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NM Auto Shop Marketing Strategy: An Analysis of Service Quality and Price Fairness in Building Customer Loyalty

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ABSTRACT

This research aims to analyze the influence of Service Quality and Price Fairness on Customer Loyalty through a dual mediation model involving Customer Satisfaction and Customer Trust, while comparing the effectiveness of transactional learning and relational learning pathways in building loyalty within an independent workshop context. A quantitative explanatory cross-sectional design was employed. Data were collected from customers who had visited Bengkel NM at least twice within the preceding eighteen months using purposive sampling, and were analyzed through Partial Least Squares Structural Equation Modeling. The findings reveal that Service Quality has a positive and significant direct effect on Customer Satisfaction, Customer Trust, and Customer Loyalty, while Price Fairness is only proven to significantly influence Customer Trust. The direct effect of Price Fairness on Customer Loyalty was not significant. Although all four specific mediation paths were individually non-significant, Service Quality was proven to operate through aggregate mediation, categorized as complementary partial mediation, whereas Price Fairness demonstrated a non-mediation pattern. The novelty of this research lies in testing a dual mediation model that simultaneously compares satisfaction and trust pathways within the context of an Indonesian independent workshop with premium pricing characteristics. The findings indicate an evaluative fusion phenomenon between Customer Satisfaction and Customer Trust, suggesting that in services characterized by high technical information asymmetry, customers tend to merge satisfaction and trust evaluations into a single holistic assessment, rendering the independence of both pathways unverifiable through cross-sectional design.

INTRODUCTION

The NM Workshop, a workshop in Malang Regency that has been operating for more than 30 years, faces a crucial strategic dilemma (Pangestu & Prestiadi, 2025; Pratama et al., 2025; Supriyanto et al., 2025). Internal data shows that only 31% of customers have performed repeat service in the past 18 months, even though service prices are 15-20% higher than competitors (Joy et al., 2024; Law et al., 2022; Lin et al., 2023). Management is faced with two choices, namely lowering prices at the risk of eroding margins without guaranteeing long-term loyalty increases, or maintaining premium prices with a focus on improving service quality that requires a large investment. As an independent workshop that operates independently, resource allocation decisions in the midst of fierce automotive competition are speculative and high-risk. Without empirical evidence of the dominant factors influencing customer loyalty, it is

difficult for workshops to accurately prioritize services (Ghimire et al., 2025; C. Lim & Kim, 2024; W. M. Lim et al., 2025; Twaha & Taifa, 2025).

Customer loyalty is a critical factor in the competitive automotive repair shop industry, where loyal customers not only perform repetitive service, but also provide positive word-of-mouth and become less sensitive to competitors' offers (Hong & Kim, 2020). Building customer loyalty is a more cost-effective strategy than constantly looking for new customers, especially for independent workshops with limited resources such as the NM Workshop.

To identify the right loyalty building strategy for the NM Workshop, previous research has identified service quality and price fairness as factors that affect customer loyalty. Hong and Kim (2020) found that service quality has a significant influence on customer satisfaction and customer trust in the context of automotive repair shops. So et al. (2025) found that customer satisfaction fully mediates the influence of perceived service quality on customer loyalty. Soelasih et al. (2024) show that price fairness and service quality together affect customer satisfaction and trust. However, research that integrates service quality and price fairness as an antecedent with customer satisfaction and customer trust as dual mediators in the context of independent workshops in Indonesia is still limited, especially in workshops that apply premium prices and repeat rates low. Previous research tended to focus on only one mediator variable, even though in reality satisfaction and trust can work simultaneously. In addition, the context of an independent workshop has unique characteristics compared to formal workshops, namely price flexibility and personalization of services, which require a separate research approach. The novelty of this research lies in testing a dual mediation model (satisfaction and trust) simultaneously within an Indonesian independent workshop characterized by premium pricing and low repeat rates, an approach not previously explored in the automotive after-sales service literature.

Based on the background, the problems of this research are formulated as follows. First, does service quality affect customer satisfaction and customer trust at the NM Workshop? Second, does price fairness affect customer satisfaction and customer trust at the NM Workshop? Third, do service quality, price fairness, customer satisfaction, and customer trust affect customer loyalty at the NM Workshop? Fourth, do customer satisfaction and customer trust mediate the relationship between service quality and price fairness to customer loyalty, and what is the pattern of mediation that occurs (full, partial, or no mediation)?

Based on the formulation of the problem that has been prepared, this research is carried out with the following objectives. First, analyzing the influence of service quality on customer satisfaction and customer trust. Second, analyzing the influence of price fairness on customer satisfaction and customer trust. Third, analyzing the influence of service quality, price fairness, customer satisfaction, and customer trust on customer loyalty. Fourth, examining the role of customer satisfaction and customer trust mediation in the relationship between service quality and price fairness to customer loyalty, and identifying the type of mediation that occurs.

This research makes two contributions. Theoretically, this study fills a methodological gap by testing a dual mediation model (satisfaction and trust) to compare transactional and relational pathways simultaneously, an approach that is still rarely explored, especially in the context of independent workshops with the characteristics of premium pricing and repeat rate low. Meanwhile, managerially, the results of the research will be a guide for NM Workshops and similar workshops in allocating resources appropriately. Whether to prioritize price

efficiency (satisfaction) or strengthen long-term relationships (trust) to overcome the dilemma between price strategy and service quality.

METHOD

This research uses a quantitative approach with a cross-sectional explanatory research design (data is collected at one point in time). This method was chosen to test the influence of causality and measure the strength/direction of the relationship between variables, in accordance with the testing objectives of the theoretical model developed from Consumer Behavior Theory (So et al., 2025; Hong & Kim, 2020). This explanatory design allows testing of the relationship between independent variables (Service Quality, Price Fairness), mediation variables (Customer Satisfaction, Customer Trust), and dependent variables (Customer Loyalty) through Structural Equation Modeling (SEM). The cross-sectional approach was chosen because of its time and cost efficiency and suitability for identifying current relationship patterns.

