

MAPPING IDEA & LITERATURE FORMAT | RESEARCH ARTICLE

The Influence of Service Quality and Product Quality on Customer Retention with Customer Satisfaction as a Mediating Variable

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ABSTRACT

The objective of this study is to examine the impact of service quality and product quality on customer retention, with customer satisfaction serving as a mediating variable, in the context of Basreng (fried meatball) products in PD Mekarsari Garut. A quantitative approach was employed, entailing the distribution of questionnaires to 384 respondents selected through non-probability sampling with the Purposive sampling method. The data analysis was conducted using the Structural Equation Modeling (SEM) method based on Partial Least Squares (PLS). The findings of the study suggest a positive and significant relationship between service quality (X1) and product quality (X2) on customer satisfaction (Z). Furthermore, the study found that customer satisfaction (Z) significantly influences customer retention (Y). Furthermore, service quality (X1) and product quality (X2) exert a direct and indirect influence on customer retention (Y), with customer satisfaction (Z) functioning as a mediating factor. The R-square values of 0.625 for customer satisfaction (Z) and 0.425 for customer retention (Y) suggest that the model possesses adequate predictive capability. These findings underscore the significance of maintaining and enhancing service quality (X1) and product quality (X2) to foster customer satisfaction (Z) and cultivate long-term retention. The practical implications of this study suggest that businesses, particularly Basreng PD Mekarsari, should prioritize enhancing their service and product quality as a strategy to maintain customer retention in a competitive market.

Keywords: Service Quality, Product Quality, Customer Retention, Customer Satisfaction.

I. Introduction

Indonesia is an agrarian country, in which the agricultural sector plays a vital role in the national economy. In 2023, 29.36% of the national workforce, amounting to 146.62 million individuals, were employed in this sector (Central Statistics Agency 2023). One such commodity is cassava, which is processed into tapioca flour, a fundamental ingredient in numerous processed products, including fried meatball chips (basreng), which have witnessed a surge in popularity among consumers. The market potential for these processed products continues to expand, driven by advancements in technology and social media, which provide broader market access. In order to maintain their reputation and competitiveness in the market, entrepreneurs must ensure consistent product quality (Buntu Laulita 2023). An examination of data concerning the consumption of snack food reveals a marked increase, from IDR 992,405 per capita per week in 2018 to IDR

1,068,316 per capita per year in 2022 (Hidayatulloh, Darsono, and Riptanti 2024). The following data set presents information regarding the retail sales of packaged food and beverages in Indonesia.

Table 1. Retail Sales Data for Packaged Food and Beverages in Indonesia (2018-2022)

Year	USD
2018	29,5 Billion
2019	31,76 Billion
2020	33,31 Billion
2021	35,84 Billion
2022	40,11 Billion

According to Table 1 data published by the United States Department of Agriculture (USDA) in April 2023, retail sales of packaged food and beverages in Indonesia reached USD 40.11 billion (approximately Rp 601.65 trillion) in 2022. This figure indicates an annual growth rate of 11.9% since 2018. This growth is driven by two factors. First, there has been an expansion of minimarkets selling local products. Second, there has been an increase in consumer demand for packaged and processed foods. Some examples of these foods include frozen foods, processed fruits and vegetables, and various chips and snacks (databoks 2023). PD Mekarsari wants sales to continue to increase from year to year, but based on recorded data from 2019 to 2023, the data shows the opposite, as shown in the sales data graph below.

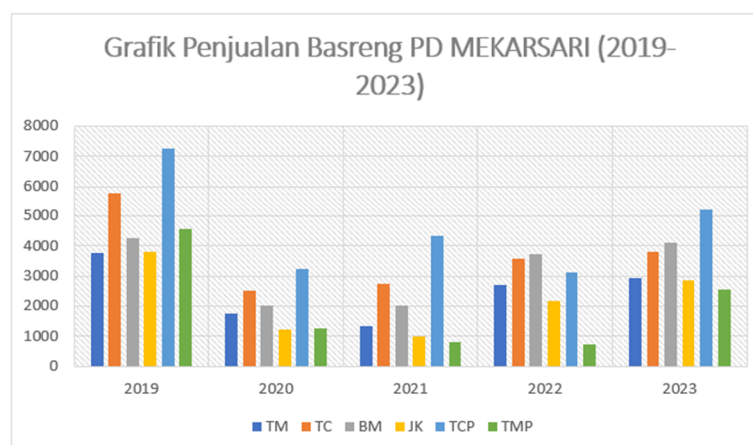


Figure 1. Sales graph of PD Mekarsari

Description:

- TM : Medium-sized basreng
- TC : Small-sized basreng
- BM : Basreng is larger than TM
- JK : Largest-sized basreng
- TCP : Small basreng pack containing 20
- TMP : Medium-sized basreng containing 10

As demonstrated by the sales graph of Basreng PD Mekarsari in Figure 1 above, there has been a period of instability in sales from 2019 to 2023, with a decline during the period of the global pandemic from 2020 to 2022, across a variety of product types. In 2023, there was a modest recovery in sales; however, this recovery was not significant in relation to the levels recorded in 2019. Service quality plays a pivotal role in determining customer satisfaction, as it is indicative of the extent to which consumer expectations are met by service providers. The enhancement of service quality has been demonstrated to directly contribute to an

elevation in customer satisfaction, as consumers experience a sense of satisfaction when the service they receive aligns with or surpasses their expectations. Conversely, when the service provided does not align with expectations, customers are likely to experience disappointment. Consequently, the provision of excellent service quality emerges as a pivotal factor in fostering satisfaction and customer retention (Kuswibowo 2022).

