated as 98 (n-2), and the critical r-table value was 0.1966.

The results in Table 4.1 indicated that all statement items of the variables demonstrated corrected item-total correlations or r-values higher than the critical r-table value (0.1966), with all significance values below 0.05.

Consequently, all statement items are considered valid.

B. Reliability Test

In this research, a Cronbach's (α) value is > 0.60 , is considered as an indication of reliability for the variables.

Table 4.2 displays Cronbach's Alpha reliability coefficients for the variables: product quality (0.852), price (0.809), customer satisfaction (0.741), and customer loyalty (0.811). All coefficients exceed 0.6, indicating reliable instruments used in this study.

Table 4.1. Validity Test

Variabel	Item	Corrected Item – Total Correlation	Sig.	Keterangan
Kualitas Produk (X1)	X1.1	0,805	0,000	Valid
	X1.2	0,795	0,000	
	X1.3	0,662	0,000	
	X1.4	0,747	0,000	
	X1.5	0,799	0,000	
	X1.6	0,639	0,000	
	X1.7	0,630	0,000	
Harga (X2)	X2.1	0,813	0,000	Valid
	X2.2	0,833	0,000	
	X2.3	0,751	0,000	
	X2.4	0,795	0,000	
Kepuasan Pelanggan (Z)	Z1	0,783	0,000	Valid
	Z2	0,700	0,000	
	Z3	0,781	0,000	
	Z4	0,733	0,000	
Loyalitas Pelanggan	Y1	0,810	0,000	Valid
	Y2	0,807	0,000	
	Y3	0,657	0,000	
	Y4	0,784	0,000	
	Y5	0,700	0,000	
	Y6	0,530	0,000	

Sumber: Data Diolah Penulis, 2022

Table 4.2. Reliability Test

Variabel	Cronbach's Alpha	N of Items	Ket.
Kualitas Produk (X1)	0,852	7	Reliabel
Harga (X2)	0,809	4	
Kepuasan Pelanggan (Z)	0,741	4	
Loyalitas Pelanggan (Y)	0,811	6	

Sumber: Data Diolah Penulis, 2022

Test for Classical Assumptions

A. Normality Test

The normality test checks if the regression model used in the research is normally distributed. It utilized the One Sample Kolmogorov-Smirnov (K-S) statistical analysis at a 5% significance level. The test was conducted for both substructure 1 and substructure 2.

Table 4.3 displays the Kolmogorov-Smirnov test results for substructure 1, indicating a significance value of $0.131 > 0.05$. The residual data is normally distributed.

Table 4.4 shows the Kolmogorov-Smirnov test ($p=0.166 > 0.05$) confirms normal distribution of residual data.

B. Multicollinearity Test

The multicollinearity test evaluates linear relationships among independent variables in a regression model, preventing any violation of the classical assumption.

Table 4.5 presents the findings indicating that both the product quality and price variables have tolerance values of $0.379 > 0.10$ and VIF

Table 4.3. Normality Test Sub I

Uji Normalitas Sub Struktur 1
One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		100
Normal Parameters ^{a,b}	Mean	.0000000
	Std. Deviation	1.09396631
Most Extreme Differences	Absolute	.079
	Positive	.079
	Negative	-.072
Test Statistic		.079
Asymp. Sig. (2-tailed)		.131 ^c

a. Test distribution is Normal.

Sumber: Hasil Olahan SPSS, 2022

Table 4.4. Normality Test Sub II

Uji Normalitas Sub Struktur 2
One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		100
Normal Parameters ^{a,b}	Mean	.0000000
	Std. Deviation	1.59828016
Most Extreme Differences	Absolute	.076
	Positive	.052
	Negative	-.076
Test Statistic		.076
Asymp. Sig. (2-tailed)		.166 ^c

a. Test distribution is Normal.

Sumber: Hasil Olahan SPSS, 2022

Table 4.5. Multicollinearity Test Sub I

Uji Multikolinieritas Sub Struktur 1

Model		Collinearity Statistics		Keterangan
		Tolerance	VIF	
1	Kualitas Produk	.379	2.641	<i>Non Multikolinieritas</i>
	Harga	.379	2.641	

a. Dependent Variable: Kepuasan Pelanggan

Sumber: Hasil Olahan SPSS, 2022

(Variance Inflation Factor) values of $2.641 < 10$ in substructure 1. This suggests that there is no independent variable correlation.