The object of the research is the NM Workshop in Malang Regency, East Java. The election is based on several reasons. First, long experience (more than 30 years) and a customer base that has been formed. Second, there is a strategic dilemma faced regarding the relatively low repeat rate (31%) and the decision between the price war strategy versus improving service quality. Third, the complexity of services (two-wheeled, four-wheeled, and parts sales) that allows multidimensional service quality exploration. Fourth, the characteristics of independent workshops (price flexibility and personalization of services) are still rarely studied in Indonesia, so that research findings can be generalized to similar independent workshops. The combination of premium prices and low repeat rates, as well as the research gap (dual mediation has not been tested in the context of independent Indonesian workshops) make the NM Workshop an ideal case for this research.

The subject of the study was a customer of the NM Workshop who used maintenance/repair services. Subjects are chosen because they are the ones who directly evaluate quality, price, and form loyalty. Subjects are heterogeneous to represent different customer segments.

The population in this study includes all NM Workshop customers whose exact number is unknown, so the sample determination is carried out using non-probability sampling techniques through the purposive sampling method. The inclusion criteria set for respondents include individuals who are at least 17 years old who are able to understand Indonesian, are willing to participate voluntarily by filling out a complete questionnaire, and act as direct decision-makers regarding the services used. In addition, to ensure a repeatable experience and accurate perception of loyalty, respondents must have used the NM Workshop service at least twice in the last 18 months.

The sample size in this study was determined based on the recommendation of Hair et al. (2017) for PLS-SEM, which is 5 to 10 times the number of indicators in the model. With 29 measurement indicators (Table 1), the minimum sample size is 145 respondents and a maximum of 290 respondents. This study set a target of 150 respondents, considering the limited repeat customer population (31%) in the NM Workshop.

This study involved five variables. Two independent variables (Service Quality and Price Fairness), two mediation variables (Customer Satisfaction and Customer Trust), and one

dependent variable (Customer Loyalty). All variables were measured using a 5-point Likert scale, ranging from Strongly Disagree (1) to Strongly Agree (5), consistent with the research of Mushagalusa (2021) and Febriyanti (2023).

Table 1. Operationalization of Variables, Indicators, and Questionnaire

Variable	Dimensions	Indicators/Question Items
Service Quality (X1) Source: Setiawan (2020)	Reliability	1. NM workshop completed my vehicle service on time 2. NM workshop provides consistent service every time I come
	Insurance (Guarantee)	3. I felt safe leaving my vehicle at an NM workshop 4. I am very pleased with the quality assurance provided by the NM workshop
	Facilities	5. The facilities at the NM workshop are in decent condition 6. NM workshop has good supporting facilities
	Employee	7. NM workshop employees are professional 8. NM workshop employees are always ready to help me
	Service Pattern	9. NM Workshop offers a wide variety of services that I need 10. NM workshop operational schedule according to my needs 11. NM Workshop provides reliable routine service
	Customization	12. NM workshop understands the specific needs of my vehicle 13. NM Workshop gives personal attention to me as a customer
	Responsiveness	14. The service completion process at the NM workshop is fast 15. NM workshop employees are always ready to help when I need help
Price Fairness (X2) Source: Setiawan (2020)	Affordable	1. The price of the service at the NM workshop was affordable for me
	Equal Pricing	2. The price set by this workshop is the same for all customers
	Fair Relative	3. The prices at this workshop are fair when compared to other workshops
	Meeting Expectations	4. The price I paid was in line with my expectations
	Value for Money	5. The price I pay is in accordance with the quality of service I receive
Customer Satisfaction (M1) Source: Setiawan (2020)	Pleased	1. I feel happy with the service provided by NM workshop
	Expectations	2. NM workshop service met my expectations
	Experience	3. Overall, I had a satisfying experience at NM workshop
Customer Trust (M2) Source: Setiawan (2020)	Works Properly	1. NM workshop works professionally
	Trustworthy	2. NM Workshop can be trusted in providing accurate information
	Keeps Promises	3. NM Workshop always fulfills the commitments that have been given
Customer Loyalty (Y) Source: Moreira (2014)	Speak Positively	1. I will speak positively about NM workshops to others
	Recommend	2. I would recommend NM workshops to people who need similar services
	Encourage Others	3. I would encourage others to use NM repair shop services.

Primary data is collected through questionnaires that are distributed directly (on-site) to NM Workshop customers at the time they perform services. Data collection was carried out face-to-face at the workshop location. Respondents were given an explanation of the purpose

of the research, the guarantee of data confidentiality, and the voluntary nature of participation. After expressing their willingness, respondents fill out a questionnaire through a Google Form which can be accessed via a personal smartphone (via a link) or through a tablet provided by the researcher if the respondent does not bring a smartphone. The questionnaire consists of a screening questions section to ensure that the purposive sampling criteria are met, respondent demographic data, and twenty-nine (29) question items to measure five (5) main variables of the research

The selection of this method is based on several considerations. First, the NM Workshop does not have a customer contact database, so the distribution of purely online questionnaires cannot be carried out. Second, the on-site method is expected to produce a better response rate than online surveys. Third, the use of Google Forms allows automatic tabulation of data and reduces the risk of human error in data entry. Fourth, respondents fill out questionnaires immediately after or during the service process, so that the evaluation of service quality, price fairness, satisfaction, trust, and loyalty is still fresh in the respondents' memory.

Data collection was carried out in March 2026, which includes various days of the week (weekdays and weekends) as well as various operational hours (morning, noon, evening) to ensure a good representation of different customer segments. To reduce the potential tendency of respondents to give answers that are considered positive because they are at the workshop location, the researcher emphasizes the anonymity of the respondents and that there are no right or wrong answers. Respondents were also given complete privacy during the questionnaire filling out to ensure honesty in answering each question.

This study uses Structural Equation Modeling (SEM) based on Partial Least Squares (PLS-SEM) with the help of SmartPLS software. The selection of PLS-SEM was based on several considerations, namely the ability to test complex structural models with two mediators simultaneously, effective for relatively small sample sizes (150 respondents), not requiring strict normal distribution assumptions, and suitability for explanatory research in new contexts (Hair et al., 2019). This approach is consistent with the research of Mujianto (2023), Febriyanti (2023), and Dhaigude (2023) who also use PLS-SEM to analyze customer loyalty models in the context of the service industry.