However, another study posits that service quality does not have a significant impact on customer satisfaction (Septivianto and Sarwoko 2024). In addition to the quality of service, the quality of the product is also a key factor in fostering consumer satisfaction. The development of products that are reliable, durable, and capable of meeting the expectations and needs of customers is conducive to creating a positive experience for consumers. Consequently, the superiority of the quality of the products offered has a direct correlation with the satisfaction of consumers (Hakim 2021). A subsequent study demonstrated that product quality exerts a positive yet statistically insignificant influence on customer satisfaction (Teresa et al. 2024). Customer satisfaction, which is derived from the quality of service and the caliber of the products offered, exerts a significant influence on customer retention. It has been demonstrated that satisfied customers are more likely to continue using a product or service over the long term. This satisfaction is influenced by various factors, including service quality, reliability, empathy, and the ease and comfort of consumption. When the customer experience meets or exceeds expectations, customer retention is likely to continue, and the likelihood of customers switching to other products is reduced (Abdullah et al. 2024). However, a contradictory study indicates that customer satisfaction does not have a substantial impact on customer retention (Arifin Rahmatulloh and Melinda, 2021).

Furthermore, the quality of service has been demonstrated to have a direct impact on customer retention. The provision of excellent service has been demonstrated to engender a sense of satisfaction, security, and appreciation in customers. This fosters a robust emotional connection with the service provider, thereby cultivating trust and mitigating the inclination to seek alternatives. Consequently, the provision of high-quality service constitutes a pivotal element in fostering customer retention (Abdullah et al. 2024). Furthermore, studies have demonstrated a direct correlation between product quality and customer retention. The superior quality of products engenders satisfaction and trust among customers, thereby encouraging continued patronage. When consumers receive products that meet their expectations in terms of freshness, durability, and consistency, they are more likely to make repeat purchases and establish long-term relationships with the company. Consequently, enhancing product quality emerges as a pivotal strategy for maintaining customer retention and mitigating the probability of customer migration to competing entities (Fadilah and Fihartini 2025).

The objective of this study is to examine the impact of service quality and product quality on customer retention, with the mediation of customer satisfaction, at Basreng PD Mekarsari in Garut. In order to ensure the long-term retention of its clientele and the promotion of repeat purchases, PD Mekarsari must first ascertain the factors contributing to customer satisfaction. These factors include service quality and product quality, both of which have been identified as crucial elements in enhancing customer retention. A comprehensive understanding of the interplay between service quality, product quality, and customer satisfaction in relation to customer retention at Basreng PD Mekarsari is imperative for the development of effective strategies to enhance business performance. Consequently, in the context of the research study entitled "The Influence of Service Quality and Product Quality on Customer Retention through Customer Satisfaction at Basreng PD Mekarsari," the investigation of customer satisfaction assumes significance in evaluating the extent to which the quality of service and product can bolster customer retention.

II. Literature Review and Hypothesis Development

2.1. Customer Retention

According to Artha et al, customer retention has become a central concept in marketing and management research, as it reflects the ability of firms to sustain long-term relationships with their customers

in increasingly competitive markets. Next, customer retention is defined as the tendency of customers to continue using the same service provider over time. This implies that customer retention is not merely a static condition but a dynamic process that evolves through consistent interactions and experiences (Artha et al. 2022). Positive, engaging, and memorable customer experiences are among the most important drivers of retention, since satisfied customers are more likely to make repeat purchases and maintain their relationship with the company (Salamah et al. 2022). This perspective highlights that customer retention is not only an outcome but also a process that emerges from value co-creation between companies and their customers. Furthermore, customer retention can also be viewed as a deliberate marketing strategy aimed at maintaining long-term mutual benefits for both the firm and its customers. As emphasized by Anastasya Sinambela, the retention process requires businesses to build, maintain, and optimize customer relationships in ways that deepen trust, strengthen commitment, and expand the value exchange over time. From this standpoint, customer retention extends beyond transactional interactions and encompasses a broader relational and strategic orientation (Anastasya Sinambela et al. 2022).

Similarly, Amanda Putra and Toto Raharjo define customer retention as the ability of a company to retain its existing customers across a prolonged period. Their framework suggests that retention can be observed through various behavioral indicators such as the customer's intention to return, the frequency of visits, word-of-mouth recommendations, the act of inviting others to engage with the firm, and the prioritization of the company's offerings over competitors. These indicators reflect both attitudinal and behavioral dimensions of retention, making it a multidimensional construct. Collectively, these perspectives suggest that customer retention is not only crucial for ensuring repeat business but also for fostering sustainable competitive advantage, as loyal customers often become advocates who help expand the firm's customer base (Amanda Putra and Toto Raharjo 2022). For Basreng PD Mekarsari, customer retention is a vital strategy to ensure sustainable growth in a competitive snack industry. Retaining loyal customers means that the company can secure consistent revenue streams and reduce marketing costs associated with acquiring new customers. Customers who repeatedly purchase Basreng products often do so because they are satisfied with the taste, texture, and reliability of the brand. Moreover, loyal customers tend to promote the product through word-of-mouth, further strengthening PD Mekarsari's market presence. Therefore, focusing on customer retention enables PD Mekarsari to build a long-term relationship with its customer base, ensuring resilience against market fluctuations.