Table 4.6 presents the findings indicating that in substructure 2, product quality, price, and customer satisfaction variables show acceptable tolerance and VIF values, signifying no correlation or multicollinearity between independent variables.

C. Heteroskedasticity Test

The purpose of the heteroskedasticity test is

to examine whether there is any presence of heteroskedasticity in the regression model by observing the pattern formed by the points on the scatterplot. For this study, SPSS 26 was used as a tool to create a scatterplot (ZPRED) and their corresponding residuals (SRESID).

Figures 4.1 and 4.2 display the results of the heteroskedasticity tests for substructure 1 and substructure 2. The scattered points do not exhibit any discernible pattern. They are randomly distributed above and below the value of 0 on the Y-axis, indicating the absence

Table 4.6. Multicollinearity Test Sub II

Uji Multikolinieritas Sub Struktur 2

Model		Collinearity Statistics		Keterangan
		Tolerance	VIF	
1	Kualitas Produk	.296	3.375	<i>Non Multikolinieritas</i>
	Harga	.305	3.276	
	Kepuasan Pelanggan	.290	3.447	

a. *Dependent Variable:* Loyalitas Pelanggan

Sumber: Hasil Olahan SPSS, 2022

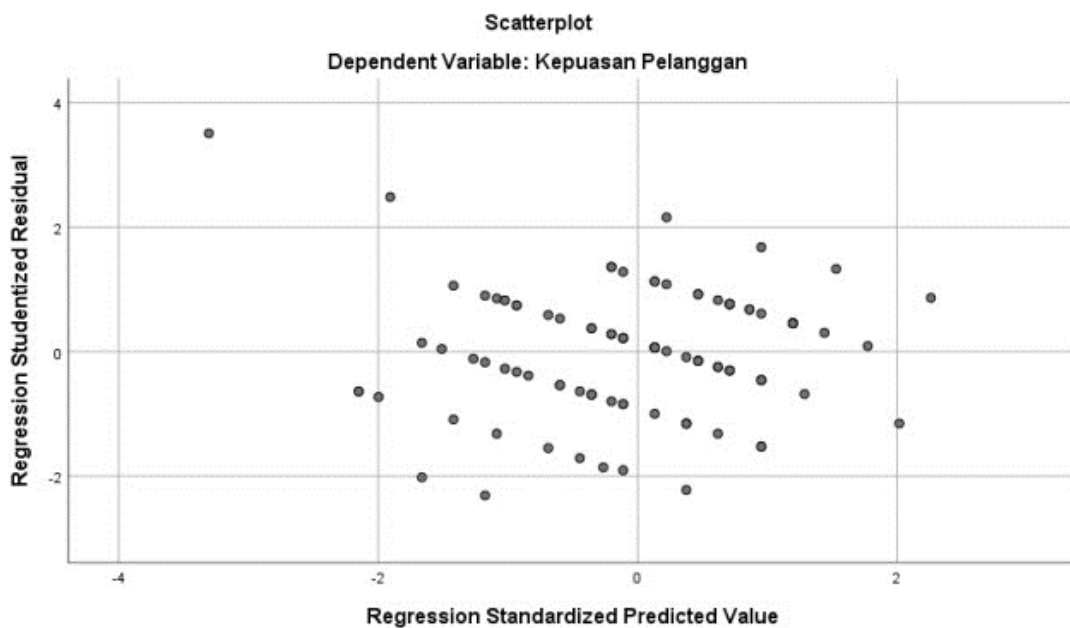


Figure 4.1. Heteroskedasticity Test Results Substructure 1

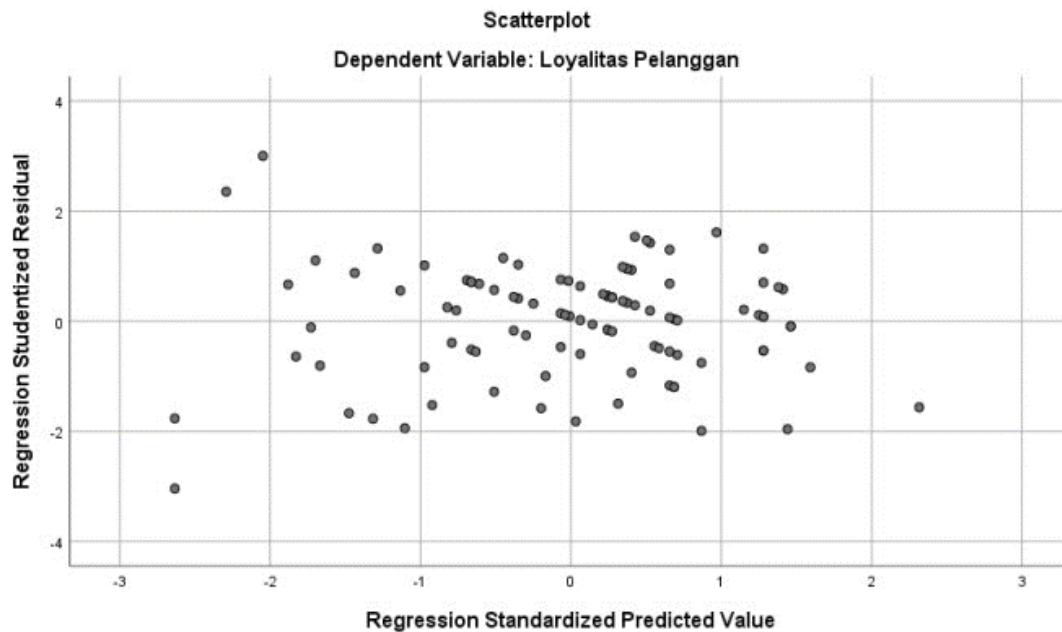


Figure 4.2. Heteroskedasticity Test Results Substructure 1

of heteroskedasticity in the regression. This section presents and discusses research results using figures, graphs, tables, and sub-chapters for reader comprehension.

Path Analysis Test

Path analysis assesses causal relationships between variables, considering direct and indirect effects of independent variables on the dependent variable. The technique is often

used in the context of structural equation modeling (SEM) and can provide insights into the complex interplay of variables and their impact on the outcome of interest. Path analysis helps researchers understand the underlying mechanisms and pathways through which variables influence each other, making it a valuable tool in various fields such as social sciences, psychology, marketing, and economics.