Data analysis will be carried out through several stages. First, a descriptive analysis will be carried out to describe the profile of the respondents and the characteristics of the research variables. Second, data screening will be carried out to ensure data quality and ensure that purposive sampling criteria are met. Third, an evaluation of the measurement model (outer model) will be carried out to test the validity and reliability of the research instrument, where the convergent validity is met if the Average Variance Extracted (AVE) value is > 0.5 and the discriminant validity is fulfilled if each indicator has the highest outer loading on its own construct compared to its loading on other constructs (cross loadings). Fourth, an evaluation of the structural model (inner model) will be carried out to assess the quality of the model and its predictive ability. Fifth, hypothesis testing will be carried out through a bootstrapping procedure with 5,000 subsamples to obtain t-statistical and p-values. The hypothesis is accepted if the p-value is <0.05 or the t-statistic >1.96. Sixth, mediation analysis will be conducted to test the role of Customer Satisfaction and Customer Trust as mediators, by identifying the types of mediation (full, partial, or no mediation) based on the significance of direct and indirect influence.

RESULTS AND DISCUSSION

Descriptive Analysis

Data collection was carried out through the distribution of questionnaires to NM Workshop customers who met the purposive sampling criteria, namely customers who have made service visits at least twice in the last 18 months. From the total questionnaires distributed, 156 valid respondents were obtained who met all screening requirements. This number has met the minimum sample requirements based on the rule of thumb Hair et al. (2017) for PLS-SEM, which is 5 to 10 times the number of indicators in the model (29 indicators × 5 = 145 minimum respondents). The data analysis used SmartPLS 4 software with the PLS-SEM method, which was chosen for its ability to test complex models with dual mediator constructs without requiring the assumption of strict data distribution normality. The following is an overview of the overall respondent profile.

Table 2. Gender of NM Workshop Respondents

Gender	Quantity	Percentage
Male	92	59.0%
Women	64	41.0%
Total	156	100%

Source: Processed Data, 2026

Respondents were dominated by 92 men (59.0%), while female respondents amounted to 64 people (41.0%). The dominance of men in this study is in line with the general characteristics of automotive workshop customers, where the active use and maintenance of vehicles is still more carried out by men. However, the proportion of women who make up more than a third of the total respondents indicates that the NM Workshop also has a significant female customer base.

Table 3. Age of NM Workshop Respondents

Age Group	Quantity	Percentage
17-25 years old	40	25.6%
26-35 years old	55	35.3%
36-45 years old	19	12.2%
46-55 years old	17	10.9%
Over 55 years old	25	16.0%
Total	156	100%

Source: Processed Data, 2026

The age group of 26–35 years was the largest group with 55 respondents (35.3%), followed by the 17–25-year-old group with 40 respondents (25.6%). Cumulatively, the productive age group of 17–35 years comprised 60.9% of all respondents. These findings illustrate that the dominant segment of the NM Workshop is young to early adulthood productive age group who are generally active in using vehicles for daily work mobility purposes. On the other hand, the presence of an age group over 55 years old which reached 16.0% indicates the presence of long-term loyal customers who have been using the services of the NM Workshop for a long time, consistent with the operational age of the workshop which has been running for more than 30 years.

Table 4. NM Workshop Respondent Job

Jobs	Quantity	Percentage
Private Employees	79	50.6%
Self-Employed/Entrepreneur	38	24.4%
Housewives	14	9.0%
Student/Student	6	3.8%
Others	6	3.8%
Civil Servant/TNI/Polri	5	3.2%
Professional	5	3.2%
Retirees	3	1.9%
Total	156	100%

Source: Processed Data, 2026

Private employees are the largest occupational group with 79 respondents (50.6%), followed by self-employed/entrepreneurs as many as 38 respondents (24.4%). The two together accounted for 75.0% of the total respondents. This profile reflects the segment of customers who have a fixed income or independent business, who are economically able to reach the price of the services provided by the NM Workshop.

Table 5. Domicile of NM Workshop Respondents

Area	Quantity	Percentage
Malang City	79	50.6%
Malang Regency	67	43.0%
Outside Malang	10	6.4%
Total	156	100%

Source: Processed Data, 2026

Note: Malang City covers the area of Malang City and its surroundings (Sukun, Kedungkandang, Klojen, Lowokwaru, and Blimbing). Malang Regency includes Pakisaji, Kepanjen, Bululawang, Tajinan, Turen, and other areas of Malang Regency.

The distribution of respondents' domicile shows an almost even balance between Malang City (50.6%) and Malang Regency (43.0%). This indicates that the market reach of the NM Workshop exceeds the area around the workshop location and has reached a wider area in Malang Raya.

Table 6. Vehicle Type of NM Workshop Respondent

Vehicle Type	Quantity	Percentage
Motorcycles	97	62.2%
Mobile	58	37.2%
Others	1	0.6%
Total	156	100%

Source: Processed Data, 2026

Motorcycles are the most serviced type of vehicle, namely 97 respondents (62.2%), while car customers reach 58 respondents (37.2%). This composition reflects the mobility pattern of the people of Malang, which is still dominated by motorcycle users, as well as showing that the NM Workshop has succeeded in serving both. The proportion of car customers which reaches more than one-third of the total respondents is a high-value segment considering that the transaction value of car servicing is generally greater than that of motorcycles, and contributes significantly to the premium positioning of the NM Workshop.

Table 7. Respondents' Information Sources Know NM Workshop

Resources	Quantity	Percentage
Family/Friend Recommendations	88	56.4%
Walk-in	34	21.8%
Subscribed for a long time	20	12.8%
Social Media (Instagram/TikTok)	10	6.4%
Google / Online Search	4	2.6%
Total	156	100%

Source: Processed Data, 2026

The most prominent finding in the respondent profile was that more than half of the respondents (56.4%) learned of the NM Workshop through the recommendations of family or friends. When combined with long-term subscribers (12.8%), 69.2% of customers come through word-of-mouth and long-term loyalty. This reinforces the relevance of this research which focuses on customer satisfaction, customer trust, and customer loyalty. On the other hand, the contribution of social media and online searches that are still relatively small (9.0% in total) identify growth potential that can be optimized through digital marketing strategies.