2.2. Service Quality

According to Putri, service quality can be defined as the process of comparing customers' perceptions of the service they receive with the service they expect to receive (Putri 2021). Furthermore, Service quality, defined by Ali et al, is a combination of technical and functional quality. In this regard, functional service quality refers to the specifications of how the service is delivered to customers, while technical service quality refers to what is received by the customer (Ali et al. 2021). Service quality is defined as the effort to meet customer needs and desires, as well as the accuracy of delivery in matching customer expectations. Service quality is defined as the extent to which a company endeavors to meet or exceed customer expectations regarding the service they receive. This concept is pivotal in ensuring a company's survival in the market and fostering customer trust (Naini et al. 2022). Service quality can be defined as the aggregate of all activities undertaken by an organization to align with consumer expectations (Kango et al. n.d.). Panday and Nursal, however, define service quality as the customer's perception of the service they receive. Furthermore, service quality is defined as an aggregate evaluation of the functions of service actually received by customers (technical quality) and how the service is delivered (functional quality) (Panday and Nursal 2021). The dimensions of service quality are as follows: tangibles, reliability, responsiveness, assurance, and empathy (Naini et al. 2022).

Service quality plays an essential role in shaping customers' perceptions and experiences with Basreng PD Mekarsari. Beyond the quality of the product itself, customers also evaluate how the company

delivers its service, ranging from responsiveness in handling orders, friendliness in communication, timeliness in delivery, to the neatness of product packaging. High service quality enhances customer trust and creates a sense of reliability, which increases the likelihood of repeat purchases. For PD Mekarsari, maintaining excellent service quality is particularly important in building credibility and fostering positive experiences that contribute to overall customer retention.

2.3. Product Quality

According to Akbar et al, product quality can be defined as a combination of attributes and features that a product possesses, enabling it to meet both stated and unstated consumer needs (Akbar et al. 2021). This encompasses not only the physical and functional aspects of the product but also the emotional satisfaction it offers to the user. The key dimensions of product quality include durability and reliability. In this context, durability refers to the product's ability to be used over a long period without significant wear, and reliability refers to the ease of maintenance or repair, which in turn saves the user time and effort (Rosyihuddin et al. 2022). Additionally, product quality encompasses the extent to which a product fulfills its intended function with precision and consistency, thereby enhancing consumer satisfaction and cultivating brand loyalty through repeated purchases (Junikon and Ali n.d.). The concept of product quality is predicated on the endeavor to align with consumer needs and desires, in addition to the precision of its delivery to meet consumer expectations. Anything offered to a market to meet or exceed consumer expectations, and that can be acquired, used, and consumed to satisfy desires and needs, is considered (Hernikasari et al. 2022). Product quality is determined by performance, reliability, features, durability, and conformance (Fandiyanto, Ghazali, and Arief 2022). Product quality is the foundation of customer satisfaction and retention in the food industry, and it is especially crucial for Basreng PD Mekarsari. The crispiness, unique seasoning, freshness of raw materials such as fish, and consistency in flavor are core attributes that determine customers' perception of quality. When customers perceive that Basreng products consistently deliver superior quality compared to competitors, they are more likely to form strong brand preferences. High product quality also minimizes dissatisfaction and complaints, thereby reinforcing customer confidence in repurchasing the product and recommending it to others.

2.4. Customer Satisfaction

According to Singh, Sharma, and Jayapriya, customer satisfaction is defined as the perception that customer expectations have been met following the receipt of goods or services. Customer satisfaction is a multifaceted concept that can be measured by the level of contentment or happiness experienced by customers after interacting with a business. Satisfied customers feel that their needs and desires have been met or exceeded, and they perceive value in the products or services received (Singh, Sharma, and Jayapriya 2023). Customer satisfaction is also defined as the extent to which a product or service meets or surpasses customer expectations (Dam and Dam 2021). Customer satisfaction is a distinctive performance indicator, arising from the superiority of the customer experience and the elements that delineate the discrepancy between customer expectations and actual experiences (Manyanga, Makanyeza, and Muranda 2022). The factors contributing to customer satisfaction encompass product quality, service quality, emotions, price, and promotions (Hakim 2021). This approach enhances the coherence of the argument and facilitates the reader's comprehension of the transition from theoretical concepts to empirical investigation.

Customer satisfaction acts as the bridge between product/service quality and customer retention in Basreng PD Mekarsari. When customers feel that the taste, price, packaging, and service provided meet or exceed their expectations, they experience higher levels of satisfaction. This satisfaction translates into behavioral intentions such as repurchasing, recommending to friends, and prioritizing Basreng PD Mekarsari over competitors. In a highly competitive snack market, customer satisfaction becomes a crucial differentiator

that determines whether customers stay loyal or switch to alternative products. Thus, consistently prioritizing customer satisfaction ensures PD Mekarsari’s long-term market sustainability.