Table 4.7. Path Equation Sub-Structure 1 (X1), (X2) to (Z).

Koefisien Analisis Jalur dan Uji t Sub Struktur 1

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.470	.865		5.166	.000
	Kualitas Produk	.243	.047	.462	5.195	.000
	Harga	.329	.068	.429	4.831	.000

a. Dependent Variable: Kepuasan Pelanggan
 Sumber: Hasil Olahan SPSS, 2022

Koefisien Determinasi Sub Struktur 1

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.843 ^a	.710	.704	1.10519

a. Predictors: (Constant), Harga, Kualitas Produk
Sumber: Hasil Olahan SPSS, 2022

The table displays significant effects of X1 and X2 on customer satisfaction (Z), accounting for 70.4% of ϵ_1 , leaving 29.6% to other variables.

The value of ϵ_1 is computed as follows:

$$Z = \rho_{zx1}.X1 + \rho_{zx2}.X2 + \epsilon_1$$

$$Z = 0,462 X1 + 0,429 X2 + \sqrt{1 - \text{Adjusted R Square}}$$

$$Z = 0,462 X1 + 0,429 X2 + \sqrt{1 - 0,704}$$

$$Z = 0,462 X1 + 0,429 X2 + 0,544$$

According to the Coefficient table, X1 has a significant impact of 0.512 on Y while price (X2) and customer satisfaction (Z) influence Y by 0.187 and 0.247, respectively. The Sig. column in the same table shows significant effects for all three variables on (Y) with values 0.000, 0.033, and 0.006 for X1, X2, and Z, respectively. Additionally, based on the Model Summary table, the combined influence of X1, X2, and Z is 0.776 or 77.6%, with the remaining 0.473 or 47.3% attributed to other variables.

Table 4.8. Path Equation Sub-Structure 2 (X1), (X2), (Z) towards (Y)

Koefisien Analisis Jalur dan Uji t Sub Struktur 2

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.374	1.435		.260	.795
	Kualitas Produk	.454	.078	.512	5.849	.000
	Harga	.241	.111	.187	2.166	.033
	Kepuasan Pelanggan	.416	.149	.247	2.790	.006

a. Dependent Variable: Loyalitas Pelanggan
Sumber: Hasil Olahan SPSS, 2022

Koefisien Determinasi Sub Struktur 2

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.885 ^a	.782	.776	1.62306

a. Predictors: (Constant), Kepuasan Pelanggan, Kualitas Produk, Harga
Sumber: Hasil Olahan SPSS, 2022