Table 8. Frequency of NM Workshop Respondent Visits

Frequency of Visits	Quantity	Percentage
2 times	25	16.0%
More than 2 times	131	84.0%
Total	156	100%

Source: Processed Data, 2026

As many as 84.0% of respondents have used NM Workshop services more than twice, and only 16.0% are at the minimum limit of two visits. This distribution is consistent with the purposive sampling criterion that requires a minimum of two visits in the last 18 months, but more than that it shows that the majority of respondents are active repeat customers, so their perspectives on service quality, price fairness, satisfaction, trust, and loyalty have a strong and relevant experience base to analyze.

Table 9. Time of the Respondent's Last Visit to the NM Workshop

Last Visit Time	Quantity	Percentage
Less than 1 month ago	56	35.9%
1-6 months ago	79	50.6%
6-12 months ago	15	9.6%
12-18 months ago	6	3.8%
Total	156	100%

Source: Processed Data, 2026

86.5% of respondents visited NM Workshop in the last 6 months (less than 1 month (35.9%) and 1–6 months (50.6%)). This shows that most of the respondents are still actively interacting with the workshop in the short term, so their assessment of all research variables, especially service quality and price fairness, is fresh and based on recent experience. Only 13.4% of respondents whose last visit was in the range of 6–18 months, which is still within the 18-month sampling criteria limit.

Outer Model Test Results

The evaluation of the outer model is carried out to verify that the measurement instrument used validly and reliably measures the construct in question. The evaluation included four aspects which included convergent validity through outer loadings and Average Variance Extracted (AVE), construct reliability through Composite Reliability (CR) and Cronbach's Alpha, discriminant validity through cross loadings, and outer model multicollinearity test through Variance Inflation Factor (VIF).

Outer Loadings (Validities Convergence)

The validity of the convergence is assessed first through the outer loading value of each indicator. According to Hair et al. (2019), the acceptable outer loading is ≥ 0.70. The results of the calculation with 5,000 bootstrapping subsamples are presented in Table 10.

Table 10. Outer Loadings Test Results (n=156, Bootstrapping 5,000 Subsamples)

Variable	Indicator	Loading	T-stat	p-value	CI [2.5%; 97.5%]	Remarks
Customer Loyalty (CL)	CL1	0.871	16.954	<0.001	[0.742; 0.937]	✓
	CL2	0.910	39.224	<0.001	[0.856; 0.946]	✓
	CL3	0.911	39.178	<0.001	[0.857; 0.947]	✓
Customer Satisfaction (CS)	CS1	0.912	33.620	<0.001	[0.843; 0.949]	✓
	CS2	0.925	43.256	<0.001	[0.873; 0.955]	✓
	CS3	0.931	41.065	<0.001	[0.872; 0.960]	✓
Customer Trust (CT)	CT1	0.908	34.951	<0.001	[0.843; 0.944]	✓
	CT2	0.906	37.636	<0.001	[0.850; 0.943]	✓
	CT3	0.891	27.202	<0.001	[0.805; 0.934]	✓
Price Fairness (PF)	PF1	0.843	20.805	<0.001	[0.750; 0.902]	✓
	PF2	0.868	28.823	<0.001	[0.796; 0.913]	✓
	PF3	0.857	25.818	<0.001	[0.779; 0.908]	✓
	PF4	0.916	49.952	<0.001	[0.873; 0.944]	✓
	PF5	0.896	39.639	<0.001	[0.843; 0.933]	✓
Service Quality (SQ)	SQ1	0.794	14.368	<0.001	[0.660; 0.875]	✓
	SQ2	0.852	22.198	<0.001	[0.758; 0.908]	✓
	SQ3	0.769	10.978	<0.001	[0.596; 0.864]	✓
	SQ4	0.855	20.458	<0.001	[0.749; 0.913]	✓
	SQ5	0.854	29.712	<0.001	[0.789; 0.902]	✓
	SQ6	0.840	24.221	<0.001	[0.758; 0.893]	✓
	SQ7	0.851	19.783	<0.001	[0.745; 0.909]	✓
	SQ8	0.829	16.722	<0.001	[0.704; 0.896]	✓
	SQ9	0.844	25.555	<0.001	[0.768; 0.898]	✓
	SQ10	0.707	9.716	<0.001	[0.533; 0.814]	✓
	SQ11	0.871	23.716	<0.001	[0.782; 0.922]	✓
	SQ12	0.852	21.174	<0.001	[0.752; 0.910]	✓
	SQ13	0.824	26.669	<0.001	[0.757; 0.878]	✓
	SQ14	0.864	27.191	<0.001	[0.788; 0.913]	✓
	SQ15	0.836	20.795	<0.001	[0.738; 0.896]	✓

Source: Smart PLS 4.0 (2026)

Based on Table 10, all 29 indicators have an outer loading above the threshold of 0.70, with a value range between 0.707 (SQ10) to 0.931 (CS3). The entire T-value statistically exceeds 1.96 with a p-value < 0.001, indicating that all outer loading is statistically significant.

Thus, the convergent validity at the indicator level is met for the entire construct in this research model, and no indicators need to be eliminated.

Reliability and Validity of Variables

Construct reliability was evaluated using Cronbach's Alpha (α), Composite Reliability based on rho_a (ρa), and Composite Reliability based on rho_c (ρc). Convergent validity at the construct level is measured through Average Variance Extracted (AVE). The threshold refers to Hair et al. (2019), which are α ≥ 0.70, CR ≥ 0.70, and AVE ≥ 0.50. The results are presented in Table 11.