The objective of this study is to examine the impact of service quality and product quality on customer retention, with customer satisfaction serving as a moderating variable. In light of these findings, the following hypotheses are proposed:

- H1: Service quality has a positive and significant effect on customer satisfaction.
- H2: Product quality has a positive and significant effect on customer satisfaction.
- H3: Perceived customer satisfaction has a positive and significant effect on customer retention.
- H4: Service quality has a positive and significant effect on customer retention.
- H5: Product quality has a positive and significant effect on customer retention.

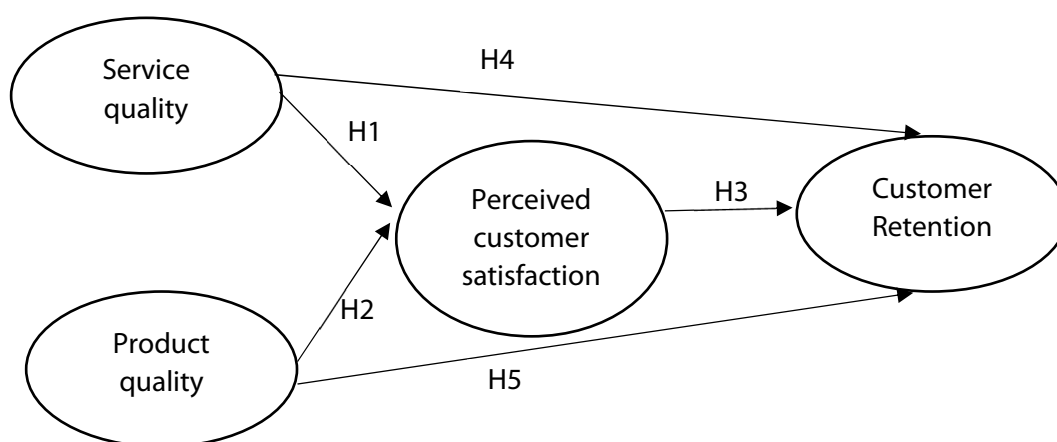


Figure 2. Conceptual Framework

III. Research Method

3.1. Research Type, Population, and Sample

This quantitative study investigates a specific population or sample by collecting numerical data, with an emphasis on hypothesis testing using standardized instruments and statistical data processing (Gede and Sudipa 2024). Since quantitative research emphasizes the measurement and analysis of variables using numerical data, it is essential to clearly define the population from which the data will be drawn. The population in this study consists of the Basreng PD Mekarsari industry. The sample was selected using non-probability sampling with the purposive sampling method, because there is no detailed data from the research object of the Basreng PD Mekarsari, and also involves choosing samples based on certain criteria relevant to the research objectives. The sample size for this study was determined using the Lemeshow formula with a confidence level of 95% and a margin of error of 5% (Sekaran and Bougie 2016).

$$\begin{aligned}
 n &= \frac{Z^2 \cdot p \cdot (1 - p)}{d^2} \\
 n &= \frac{(1,96)^2 \cdot 0,5 \cdot (1 - 0,5)}{(0,05)^2} \\
 n &= \frac{3,8416 \cdot 0,25}{0,0025} \\
 &= \frac{0,9604}{0,0025} \\
 &= 384
 \end{aligned}$$

n = minimum sample size

Z = Z score (for a 95% confidence level, the Z value = 1.96)

p = proportion of the population being studied (if unknown, use 0.5 for maximum results)

d = margin of error (in decimal form, for example, 5% → 0.05)

Based on the calculation results, the estimated number of respondents required to meet the research needs is 384 individuals.

3.2. Sampling Method and Measurement Scale

The data collection method in this study is a questionnaire, an essential step in gathering relevant data. A questionnaire is a data collection technique that involves distributing written questions or statements to respondents for them to answer (Sugiyono 2020). The purpose of distributing the questionnaire is to obtain data, which will be processed using the Likert scale, a scale used to measure attitudes, opinions, and perceptions about social phenomena (Handoyo et al. 2021). Before respondents fill out the questionnaire, the researcher will explain the purpose of the study and encourage them to provide honest answers to obtain accurate results. The questionnaire is designed with a score-based rating system, where each alternative answer is assessed progressively (Sekaran and Bougie 2016). The Likert scale measures four main variables: service quality, product quality, customer satisfaction, and customer retention. Service quality includes tangibles, reliability, responsiveness, assurance, and empathy (Naini et al. 2022). Product quality involves performance, reliability, features, durability, and conformance (Fandiyanto, Ghazali, and Arief 2022). Customer satisfaction includes product quality, service quality, emotions, price, and promotions (Hakim 2021). Customer retention includes repurchase intention, purchase frequency, recommendations, invitations, and priority (Amanda Putra and Toto Raharjo 2022).

3.3. Data Analysis Method

This study employed Structural Equation Modeling (SEM) using the Partial Least Squares (PLS) approach, with data analysis performed through SmartPLS software (Hair et al. 2021). The evaluation of the measurement model (outer model) included assessments of convergent validity (factor loading > 0.70), discriminant validity (HTMT < 0.90 or 0.85), and reliability, which was determined through composite reliability or Cronbach's Alpha values greater than 0.70, as well as an Average Variance Extracted (AVE) exceeding 0.50 (Sarstedt and Rambut 2020). The structural model (inner model) was evaluated using R-square, Q-square, and the bootstrapping method with 5,000 subsamples to test the significance of path coefficients at the 5% level (Sekaran and Bougie 2016). Hypothesis testing relied on P-values, where a result of $P \leq \alpha$ indicated a statistically significant relationship (Sugiyono 2020). This study employs Structural Equation Modeling (SEM) because it is capable of analyzing complex relationships between latent variables and their indicators simultaneously. SEM is chosen over other methods as it can measure constructs that cannot be directly observed, such as customer satisfaction and customer retention, through their indicators. In addition, SEM allows for testing the overall model using goodness-of-fit indices and enables the examination of mediation and moderation effects with greater accuracy. Therefore, SEM is considered more comprehensive and suitable for the objectives of this research.