The value of ϵ_2 is determined through calculation

$$Y = 0,512 X_1 + 0,187 X_2 + 0,247 Z + \sqrt{1 - \text{Adjusted R Square}}$$

$$Y = 0,512 X_1 + 0,187 X_2 + 0,247 Z + \sqrt{1 - 0,776}$$

$$Y = 0,512 X_1 + 0,187 X_2 + 0,247 Z + 0,473$$

Based on tables 4.7 and 4.8, the magnitudes of effects between variables are summarized in the following table:

Table 4.9. Effects Among Variables

Hubungan Langsung dan Tidak Langsung			
Variabel	Pengaruh Langsung	Pengaruh Tidak Langsung (pzx) (pyz)	Pengaruh Total (PL + PTL)
Kualitas Produk (X1) terhadap Kepuasan Pelanggan (Z)	0,462		0,462
Harga (X2) terhadap Kepuasan Pelanggan (Z)	0,429		0,429
Kualitas Produk (X1) terhadap Loyalitas Pelanggan (Y)	0,512		0,512
Harga (X2) terhadap Loyalitas Pelanggan (Y)	0,187		0,187
Kepuasan Pelanggan (Z) terhadap Loyalitas Pelanggan (Y)	0,247		0,247
Kualitas Produk (X1) terhadap Loyalitas Pelanggan (Y)		Melalui Kepuasan Pelanggan (Z) $0,462 \times 0,247 = 0,114$	0,626
Harga (X2) terhadap Loyalitas Pelanggan (Y)		Melalui Kepuasan Pelanggan (Z) $0,429 \times 0,247 = 0,105$	0,292
e1	0,544		0,544
e2	0,473		0,473

Sumber: Data Diolah Penulis, 2022

Thus, the relationships between the dependent and independent variable, and mediating variable can be illustrated in path diagram in figure 4.3.

Hypothesis Test

A. T-test

Partial hypothesis testing (5% significance level) with $df=97$ and $t\text{-table}=1.984$ shows that independent variables significantly impact the dependent variable when calculated $t\text{-value} > t\text{-table}$ and $\text{sig. level} < 0.05$.

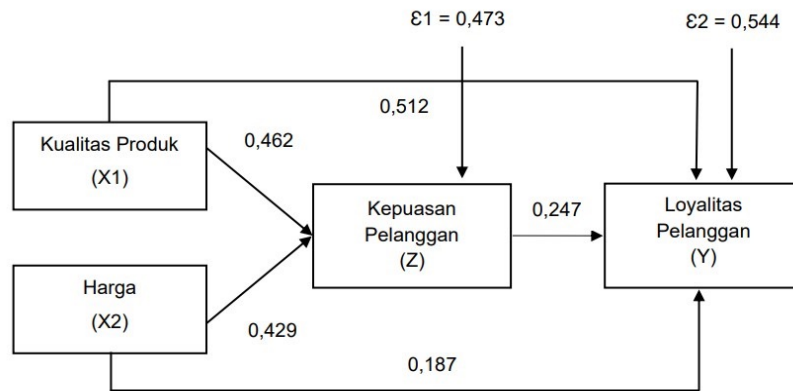


Figure 4.3. Heteroskedasticity Test Results Substructure 1

- a. Product Quality (X1) on Customer Satisfaction (Z):
Table 4.7’s partial hypothesis testing (sig. level=0.000 < 0.05) confirmed the significant influence of product quality on customer satisfaction, supporting H1.
- b. Price (X2) on Customer Satisfaction (Z):
t-value 4.831 > t-table 1.984, sig. level=0.000 < 0.05 suggesting that price significantly influences customer satisfaction. Hence, the hypothesis stating «Price influences customer satisfaction in customers of Madame Gie Official Shop on Shopee» (H2) is accepted.
- c. Product Quality (X1) on Customer Loyalty (Y):
The partial hypothesis testing in Table 4.8 showed a t-value 5.849 > t-table 1.984, sig. level=0.000 < 0.05. H0 rejected, H1 accepted, signifying significant influence of product quality on customer loyalty (H3).
- d. Price (X2) on Customer Loyalty (Y):
The partial hypothesis testing in Table 4.16 revealed a t-value 4.831 > t-table 1.984, sig. level=0.033 < 0.05. Price significantly impacts customer loyalty, sig. level=0.000 < 0.05.
- e. Customer Satisfaction (Z) Impacts Customer Loyalty (Y)
Partial hypothesis testing in Table 4.16 showed a t-value 2.790 > t-table 1.984, sig. level=0.006 < 0.05. Customer satisfaction significantly impacts customer loyalty (H5 accepted). Hence, the hypothesis stating “Customer satisfaction significantly influences customer loyalty in customers of Madame Gie Official Shop on Shopee” (H5) is accepted.