Table 11. Variable Reliability and Validity Test Results

Variable	Cronbach's α	A	ρc	AVE	Remarks
Threshold ≥	0.70	0.70	0.70	0.50	
Customer Loyalty (CL)	0.879	0.881	0.925	0.805	✓
Customer Satisfaction (CS)	0.913	0.913	0.945	0.852	✓
Customer Trust (CT)	0.885	0.885	0.929	0.813	✓
Price Fairness (PF)	0.924	0.928	0.943	0.768	✓
Service Quality (SQ)	0.968	0.969	0.971	0.690	✓

Source: Smart PLS 4.0 (2026)

Table 11 shows that all five constructs in the model have Cronbach's Alpha values between 0.879 to 0.968, Composite Reliability (ρc) between 0.925 to 0.971, and AVE between 0.690 to 0.852. All values exceed the required threshold, so that the reliability and convergent validity of all constructs are declared met. AVE Service Quality (0.690) is the lowest but still well above the minimum limit of 0.50, which is understandable considering that SQ is measured by 15 indicators covering various service dimensions.

Discriminant Validity

The validity of the discriminator was tested using the cross-loading method, which is by checking whether each indicator has the highest load on the construct that should be measured compared to its loading on other constructs. The criteria are met if the outer loading of each indicator in the construct itself is greater than the entire cross loading of the other construct (Hair et al., 2017).

Table 12. Results of the Discriminant Validity Test - Cross Loading

Indicator	CL	CS	CT	PF	SQ	Remarks
CL1	**0.8711**	0.7299	0.7142	0.6701	0.7315	Valid
CL2	**0.9096**	0.7868	0.7896	0.7548	0.7979	Valid
CL3	**0.9107**	0.7411	0.7736	0.7370	0.7855	Valid
CS1	0.7545	**0.9117**	0.8130	0.7500	0.8258	Valid
CS2	0.7796	**0.9253**	0.8264	0.7823	0.8601	Valid
CS3	0.7886	**0.9312**	0.8513	0.7568	0.8328	Valid
CT1	0.7682	0.8438	**0.9078**	0.7648	0.8451	Valid
CT2	0.7680	0.7925	**0.9061**	0.7345	0.8268	Valid
CT3	0.7546	0.7971	**0.8910**	0.7737	0.7909	Valid
PF1	0.5905	0.6537	0.6407	**0.8431**	0.6728	Valid
PF2	0.7157	0.7536	0.7531	**0.8678**	0.7811	Valid

PF3	0.6714	0.6928	0.7158	**0.8571**	0.7465	Valid
PF4	0.7359	0.7359	0.7683	**0.9156**	0.7783	Valid
PF5	0.7901	0.7764	0.7889	**0.8961**	0.8176	Valid
SQ1	0.7068	0.7324	0.6933	0.6693	**0.7937**	Valid
SQ2	0.7589	0.7816	0.7620	0.7758	**0.8520**	Valid
SQ3	0.6086	0.7169	0.6741	0.6902	**0.7691**	Valid
SQ4	0.7775	0.7703	0.7649	0.7290	**0.8546**	Valid
SQ5	0.7056	0.7704	0.7362	0.7492	**0.8537**	Valid
SQ6	0.7386	0.7504	0.7694	0.7347	**0.8395**	Valid
SQ7	0.7216	0.8007	0.7855	0.7058	**0.8507**	Valid
SQ8	0.7178	0.7741	0.7292	0.6732	**0.8289**	Valid
SQ9	0.7248	0.7883	0.7819	0.7063	**0.8439**	Valid
SQ10	0.5970	0.6264	0.6818	0.5973	**0.7074**	Valid
SQ11	0.7534	0.7904	0.8274	0.7557	**0.8711**	Valid
SQ12	0.7318	0.7498	0.8062	0.7531	**0.8524**	Valid
SQ13	0.7355	0.7594	0.7427	0.8186	**0.8245**	Valid
SQ14	0.7067	0.7915	0.7897	0.7680	**0.8638**	Valid
SQ15	0.7163	0.7175	0.7850	0.6888	**0.8362**	Valid

Source: Smart PLS 4.0 (2026)

Based on Table 12, all 29 indicators meet these criteria. Each indicator consistently has the highest loading value on the construct that measures it, with a bolded value that always outweighs all values on the same line. Thus, the discriminant validity at the indicator level is stated to be fulfilled for all constructs in this research model.

Multicollinearities Outer Model (VIF)

The outer model multicollinearity test was carried out through VIF with a threshold of < 5.0 (Hair et al., 2019). All 29 indicators have a VIF below 5.0, with the highest values being SQ7 (4,359), SQ14 (4,170), and SQ11 (4,128). There is no problem of multicollinearity at the outer model level, and all indicators are maintained in the analysis.

Table 13. Outer Model (VIF) Multicollinearity Test Results

Variable	LIVE	Variable	LIVE	Variable	LIVE
CL1	2.119	PF1	2.534	SQ6	4.122
CL2	2.648	PF2	2.725	SQ7	4.359
CL3	2.718	PF3	2.616	SQ8	3.668
CS1	2.854	PF4	4.118	SQ9	3.912
CS2	3.210	PF5	3.484	SQ10	2.135
CS3	3.448	SQ1	3.000	SQ11	4.128
CT1	2.621	SQ2	3.923	SQ12	3.680
CT2	2.614	SQ3	2.675	SQ13	3.045
CT3	2.354	SQ4	3.923	SQ14	4.170
		SQ5	3.683	SQ15	3.574

Source: Smart PLS 4.0 (2026)

Inner Model Test Results

The evaluation of the inner model includes the determination coefficient (R^2), the fit model through SRMR, and the effect size (f^2). The results are presented in Table 14 and Table 15.

Table 14. Coefficient of Determination (R^2) and Model Fit (SRMR)

Criteria	Value	Threshold	Remarks
R^2 Customer Loyalty	0.776	≥ 0.25	Strong (≥ 0.75)
R^2 Customer Satisfaction	0.833	≥ 0.25	Strong (≥ 0.75)
R^2 Customer Trust	0.839	≥ 0.25	Strong (≥ 0.75)
SRMR (Saturated Model)	0.044	< 0.08	Model Fit
SRMR (Estimated Model)	0.044	< 0.08	Model Fit

Source: Smart PLS 4.0 (2026)

The model has a strong R^2 for all endogenous variables. Customer Loyalty can be explained by 77.6% of the predictor variables, categorized as strong (Hair et al., 2019). Customer Satisfaction ($R^2 = 0.833$) and Customer Trust ($R^2 = 0.839$) were also categorized as strong, respectively, with the contribution dominated by Service Quality compared to other variables. The SRMR of 0.044 for both models (saturated and estimated) was well below the threshold of 0.08, indicating a good fit model.