3.4. Respondent Demographics

As presented in Table 2, the majority of respondents were under the age of 20, comprising 58 individuals (15.11%), followed by those aged 21–30, with 248 individuals (64.58%), and respondents aged over 30, totaling 121 individuals (20.31%). In terms of domicile, most respondents resided in Garut Regency, accounting for 297 individuals (77.34%), while the remaining 87 respondents (22.66%) were from other cities.

Regarding gender distribution, the sample consisted predominantly of female respondents (204 individuals or 53.13%), while male respondents accounted for 180 individuals (46.88%). Based on occupational background, the largest group of respondents was university students (103 individuals or 26.82%), followed by entrepreneurs (59 individuals or 15.36%), traders (37 individuals or 10%), and laborers (27 individuals or 7.03%). The remaining 158 respondents (41.15%) were classified under other occupations.

Table 2. Sample Criteria (N = 384)

Measurement	N	%
Age		
<20	58	15,11
21-30	248	64,58
30>	71	30,31
Total	384	100
Domicile		
Garut	297	77,34
Others	87	22,66
Total	384	100
Gender		
Male	180	46,88
Female	204	53,13
Total	384	100
Occupation		
Student	103	26,82
Entrepreneur	59	15,36
Trader	37	9,64
Labor	27	7,03
Others	158	41,15
Total	384	100

IV. Results and Discussion

4.1. Convergent Validity

An indicator is considered to have convergent validity if its outer loading value exceeds 0.70. As shown in Table 3, all research variable indicators demonstrated outer loading values above the 0.70 threshold, indicating robust convergent validity. Notably, no indicator recorded an outer loading value below 0.50, suggesting that all indicators are statistically valid and suitable for research purposes. Kami, the outer loading values for each indicator within the research variables are presented in the following table:

Table 3. Outer Loading Values

Variable	Indicator	Outer Loading
Service Quality	SQ1	0.844
	SQ2	0.847
	SQ3	0.871
	SQ4	0.879
	SQ5	0.890
Product Quality	PQ1	0.836
	PQ2	0.867
	PQ3	0.886
	PQ4	0.871

Variable	Indicator	Outer Loading
	PQ5	0.868
Customer Satisfaction	CS1	0.819
	CS2	0.886
	CS3	0.832
	CS4	0.824
	CS5	0.847
Customer Retention	CR1	0.881
	CR2	0.773
	CR3	0.911
	CR4	0.888
	CR5	0.873

4.2. Data Analysis

The following figure illustrates the PLS model tested in this study.:

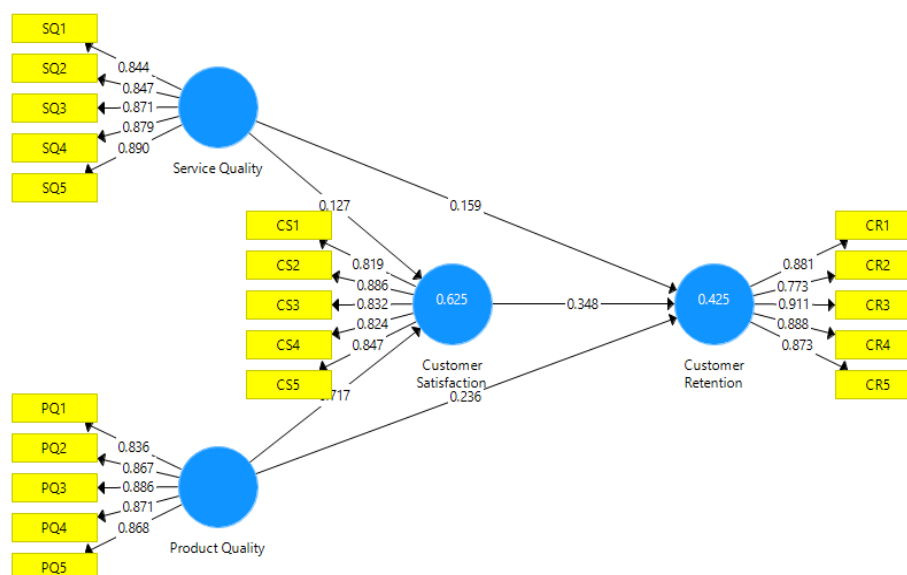


Figure 3. Outer Model

4.3. Discriminant Validity

Discriminant validity is important because it ensures that each construct in the research model measures a truly distinct concept and does not overlap with other variables. This test prevents multicollinearity, strengthens the accuracy of the structural model, and increases the credibility of research findings. In the context of SEM, establishing discriminant validity allows researchers to confirm that constructs such as service quality, product quality, customer satisfaction, and customer retention are empirically different, which supports more reliable hypothesis testing and provides clearer managerial implications (Gede and Sudipa 2024).