B. Sobel Test

Sobel test for mediating effect analysis. It helps determine the strength and significance of

Input:		Test statistic:	Std. Error:	p-value:
a	0.243	Sobel test: 2.45664239	0.04114885	0.01402422
b	0.416	Aroian test: 2.42182038	0.0417405	0.01544298
s _a	0.047	Goodman test: 2.49301098	0.04054856	0.01266649
s _b	0.149	Reset all	Calculate	

Figure 4.4. The result of the Sobel Test for X1-Z-Y.

the indirect influence in a causal relationship between the variables.

$$Z = \frac{ab}{\sqrt{b^2sa^2 + a^2sb^2 + sa^2sb^2}}$$

$$Z = \frac{0,101}{\sqrt{(0,416^2)(0,047^2) + (0,243^2)(0,149^2) + (0,047^2)(0,149^2)}}$$

$$Z = 2,456$$

The obtained Z-score from the Sobel Test for X1-Z-Y is 2.456 > 1.98 (critical Z-table value at a 5% significance level), and the p-value is 0.014 < 0.05. This indicates that Statistically significant indirect effect of product quality on customer loyalty through customer satisfaction, accepting H6.

Z-score from Sobel Test for X2-Z-Y is 2.418 (>1.98 critical value) with a p-value of 0.015 (<0.05). It indicates Sig. indirect effect of price on Y through Z. Thus, we accept the hypothesis stating "Price significantly influences Y mediated by Z in customers of Madame Gie Official Shop on Shopee."

MANAGERIAL IMPLICATION

- a. T-test shows product quality significantly influences customer satisfaction (p-value = 0.000, t-value = 5.195, direct effect = 46.2%). Customers of Madame Gie Official Shop on Shopee feel pleased and satisfied when the product quality exceeds their expectation.
- b. Price significantly influences customer satisfaction (p-value = 0.000, t-value =

- 4.831, direct effect = 42.9%), reflecting its relevance and affordability to the Indonesian market, leading to customer satisfaction.
- c. Product quality significantly influences customer loyalty (p < 0.05, t = 5.849, direct effect = 51.2%). Improving product quality can increase customer loyalty, as customers prefer high-quality products.
- d. Price significantly influences customer loyalty (p < 0.05, t = 2.166, direct effect = 18.7%). This shows that offering appropriate and competitive prices can positively impact customer loyalty for Madame Gie Official Shop's customers on Shopee.
- e. Z significantly impacts Y (p < 0.05, t = 2.790). A strong emotional bond and long-term commitment to Madame Gie's brand result from high satisfaction levels, contributing to 24.7% of customer loyalty. Satisfied customers more likely to stay loyal.
- f. The Sobel test reveals that product quality significantly influences customer loyalty through customer satisfaction (Z = 2.456, p = 0.014 < 0.05) with a 11.4% mediation effect. Improving product quality at Madame Gie Official Shop will enhance customer satisfaction and, consequently, increase customer loyalty.
- g. Sobel test indicates price significantly impacts Y mediated by Z (Z = 2.418, p = 0.015 < 0.05) with 10.5% mediation effect. Price impacts Y through Z mediation for Madame Gie Official Shop on Shopee. Appropriate

Input:		Test statistic:	Std. Error:	p-value:
a	0.329	Sobel test: 2.41820156	0.05659743	0.01559743
b	0.416	Aroian test: 2.38035982	0.05749719	0.01729574
s _a	0.068	Goodman test: 2.45790741	0.05568314	0.01397492
s _b	0.149	Reset all	Calculate	

Figure 4.5. The results of the Sobel Test for X2-Z-Y

pricing increases satisfaction and fosters greater loyalty.

a mediator. A positive shopping experience fosters customer loyalty.

CONCLUSION

Product quality, price, customer satisfaction, and loyalty at Madame Gie Official Shop on Shopee are interlinked. Satisfied customers result from favorable product quality and reasonable prices. Both product quality and price influence loyalty directly. Additionally, X1 and X2 indirectly impact Y through Z as

Based on research findings, is suggested improving product quality and maintaining competitive prices at Madame Gie Official Shop on Shopee can significantly impact customer satisfaction and foster customer loyalty. Satisfied customers, achieved through quality products and reasonable pricing, are more likely to become loyal patrons. ▴

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