Table 15. Effect Size (f^2) of each structural strip

Jalur	f^2	Category	Interprets
SQ ↔ CS	0.896	Large (≥ 0.35)	SQ dominates CS variance strongly
SQ ↔ CT	0.827	Large (≥ 0.35)	SQ dominates CT variance strongly
SQ ↔ CL	0.053	Small (≤ 0.15)	SQ makes a small contribution to CL
PF ↔ CT	0.060	Small (≤ 0.15)	PF makes a small contribution to CT
CT ↔ CL	0.037	Small (≤ 0.15)	CT makes a small contribution to CL
PF ↔ CS	0.032	Small (≤ 0.15)	PF makes a small contribution to CS
PF ↔ CL	0.024	Small (≤ 0.15)	PF makes a small contribution to CL
CS ↔ CL	0.023	Small (≤ 0.15)	CS makes a small contribution to CL

Source: Smart PLS 4.0 (2026)

Table 15 confirms the dominance of SQ with a very large effect size against CS ($f^2 = 0.896$) and CT ($f^2 = 0.827$). Meanwhile, the effect size of Service Quality on Direct Customer Loyalty and all paths involving PF and the two mediators towards Customer Loyalty has a small effect size ($f^2 < 0.10$).

Multicollinearities Inner Model (VIF)

Table 16. Multicollinearity Inner Model (VIF)

Jalur	LIVE	Status (threshold < 10.0)
CS → CL	7.078	Within the Limits
CT → CL	7.329	Within the Limits
SQ → CL	9.174	Within the Limits
PF → CL	4.372	Within the Limits
PF → CS	4.095	Within the Limits
PF → CT	4.095	Within the Limits
SQ → CS	4.095	Within the Limits
SQ → CT	4.095	Within the Limits

Source: Smart PLS 4.0 (2026)

Multicollinearity at the inner level of the model is evaluated for pathways to Customer Loyalty. Table 16 shows the entire structural path showing a VIF value below threshold 10. Thus, there is no problem of multicollinearity in the inner model of this study, and the estimated path coefficient can be interpreted appropriately.

Hypothesis Testing

Hypothesis testing was carried out through bootstrapping with 5,000 subsamples, two-tailed test, and significance level 0.05. The hypothesis is accepted if the p-value < 0.05 and the confidence interval of 95% does not exceed 0. The test results are presented in Table 17.

Table 17. Results of Direct Influence Hypothesis Testing

H	Jalur	b	T-Stat	p-value	CI 95%	Verdict
H1	SQ → CL	0.330	2.354	0.019	[0.068; 0.616]	Accepted
H2	PF → CL	0.152	1.642	0.101	[-0.038; 0.330]	Rejected
H3	SQ → CS	0.782	7.566	< 0.001	[0.570; 0.969]	Accepted
H4	SQ → CT	0.739	8.089	< 0.001	[0.533; 0.895]	Accepted
H5	PF → CS	0.147	1.317	0.188	[-0.067; 0.369]	Rejected
H6	PF → CT	0.198	2.139	0.033	[0.032; 0.394]	Accepted
H7	CS → CL	0.192	1.498	0.134	[-0.059; 0.450]	Rejected
H8	CT → CL	0.247	1.792	0.073	[-0.019; 0.521]	Rejected

Source: Smart PLS 4.0 (2026)

Based on Table 17, four of the eight direct influence hypotheses are accepted. Service Quality has been shown to have a significant effect on Customer Satisfaction (H3: $\beta = 0.782$, $p < 0.001$), Customer Trust (H4: $\beta = 0.739$, $p < 0.001$), and Customer Loyalty directly (H1: $\beta = 0.330$, $p = 0.019$). Price Fairness was only shown to have a significant effect on Customer Trust (H6: $\beta = 0.198$, $p = 0.033$). The hypotheses of H5 (PF → CS), H7 (CS → CL), H8 (CT → CL), and H2 (PF → CL) were not proven to be significant, with confidence intervals exceeding 0 for all four pathways.

Mediation Testing (Indirect Effect)

The mediation analysis examines the role of Customer Satisfaction and Customer Trust as mediators of the influence of Service Quality and Price Fairness on Customer Loyalty. The results of specific indirect effects and total indirect effects are presented in Table 18.

Table 18. Mediation Effect Test Results

H	Mediation Pathway	b	T-Stat	p-value	CI 95%	Types of Mediation	Verdict
H9a	SQ → CS → CL	0.150	1.523	0.128	[-0.046; 0.346]	Non-mediation	Rejected
H9b	PF → CS → CL	0.028	0.809	0.419	[-0.015; 0.121]	Non-mediation	Rejected
H10a	SQ → CT → CL	0.182	1.740	0.082	[-0.014; 0.396]	Non-mediation	Rejected
H10b	PF → CT → CL	0.049	1.330	0.184	[-0.005; 0.134]	Non-mediation	Rejected
H9	SQ → CL	0.332	3.288	0.001	[0.118; 0.520]	Partial Mediation	Accepted
H10	PF → CL	0.077	1.577	0.115	[0.003; 0.192]	Non-mediation	Rejected

Source: Smart PLS 4.0 (2026)

Referring to the mediation analysis framework in PLS-SEM (Nitzl et al., 2016), the type of mediation is determined based on the combination of significance of direct and indirect influences. Based on this framework, the four specific mediation hypotheses were not proven to be significant individually (H9a: $\beta = 0.150$; $p = 0.128$; H9b: $\beta = 0.028$; $p = 0.419$; H10a: $\beta = 0.182$; $p = 0.082$; H10b: $\beta = 0.049$; $p = 0.184$) and categorized as non-mediated. This study

takes a conservative approach while still referring to p-value and t-statistics (Hair et al., 2019) so that these specific pathways are still categorized as non-mediated.