Discriminant validity was assessed by examining the Average Variance Extracted (AVE) values, with an AVE greater than 0.50 considered the threshold for acceptable convergent validity. Based on Table 4, all variables in this study demonstrated AVE values exceeding 0.50. Specifically, Service Quality recorded an AVE of 0.751, Product Quality 0.749, Customer Satisfaction 0.709, and Customer Retention 0.751. These results

indicate that each construct in the study meets the required criteria and can therefore be considered valid with respect to discriminant validity. The AVE values for each construct are presented in the following table:

Table 4. Average Variance Extracted (AVE)

Variable	AVE (Average Variance Extracted)	Status
Service Quality	0.751	Valid
Product Quality	0.749	Valid
Customer Satisfaction	0.709	Valid
Customer Retention	0.751	Valid

4.4. Reliability Test

After the validity discriminant test is carried out, the next step is a reliability test. A construct is considered to meet the composite reliability requirement if its composite reliability (CR) value exceeds 0.70. Table 5 shows that the composite reliability scores for all research variables surpass the 0.70 threshold. Specifically, Service Quality recorded a value of 0.938, Product Quality 0.937, Customer Satisfaction 0.924, and Customer Retention 0.938. These results confirm that all variables demonstrate high composite reliability, indicating that the constructs used in this study are consistent and reliable for further analysis. The composite reliability values for each construct are presented in the following table:

Table 5. Composite Reliability Values

Variable	Composite Reliability
Service Quality	0.938
Product Quality	0.937
Customer Satisfaction	0.924
Customer Retention	0.938

4.5. Cronbach's Alpha

Table 6 indicates that the Cronbach's Alpha values for all variables in this study exceeded 0.60, confirming that the alpha coefficients meet the reliability standards required for all constructs. Specifically, Service Quality scored 0.917, Product Quality 0.916, Customer Satisfaction 0.897, and Customer Retention 0.917. These results affirm that each construct demonstrates internal consistency and can be considered reliable for further statistical analysis.

Table 6. Cronbach Alpha

Variable	Cronbach Alfa
Service Quality	0.917
Product Quality	0.916
Customer Satisfaction	0.897
Customer Retention	0.917

4.6. Inner Model Analysis

This section presents the results of the model fit assessment, path coefficient analysis, and hypothesis testing.

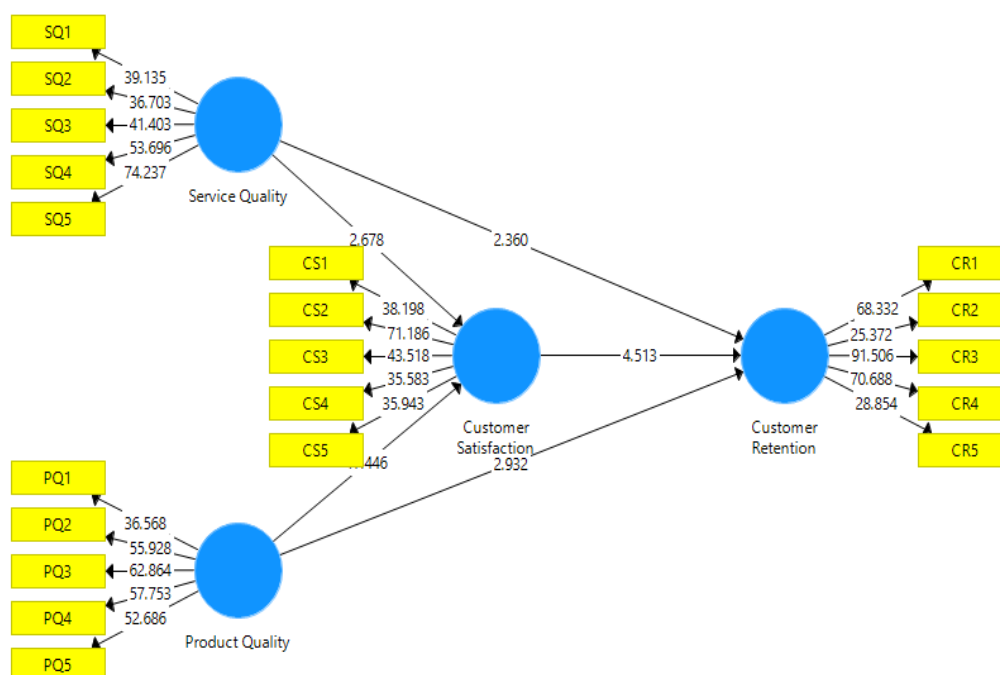


Figure 4. Inner Model

4.7. Model Goodness-of-Fit-Test

The model goodness-of-fit test in this study consisted of two key assessments: R-Square (R²) and Q-Square (Q²). The R-Square value reflects the explanatory power of the exogenous variables on the endogenous variables, where higher R-Square values indicate stronger explanatory ability. According to (Ghozali and Latan 2021), R-Square values of 0.75, 0.50, and 0.25 can be categorized as substantial, moderate, and weak, respectively. Based on Table 7, the R-Square value indicates a moderate effect of Service Quality and Product Quality on Customer Satisfaction, explaining 62.5% of the variance (categorized as moderate), and on Customer Retention, explaining 42.5% of the variance (also categorized as moderate). These values demonstrate the degree of association and influence of the independent variables on the dependent variables.

Table 7. R-Square Values

Variable	R-Square	Adjusted R-Square
Customer Satisfaction	0.625	0.623
Customer Retention	0.425	0.421

Source: Researcher (2025)

The Q-Square value was calculated to assess predictive relevance in the structural model. The calculation is as follows:

$$Q^2 = 1 - \frac{SSE}{SSO}$$

$$Q^2 = 1 - \frac{1.327.412}{1.920.000}$$

$$Q^2 = 1 - 0.691$$

Q2 = 0.309

The result shows a Q-Square value of 0.309, which indicates that the model is able to explain 30.9% of the data variance, while the remaining 69.1% is influenced by factors outside the model.

4.8. Hypothesis Testing

The path coefficient table was used to test the study's hypotheses and to measure the effects among the variables. The analysis was conducted using a bootstrapping procedure in SmartPLS 3 to generate t-statistics and p-values. A p-value of ≤ 0.05 indicates a significant effect, while the critical t-statistic threshold is 1.96 at a 5% significance level; thus, any t-statistic greater than 1.96 is deemed statistically significant. Table 8 presents the path coefficient scores and results of hypothesis testing. The findings reveal that Service Quality has a positive and significant effect on Customer Satisfaction ($t = 2.678$, $p = 0.008$), thereby supporting the hypothesis. This result is consistent with prior studies asserting that Customer Satisfaction is positively and significantly influenced by Service Quality (Syahsudarmi, Tinggi, and Riau 2022).

Similarly, Product Quality significantly affects Customer Satisfaction ($t = 17.446$, $p = 0.000$), confirming the hypothesis and aligning with previous research that found Customer Satisfaction to be positively shaped by Product Quality (Lone and Bhat 2023). Furthermore, Customer Satisfaction significantly impacts Customer Retention ($t = 4.513$, $p = 0.000$), supporting the hypothesis. This finding is consistent with (Hussain Shah et al. 2023), who reported that Customer Retention is positively and significantly influenced by Customer Satisfaction. In addition, Service Quality exerts a significant effect on Customer Retention ($t = 2.360$, $p = 0.019$), which corroborates the hypothesis and supports the findings of Yasfi and Pardede 2023), who observed that Customer Retention benefits substantially from Service Quality. Finally, Product Quality has a positive and significant effect on Customer Retention ($t = 2.932$, $p = 0.004$), confirming the hypothesis and supporting previous studies indicating that Product Quality has a direct and meaningful impact on Customer Retention. Overall, the results demonstrate that Service Quality and Product Quality play critical roles in enhancing Customer Retention, with Customer Satisfaction functioning as a mediating variable.

Table 8. Path Coefficients (Direct Effects)

	Hypothesis	Original Sample	t-statistic	P-value	Conclusion
Service Quality → Customer Satisfaction	H1	0.127	2.678	0.008	Significant
Product Quality → Customer Satisfaction	H2	0.717	17.446	0.000	Significant
Product Quality → Customer Satisfaction	H3	0.348	4.513	0.000	Significant
Service Quality → Customer Retention	H4	0.159	2.360	0.019	Significant
Product Quality → Customer Retention	H5	0.236	2.932	0.004	Significant

4.9. Discussion

The analysis provides detailed insights into the tested relationships within the research model. Service Quality was found to significantly influence Customer Satisfaction (t-statistic > 1.96 ; p-value < 0.05), indicating that service dimensions such as tangibles, reliability, responsiveness, assurance, and empathy strongly shape customers' positive perceptions. This finding aligns with prior research emphasizing the critical

role of service quality in enhancing customer retention (Kuswibowo 2022). With the explanation and results that have been presented and tested, it is stated that H1 is accepted and has a positive and significant influence. In the context of PD Mekarsari, this finding highlights the importance of responsive order handling, attractive packaging, and polite customer service as critical aspects that enhance consumer satisfaction with basreng products.

Product Quality also demonstrated a significant impact on Customer Satisfaction (t-statistic > 1.96; p-value < 0.05). This implies that product attributes such as durability, performance, reliability, and conformance are decisive in shaping the level of satisfaction experienced by customers. Furthermore, Customer Satisfaction serves as a significant mediator between the effects of Service Quality and Product Quality on Customer Retention, highlighting that while quality is a crucial factor, customer satisfaction remains the key psychological determinant influencing repeat purchases, product recommendations, and customer retention. With the explanation and results that have been presented and tested, it is stated that H2 is accepted and has a positive and significant influence. For PD Mekarsari, ensuring that basreng products maintain consistent crispiness, freshness of fish-based ingredients, and balanced seasoning is essential in driving customer satisfaction and encouraging repeat purchases.