However, the total indirect effect of Service Quality on Customer Loyalty through the combination of Customer Satisfaction and Customer Trust was proven to be significant (β = 0.332; T = 3.288; p = 0.001). Since the direct effect of SQ → CL is also significant (β = 0.330; p = 0.019), this pattern is categorized as partial mediation at the aggregate level. This indicates an evaluative fusion, where customer satisfaction and trust work simultaneously and are difficult to partially separate in driving loyalty. In contrast, the total indirect effect of Price Fairness remained insignificant (β = 0.077; p = 0.115).

Before elaborating on the findings per hypothesis, it is important to understand the demographic context behind the data of this study. NM Workshop respondents were dominated by the productive group aged 17–35 years (60.9%) with a permanent job or entrepreneurship (75.0%). 56.4% knew about the NM Workshop through family or friend recommendations, and 12.8% were long-time customers, so 69.2% connected through word-of-mouth and loyalty channels. In addition, 84.0% had visited more than twice and 86.5% made a last visit in the past six months, indicating that respondents' evaluation of all research variables was based on fresh and relevant experiences. This profile forms a context in which Service Quality, Price Fairness, and loyalty are evaluated by value-oriented customers, and serves as an important conceptual background in reading all of the following findings.

H1: Service Quality → Customer Loyalty (Accepted)

Service Quality (SQ) has a positive and significant effect on Customer Loyalty (H1 accepted; β = 0.330). Consistent, high-quality service fosters routinized customer behavior, supported by repeat visits and word-of-mouth. Although the unique contribution of SQ appears small due to intercorrelations with other predictors, it remains a key driver that shapes the overall customer evaluation ecosystem. Long-term consistency, social validation, and accumulated experience, especially among older and returning customers, reinforce stable and repeatable loyalty patterns in NM Workshop.

H2: Price Fairness → Customer Loyalty (Rejected)

Price Fairness (PF) does not significantly influence Customer Loyalty (H2 rejected). NM Workshop's premium pricing (15–20% above competitors) targets customers who have already accepted higher prices, making variations in price perception insufficient to drive loyalty. Loyalty formation is instead rooted in deep service relationships, with price acting as a secondary factor. Lowering prices alone does not increase repeat visits when service quality and relational experience remain the primary determinants.

H3: Service Quality → Customer Satisfaction (Accepted)

Service Quality (SQ) has a strong positive effect on Customer Satisfaction (H3 accepted; β = 0.782). Observable service aspects speed, consistency, and technician professionalism activate transactional learning, particularly among productive-age customers (17–35 years), resulting in immediate and substantial satisfaction. SQ dominates satisfaction formation (f^2 = 0.896; R^2 = 0.833), leaving minimal room for other predictors, and validates that premium pricing aligns with perceived service quality. Findings confirm that NM Workshop consistently meets high customer expectations across demographic segments, consistent with prior meta-analytic evidence on service quality as a key driver of satisfaction.

H4: Service Quality → Customer Trust (Accepted)

Service Quality (SQ) has a positive and significant effect on Customer Trust (H4 accepted). Consistent and high-quality service activates relational learning, building trust beyond single transactions, especially in contexts with information asymmetry. Trust is reinforced through repeated experiences, recommendations, and hands-on interactions, making it cognitively robust and resistant to situational changes. SQ dominates trust formation (f^2 = 0.827; R^2 = 0.839), highlighting its critical role in establishing long-term confidence in NM Workshop's services.

H5: Price Fairness → Customer Satisfaction (Rejected)

Price Fairness (PF) does not significantly affect Customer Satisfaction (H5 rejected). Customers require comparative references or technical understanding to evaluate price fairness, which is difficult in automotive services. With Service Quality dominating satisfaction (f^2 = 0.896), price perception becomes a secondary factor, particularly for premium customers focused on value-for-quality rather than price sensitivity. Thus, price alone does not independently drive satisfaction; its relevance is contingent on the overarching service quality experience.

H6: Price Fairness → Customer Trust (Accepted)

Price Fairness (PF) has a positive and significant effect on Customer Trust (H6 accepted). Trust forms over time through relational learning, where perceived honesty and consistency of the workshop reinforce confidence, rather than short-term transactional evaluations. Although PF's contribution is smaller than Service Quality, it acts as a relational integrity signal that supports long-term trust. Repeated customer experience allows price fairness perceptions to accumulate into trust, making customers view pricing as consistent and reliable rather than variable.

H7: Customer Satisfaction → Customer Loyalty (Rejected)

Customer Satisfaction (CS) does not directly influence Customer Loyalty at NM Workshop (H7 rejected). Satisfaction, formed per visit through transactional learning, fluctuates and cannot alone generate stable loyalty. In this context, satisfaction and trust overlap in customers' evaluations, forming a holistic assessment. Limited repeat visits prevent differentiation between transactional satisfaction and relational trust, explaining why CS's unique effect on loyalty is undetectable in this cross-sectional model.

H8: Customer Trust → Customer Loyalty (Rejected)

Customer Trust (CT) does not directly influence Customer Loyalty at NM Workshop (H8 rejected). Although trust is built cumulatively through relational learning, it requires consistent experience to convert into behavioral loyalty. In this context, trust and satisfaction largely overlap in customers' evaluations, forming a single holistic assessment rather than two separate drivers. The cross-sectional design prevents detecting independent mediation, but trust still holds potential relational influence compressed by evaluative fusion with satisfaction.

H9: The Role of Customer Satisfaction as a Mediator (Rejected)

Customer Satisfaction (CS) did not significantly mediate the effects of Service Quality or Price Fairness on Customer Loyalty, as both indirect paths were not statistically significant. Satisfaction forms through short-term transactional learning per visit, making it fluctuating and insufficient alone to generate stable loyalty. High average satisfaction among NM Workshop customers, especially the productive-age group, meets basic expectations but does not

independently drive long-term loyalty. These findings highlight that satisfaction requires contextual conditions and cumulative experience to act as an effective mediator.