The R-square value for Customer Retention (0.425) and for Customer Satisfaction (0.625) indicates that the model demonstrates moderate predictive power, while the positive Q-square value (0.309) confirms that the model holds strong predictive relevance. However, achieving sustainable customer retention is not solely determined by service or product quality; it also depends on how these strategies are consistently implemented, taking into account evolving customer expectations and competitive market dynamics. This suggests that for PD Mekarsari, long-term customer retention not only requires high-quality products but also consistent adaptation to changing consumer preferences, such as offering new flavor variants or using social media promotions to reach younger customers. The results further show that Service Quality has a significant effect on Customer Retention (t-statistic = 2.360; p-value = 0.019). This suggests that the quality of service delivery, as well as how customers are served, plays a crucial role in business management, directly improving operational efficiency, competitiveness, and fostering repeat purchases. This finding is consistent with (Hussain Shah et al. 2023), who argue that service quality enhances adaptability and sustains customer relationships in dynamic business environments. With the explanation and results that have been presented and tested, it is stated that H3 is accepted and has a positive and significant influence.

Applied to PD Mekarsari, this finding underscores that reliable delivery times, polite communication, and attention to packaging are critical in retaining loyal snack consumers and ensuring they continue choosing Mekarsari products over competitors. The positive influence of Product Quality on Customer Retention (t-statistic = 2.678; p-value = 0.008) underscores that continuous product development is one of the key factors in driving repeat purchases and adding value for customers. This aligns with (Falahat et al. 2020), who found that product quality, when integrated with strong service delivery, extends the product life cycle and strengthens customer retention. With the explanation and results that have been presented and tested, it is stated that H4 is accepted and has a positive and significant influence.

For PD Mekarsari, this means that continuously innovating in product taste, improving crispiness, and maintaining hygiene standards are vital strategies to keep customers loyal and willing to repurchase regularly. With regard to Customer Satisfaction, the findings confirm its significant mediating role in the relationship between Service Quality and Product Quality on Customer Retention. The results also highlight that digital interactions (t-statistic = 4.513; p-value = 0.000), including positive customer comments during offline purchases or through platforms like WhatsApp, can reinforce satisfaction and retention, preventing customers from switching to competitors' products. With the explanation and results that have been presented and tested, it is stated that H5 is accepted and has a positive and significant influence.

For PD Mekarsari, leveraging WhatsApp groups, Instagram, and TikTok to highlight customer reviews and testimonials can further strengthen satisfaction and maintain customer retention in the increasingly digitalized snack market. Moreover, while the model demonstrates moderate explanatory power (R-square of 0.425 for Customer Retention and 0.625 for Customer Satisfaction) and contributes 30.9% of the variance as

indicated by the Q-square value (0.309), it is important to note that Customer Satisfaction's mediating effect is highly contingent on supporting factors such as human resource readiness, technological infrastructure, and effective implementation strategies.

In the case of PD Mekarsari, this means that employee training in customer service, investment in digital marketing tools, and readiness to respond to customer feedback are necessary to optimize satisfaction and drive stronger retention. In other words, achieving customer satisfaction is not a stand-alone solution but a catalyst that must be integrated with entrepreneurial strategies and continuous product quality enhancement, including employee training to improve service delivery overall. These findings reinforce the integrative approach between Customer Satisfaction, Service Quality, and Product Quality as a comprehensive strategy for enhancing Customer Retention, particularly in today's increasingly competitive business landscape. For PD Mekarsari, this highlights the importance of integrating consistent product quality, excellent service, and innovative entrepreneurial strategies to build a sustainable competitive advantage in the local and regional industry.

V. Conclusion

Based on the findings of this study, it can be concluded that Service Quality and Product Quality play a pivotal role in enhancing Customer Retention, both directly and indirectly through Customer Satisfaction as a mediating variable. Service Quality, encompassing tangibles, reliability, responsiveness, assurance, and empathy, has been shown to generate a positive impact on Customer Satisfaction, allowing customers to feel valued, cared for, and well-served. Similarly, Product Quality, evaluated in terms of durability, performance, features, conformance, and reliability, significantly contributes to shaping customers' positive perceptions of PD Mekarsari's basreng products. Customer Satisfaction emerges as a critical mediating factor that bridges the influence of quality on Customer Retention. When customers' expectations and needs are fulfilled through high-quality services and products, they experience satisfaction, which in turn fosters retention, repeat purchase intentions, and willingness to recommend the product to others. This underscores that quality improvement strategies cannot stand alone but must be harmoniously integrated with efforts to create a delightful and satisfying customer experience.

The study also demonstrates that the structural model employed possesses predictive strength, as evidenced by the R-square and Q-square values, which indicate that the constructs in the model explain a substantial portion of the observed data variance. Nonetheless, this research acknowledges several limitations. First, the relatively limited sample size and focus on a specific geographic context may affect the generalizability of the findings. Second, the purely quantitative approach employed does not fully capture the deeper dynamics of individual behaviors and complex organizational contexts. For future research, it is recommended to expand the sample scope and include a more diverse range of industries to enhance the generalizability of the results. Moreover, combining quantitative and qualitative methods could provide richer insights into customer experiences, motivations, and challenges in implementing Customer Satisfaction and Customer Retention strategies. Future researchers are also encouraged to explore the roles of other factors, such as organizational culture, customer experience, digitalization, or market orientation, as potential mediating or moderating variables in the relationship between Service Quality and Business Performance. Finally, longitudinal studies examining the long-term effects of Service Quality on Customer Retention, business sustainability, and adaptability to market changes would further enrich the understanding of these dynamics. In conclusion, this study reinforces the integrative approach between Product Quality, Service Quality, and Customer Satisfaction as a sustainable strategy for improving Customer Retention, particularly in an increasingly competitive business environment.

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