H10: The Role of Customer Trust as a Mediator (Rejected)

Customer Trust (CT) did not significantly mediate the effect of Service Quality or Price Fairness on Customer Loyalty, as both indirect paths were not statistically significant. Trust acts cumulatively over time through relational learning, making its impact on loyalty slower and dependent on consistency. Rather than operating independently, trust functions in combination with Customer Satisfaction, reinforcing loyalty alongside transactional satisfaction in the NM Workshop context.

Synthesis of Mediation Test Results

The evaluation at the level of total indirect effects provides a picture of mediation that is not fully visible if we only look at specific indirect effects individually, while helping to understand the main theoretical findings in this study. The combined contribution of Customer Satisfaction and Customer Trust as simultaneous mediators in the relationship between Service Quality and Customer Loyalty resulted in a coefficient of $\beta = 0.332$ with T-statistic = 3.288 and p-value = 0.001, with a confidence interval 95% of [0.118; 0.520] are all above zero. This shows that overall, there is a significant indirect influence. Since the direct effect of SQ → CL was also shown to be significant (H1: $\beta = 0.330$; $p = 0.019$), this relationship pattern is categorized as complementary partial mediation referring to the mediation analysis framework in PLS-SEM (Nitzl et al., 2016). In contrast, the combined contribution of the two mediators in mediating the influence of Price Fairness resulted in a coefficient of $\beta = 0.077$ with a p-value = 0.115, thus showing no significant indirect influence and confirming the non-mediating pattern.

Complementary partial mediation has a specific practical meaning. Service Quality does not work through a single mechanism, but through two mechanisms that run in the same direction and reinforce each other. The first pathway is cumulative experience-based direct influence, where customers who consistently receive quality services, re-establish habits without the need for explicit cognitive mediation. The second pathway is an indirect influence through the simultaneous activation of fusion satisfaction and trust, which although it cannot be detected specifically per pathway, in aggregate it proves to be significant. Complementary characteristics here mean that the two pathways reinforce each other. In other words, any investment in Service Quality provides dual benefits, both direct to loyalty and indirect through the formation of satisfaction and trust at the same time.

The findings that went beyond the initial expectations of this study lay in the contrast between the two levels of mediation testing. At the aggregate level, a significant effect was found ($\beta = 0.332$; $p = 0.001$). However, at the specific indirect effect level, the four individual pathways consistently showed no significance. This contrast is consistent with the interpretation of evaluative fusion, which is a condition in which two theoretically different mediators (Customer Satisfaction - Transactional and Customer Trust - Relational), tend to operate as if they were one evaluative entity that is difficult to partially parse in a cross-sectional design. In this condition, a pattern consistent with mediator collapse occurs, i.e. a condition in which the two mediator constructs carry substantially overlapping information

content so that it cannot show the influence of statistically distinguishable pathways in cross-sectional designs, although in aggregate the indirect mechanism is still proven to be significant.

The pattern indicated by this data, which in this study is interpreted as evaluative fusion, does not reflect the failure of the model, but rather reveals the theoretically relevant boundary condition, that the dual mediation model works fully only when the client has accumulated enough experience to distinguish transactional evaluation from cognitive relational evaluation. This condition has not been fully fulfilled in the customer base of the NM Workshop with a repeat rate of 31%.

CONCLUSION

This study aimed to test a dual mediation model with Customer Satisfaction and Customer Trust as simultaneous mediators explaining how Service Quality and Price Fairness affect Customer Loyalty at NM Workshop. Using PLS-SEM on 156 repeat customers (5,000 bootstrapping subsamples), the findings reveal that Service Quality positively and significantly affects both Customer Satisfaction and Customer Trust, confirming its ability to drive transactional and relational learning simultaneously, while Price Fairness only significantly affects Customer Trust (as an integrity signal) but not Customer Satisfaction. For direct effects on loyalty, only Service Quality has a significant influence; Customer Satisfaction, Customer Trust, and Price Fairness do not. Mediation testing shows that although the four specific indirect pathways are individually non-significant, Service Quality operates through aggregate complementary partial mediation shaping loyalty via a direct experience-based path and an indirect path through the simultaneous activation of satisfaction and trust whereas Price Fairness exhibits a non-mediated pattern, contributing neither directly nor indirectly to loyalty. The theoretical contribution of this research lies in two interrelated findings. First, this study successfully identifies a critical boundary condition where Customer Satisfaction and Customer Trust the two mediators in the dual mediation model collapse into a single evaluative entity rather than operating as independent pathways as predicted by classical Consumer Behavior Theory (Howard & Sheth, 1969).

This collapse is triggered by a combination of high technical information asymmetry (where customers cannot objectively evaluate work quality) and an immature customer experience base, reflected in the workshop's low repeat rate of only 31%. Under these conditions, satisfaction and trust merge into a holistic, statistically inseparable assessment, demonstrating that dual mediation only functions effectively when customers have accumulated sufficient experience to distinguish transactional evaluations from relational ones. Second, the findings on aggregate partial mediation for Service Quality confirm a layered learning mechanism within Consumer Behavior Theory, where consistent quality stimuli drive loyalty both directly (through experience-based habit formation) and indirectly (through the simultaneous activation of fused satisfaction and trust). This pattern is more accurately described as complementary partial mediation through fused mediators rather than through two independent mediation channels. Despite these contributions, this study has several limitations: the sample excludes non-repeat customers, preventing the model from explaining the causes of low repeat rates from a disloyal customer perspective; there is a significant imbalance in the number of indicators between constructs (fifteen for Service Quality versus only three to five for other constructs), which may cause respondent fatigue and contribute to high

multicollinearity (VIF values still below the threshold but indicating high intercorrelation); and the findings are context-specific to the NM Workshop ecosystem and cannot be generalized to other independent workshops without equivalent contextual analysis. Based on these limitations, future research should include non-repeat customers to enable direct comparison between loyalty and non-loyalty patterns, replicate the model in workshops with higher repeat rates or more mature relational contexts to confirm the satisfaction-trust fusion phenomenon, adopt longitudinal designs to capture the shift from transactional to relational learning more accurately than cross-sectional approaches, balance the number of indicators across constructs, and incorporate additional moderating variables such as perceived value or switching cost to enrich the explanation of customer loyalty variance.

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